ASSESSMENT OF THE ADOPTION AND LEVEL OF IMPLEMENTATION OF CLEANER PRODUCTION BY STAR-RATED HOTELS IN NAIROBI COUNTY, KENYA

BY

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A RESEARCH PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL STUDIES, FACULTY OF ARTS, UNIVERSITY OF NAIROBI IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN ENVIRONMENTAL PLANNING AND MANAGEMENT

FEBRUARY 2013

DECLARATION

Declaration by Candidate

I certify that this project is my original work and has not been submitted for examination in any other university.

Signed: _____ Date: _____

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C50/P/8902/2006

Declaration by Supervisors

This research project has been submitted for examination for the Degree of Master of Arts (Environmental Planning and Management) of the University of Nairobi with our approval as the candidate's appointed supervisors.

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ABSTRACT

The purpose of this study was to assess the adoption and level of implementation of Cleaner Production (CP) by star-rated hotels in Nairobi County. The specific objectives of the study were to: 1) assess which CP measures were being implemented by star-rated hotels, 2) determine what factors influence the adoption and implementation of CP by star-rated hotels; 3) assess the relationship between star-rating and CP implementation; 4) assess the relationship between CP implementation and compliance; and 5) assess the relationship between CP implementation and hotel occupancy. The study was a census involving all the twenty-four (24) star-rated hotels in Nairobi County: eight of which are in the 5-star category; one in 4-star; 11 in 3-star; and four in 2-star. Thirteen (13) hotels: four 5-star; one 4-star; five 3-star; and three 2-star (N=13; response rate of 54%) participated in the study. A survey of the hotels was conducted in the period January 2009 to July 2009. Primary data for the study was collected through a researcher-administered questionnaire, direct observations and interviews with key informants. The respondents in the survey included middle level managers and technical officers in various operational and technical areas. Secondary data was collected through a review of published and un-published reports.

The study found out that the level of awareness about CP among the star-rated hotels was generally good at 77 per cent. Key sources of information about CP were found to be the Ministry of Tourism and Wildlife (77%) and mother companies of hotel chains (38%). Perceptions that CP would enhance compliance with government laws and regulations, use of corporate social responsibility as the hotels' business strategy, commitment to good environmental and social practices, availability of new technology and expertise and peer competition were found to be the key factors that influenced the adoption and implementation of CP. Key barriers to the implementation of CP were found to be lack of government-led efforts and incentives, lack financing mechanisms and weak enforcement of relevant laws and regulations by the Government.

The hotels were found to be generally compliant with government regulations: 85% for National Environment Management Authority requirements and 77% for all the laws and regulations applicable to the hotel industry. The most common energy conservation measures included staff sensitization (100%), energy saving reminders for guests (77%) and installation of energy saving appliances (62%). However, these practices were not found to be adequate since

85% of the hotels did not have benchmarks, set targets and put measures in place to attain the targets. The same trend was noted in solid waste management and air pollution management. The hotels were found to be generally good at taking short-term measures but lacked mechanisms for continuous improvement. Only 31% of the hotels had green procurement policies and only 38% sensitized suppliers on green procurement practices. Seventy per cent (70%) of the hotels had developed food safety policies and trained relevant staff in their implementation. However, only 31% had undertaken relevant certification. On occupation healthy and safety, 85% of the hotels had a department charged with that responsibility and 70% had accomplished all occupational health and safety measures as prescribed by law. Sixty two per cent (62%) had clear and standard human resources management policies, 92% had employed local staff in key management positions, 85% paid competitive salaries and 70% allowed staff to join trade unions.

Spearman's rank correlation (ρ) analysis (at 0.05 level of significance) was used to determine significant relationships existed between star-rating and CP implementation; CP implementation and compliance, and CP implementation and hotel occupancy. The study found out that there is a significant positive relationship between star-rating and CP implementation (ρ=0.756, $p<0.05$) and between CP implementation and compliance of the hotels with government regulations (ρ=0.713, $p<0.05$). The study found no significant relationship between CP implementation and hotel occupancy (ρ=0.082, $p=0.789$).

On the basis of findings of this study, it is recommended that the Government of Kenya should develop a CP legislation to encourage and guide its integration in various industries including the hotel industry. The Government of Kenya should also revise the environmental criteria in current star-rating scheme. Hotel should, on the other hand, develop more comprehensive CP policies and programmes. The hotels are also encouraged to explore implementation of other voluntary initiatives that are complementary to CP. These may include the relevant ISO certification regimes and the local ecotourism rating scheme developed by Eco-Tourism Kenya. The Kenya National Cleaner Production Center, the Kenya Association of Hotel Keepers and Caterers, non-governmental organizations and donors work more with the Government in designing and implementing programmes aimed at enhancing the rate of adoption the implementation of CP. Finally, for researchers, more in depth studies on specific aspects of CP, corporate social and environment responsibility of the hotels are recommended.

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ACRONYMS

CBD	Central Business District
CELB	Center for Environmental Leadership in Business
CELB	Centre for Environmental Leadership in Business
CIDA	Canadian International Development Agency
CP	Cleaner Production
CPP	Cleaner Production Programme
CRT	Centre for Responsible Tourism
CSD	United Nations Commission on Sustainable Development
CSR	Corporate Social Responsibility
CST	Certificate for Sustainable Tourism
EAC	East African Community
EFQM	European Foundation for Quality Management
EPA	Environmental Protection Agency (USA)
EMS	Environmental Management System
ERC	Electricity Regulatory Board
ESOK	Ecotourism Society of Kenya
FKE	Federation of Kenya Employers
GG21	Green Globe 21
GRI	Global Reporting Initiative
HER	Hilton Environmental Reporting
IHA	International Hotels Association
IHEI	International Hotels Environmental Initiative
IHRA	International Hotel and Restaurant Association
ILO	International Larbor Organization
IPP	Independent Power Producers
ISHC	International Society for Hospitality Consultants
ISO	International Organization of Standardization
ITP	International Partnership Programme
IUCN	International Union for Conservation of Nature
JICA	Japan International Development Agency

KAHKC	Kenya Association of Hotel Keepers and Caterers
KAM	Kenya Association of Manufacturers
KBS	Kenya Bureau of Statistics
KNCPC	Kenya National Cleaner Production Centre
KPLC	Kenya Power and Lighting Company
KTF	Kenya Tourism Federation
LCM	Life Cycle Management
LEED	Leadership in Energy and Environmental Design
LPG	Liquefied Petroleum Gas
MOE	Ministry of Energy
MWI	Ministry of Water and Irrigation
NCPC	National Cleaner Production Centres
NEMA	National Environment Management Authority
ODS	Ozone Depleting Substances
OECD	Organization for Economic Co-operation and Development
P2	Pollution Prevention
SBA	Sustainable Business Associates
SECO	Swiss State Secretariat for Economic Affairs
SME	Small and Medium Enterprises
SSGM	Sustainable Supply Chain Management
TBL	Triple Bottom Line
TOI	Tour Operators Initiative
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United National Environment Programme
UNEP-DTIE	UNEP Division of Technology, Industry and Economics
UNESCO	United Nations Educational Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
VISIT	Voluntary Initiative for Sustainable Tourism
VOC	Volatile Organic Compounds
WASREB	Water Services Regulatory Board

WCED	World Commission on Environment and Development
WMO	World Metrological Organization
WRMA	Water Resources Management Authority
WSB	Water Services Board
WSSD	World Summit on Sustainable Development
WTO	World Tourism Organization
WTTC	World Travel and Tourism Council
WWF	World Wildlife Fund

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Sustainable development has been a global concern and agenda since the United Nations Conference on the Human Environment held in Stockholm in 1972. Both in theory and in practice, it has not been easy to define sustainable development. Pezzey (1989), an environmental economist, recorded over sixty different definitions of sustainable development. A commonly used definition of sustainable development is the one provided by the Brundtland Commission: "---development that meets the needs of the present generation, without compromising the ability of future generations to meet their own" (WCED, 1987 p.43). This definition took into account the economic, social and environmental perspectives of development. From a business perspective, Elkington (1998) summarized the concept as "care for Profits, People and the Planet", which succinctly describes the triple bottom lines of a business on the basis of the three pillars. The definition and understanding of all other fields of sustainability can be traced back to the Brundtland Commission definition. For instance, sustainable hospitality that was the focus of this study can be defined as the use of resources in such a way economic, social and environmental benefits are maximized in order to meet the need of the present generation while protecting and enhancing opportunities for future generations (Houdre, 2007).

The concept of Cleaner Production was introduced by UNEP in 1989, as a response to the question of how industry could work toward sustainable development (Van Berkel, 1994). Cleaner Production is the continuous application of an integrated, preventive strategy to processes, products and services to increase efficiency and reduce risks to humans and the environment (UNEP, 1994). It embodies efficient use of natural resources, which minimizes waste, pollution, and risks, to human health and safety. Cleaner Production is an evolution from the early end-of-pipe strategies that focused on management of pollutants once they had already been produced (Van Berkel, 1994). It can be applied to the processes used in industry, to the products themselves and to various services provided in society.

Tourism, has in the past been regarded as a 'white industry' with relatively low or no impact on the environment (Butler, 1999). However, this perception is changing especially due

to the realization that despite the many positive effects, tourism booms have numerous social, economic and environmental effects especially for the host community (UNEP and WTO, 2005). The hospitality sector (which includes hotels and restaurants) is one of the key segments of the tourism industry whose negative effects continue to draw great concerns (Hall and Lew, 2009). Hotels and restaurants use large amounts of water, energy, chemicals, supplies, and disposable items, and generate significant solid waste, wastewater and other environmental pollutants (Hall and Lew 2009; Kasim, 2007). Hotels have also been found to have significant economic and social impacts on host communities (Mitchell and Ashley, 2010; Spenceley, 2009; Simpson, 2007; Irandu, 2006; McLaren, 2003). The tourism industry and in particular the hospitality sector is under pressure to become more environmentally friendly as a result of consumer demand; increasing environmental regulation; managers' ethical concerns; customer satisfaction; maintenance issues related to the hotel facility and the need for better aesthetics (Graci and Dodds, 2009; Sweetings and Sweetings, 2003; Sampsonand Dunn, 2000). Lee et al (2010) and Roarty (1997) identified pressure by a new crop of environmentally conscious investors and the emerging trend of green consumerism as additional influencing factors.

Most of the investors are recognizing the fact that responsible environmental and social practices translate to benefits for business, the environment and the community as a whole (UNEP and IHRA, 2005). Among the strategies to address the negative effects in the sector include self-regulation mechanisms such as development and adoption of codes of conduct and guidelines, accreditation and certification schemes, best practices guidelines, corporate social responsibility (CSR) drives and most recently, Cleaner Production. Application of Cleaner Production in the tourism industry and the hospitality sector in particular is gaining popularity due to its wholesome approach and complimentarily with other voluntary approaches being used in the industry (International Tourism Partnership [ITP], 2008).

The United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) and United Nations Industrial Development Organization (UNIDO) are involved in a global campaign to promote Cleaner Production among various stakeholders including the international community, national governments, financial institutions and industries. In developing countries, this campaign is being implemented through a network of National Cleaner Production Centres (NCPC) that have to date been established in 35 countries (UNEP, 2002). With funding from UNDP, the Kenya National Cleaner Production Centre

(KNCPC) was established in July 2000 as a collaborative effort between the Kenyan Government and UNIDO. KNCPC is currently implementing various projects and programmes to promote the adoption and implementation of Cleaner Production in industries. Small and medium enterprises (SMEs) that include hotels and restaurants among others are a key target of KNCPC programmes in Kenya. To date KNCPC has completed resource efficiency and Cleaner Production audits in 90 SMEs in Kenya drawn from more than 20 industrial sectors including chemical, tea, sugar, beverages, distillery, leather, pulp and paper, textile, printing and dyeing, electroplating, building materials, floriculture, hotels, food processing, hospitals, steel, bakery, milling, dairy, slaughterhouses and fish. From the cleaner production audits for enterprises completed in Kenya, implementation of cleaner production improvement measures, an average of 20% reduction in pollutants, energy and water use has been realized and the economic benefits achieved by each enterprise amounts to at least Kshs. 2-3 million per year for medium enterprises (KNCPC, 2011).

1.2 Statement of the Research Problem

Tourism is a unique industry, which, by nature, depends on the environment and cultural resources for its development (Hall and Lew, 2009). Tourism as an alternative form of development has its unique impacts on the environment (Collins, 1998). As tourism activity in a destination expands, social, cultural and environmental costs increase—particularly once the carrying capacity of the destination is exceeded—initiating a decline in its visitor rate (McLaren, 2003; Ashely 2000). Hotels and restaurants are associated with various environmental challenges including degradation and depletion of biological diversity, disruption of ecosystem processes, air, water and land pollution, and over extraction of natural resources including food, water, and energy (Hall and Lew, 2009; Chan, 2008; Bader, 2005; Bohdanowicz, 2005). Further tourism, has been associated with various social and economic problems including, revenue loss through 'leakage', disruption of traditional economic activities, commoditization of cultures, pollution cultures, spread of diseases, prostitution, drug abuse and many other social problems (Ashley and Mitchell, 2008; McLaren, 2003). Most of the interventions that have traditionally been used to mitigate these negative impacts are piecemeal and do not offer long-term solutions. Cleaner Production has been introduced in various industrial sectors including tourism as an approach to

addressing the sustainability challenge in a holistic and more sustainable manner (Van Berkel, 2000; Cooray, 1999).

Research indicates that approximately 20% of hotels worldwide are large multinational and national hotel chains while the remaining 80% are independent and small scale, mainly categorized as SMEs (Andersen, 1998). While large industries produce greater volumes of pollution, there have been arguments that small industries (SMEs) are more pollution intensive and, hence, impose greater environmental harm per unit output (World Bank, 2001). Adoption and implementation of Cleaner Production in SMEs has been slower than in large industrial firms. Barriers for implementation of Cleaner Production among SMEs include lack of professional management skills, poor record keeping, and resistance by decision-makers (exacerbated by the concentration of decision-making power in a few persons). Additionally, implementation faces over-emphasis on production, non-involvement of workers, limited technical capabilities and access to technical information, limited skilled human capital, lack of in-house monitoring, deficiencies in maintenance, unstable finances and high cost and low availability of capital for Cleaner Production (Graci, 2009; Chan, 2008; Cooray, 1999). The adoption and spread of Cleaner Production has had slow despite availability of case studies of excellent and profitable Cleaner Production solutions (Ernst and Young 2008; Deloitte, 2006; Cooray1999; Lindsey, 1999).

The Kenya National Cleaner Production (KNCPC) has been implementing programmes to promote the adoption and implementation of Cleaner Production in industries since 2001. However, the response especially from SMEs has been below expectation (KNCPC, 2006). KNCPC, has through collaboration with Ecotourism Kenya, introduced the Cleaner Production concept to hotels especially in high tourism potential areas such as Mombasa and biodiversity hotspots across the country (Ecotourism Kenya, 2006). The extent to which Cleaner production has been adopted and is being implemented by hotels in Kenya has not been widely investigated and documented. The purpose of this study was to assess the adoption and level of implementation of Cleaner Production by star-rated hotels in Nairobi County.

The questions that the study sought to answer included:

i) What is the level of awareness of Cleaner Production among star-rated hotels in Nairobi County?
ii) What Cleaner Production measures are implemented by star-rated hotels in Nairobi?
iii) What factors influence the adoption and implementation of Cleaner Production by Star rated hotels?
iv) What challenges do star-rated hotels face in their efforts to implement Cleaner Production?
v) What is the relationship between Cleaner Production implementation and compliance with relevant laws and regulations by star-rated hotels?
vi) What is the relationship between Cleaner Production and hotel occupancy in star-rated hotels in Nairobi?

1.3 Research Objectives

The overall objective of this study was to assess the extent of adoption and implementation of Cleaner Production by star-rated hotels in Nairobi County. Specifically, the study sought:

i) To assess the Cleaner Production measures implemented by star-rated hotels in Nairobi County
ii) To examine the factors that influence adoption of Cleaner Production by star-rated hotels in Nairobi County
iii) To assess the relationship between star-rating and Cleaner Production implementation among star-rated hotels in Nairobi County.
iv) To assess the relationship between Cleaner Production and compliance of star-rated hotels with government regulations.
v) To assess the relationship between Cleaner Production implementation and the performance of star-rated hotels in Nairobi County

1.4 Research Hypotheses

The study sought to test the following three hypotheses:

i) H_0: There is no significant relationship between star-rating and the level of Cleaner Production implementation in star-rated hotels.

   H_1: There is a significant relationship between star-rating and the level of Cleaner Production implementation in star-rated hotels.

ii) H_0: There is no significant relationship between the level of Cleaner Production implementation and compliance of star-rated hotels with government regulations.

   H_1: There is a significant relationship between the level of Cleaner Production implementation and compliance of star-rated hotels with government regulations.

iii) H_0: There is no significant relationship between Cleaner Production implementation and rate of occupancy in star-rated hotels.

   H_1: There is a significant relationship between Cleaner Production implementation and rate of occupancy in star-rated hotels.

1.5 Research Justification

Accounting for about 11.6 per cent of Kenya's Gross Domestic Product (GDP) (Kenya National Bureau of Statistics [KNBS], 2012), tourism is the third largest contributor to the Gross Domestic Product (GDP) after agriculture and manufacturing. It is also a major source of employment providing at least 400,000 jobs in the formal sector and over 600,000 in the informal sector. Hotels and restaurants alone contribute 1.7 per cent of the GDP and accounts for the largest share of employment in the sector (KNBS, 2012). Tourism is also Kenya's leading foreign exchange earner generating about KSh. 65.4 billion in 2007 up from KSh. 21.7 million in 2002 (World Economic Forum, 2009). In addition, due to tourism's linkage with other sectors, it has a very high multiplier effect on the economy and has the capacity to stimulate demand for locally produced goods and services, provide a wide market for agricultural products and promote regional development (GoK, 2008). The Government of Kenya, it its long-term

strategic framework - Vision 2030, prioritizes transformation and development of the tourism industry. As the industry grows, concerns about its effects on the environment are also on the increase.

The hotel industry, in particular, is resource-intensive and has a large environment footprint. The industry contributes up to 80 per cent of carbon emissions in some large cities (Graci, 2009; Deloitte, 2006). Graci (2009) observes that the hotel industry is under pressure from multiple stakeholders (including government, funders, the community, investors, hotel guests and NGOs) to ensure tourism businesses have minimum negative effects to the environment and society. In response, the hotel industry stakeholders are increasingly embracing sustainable businesses practices. A number of tools and initiatives are being promoted with the aim of making the industry more sustainable. Cleaner Production is one such an initiative. Cleaner Production is a fairly new concept whose implementation in developing countries is just beginning to gain momentum. Kenya is among the few African Countries that have begun the journey to full integration of Cleaner Production in industry and businesses through the Cleaner Production Program initiated by UNEP in 1998 (UNEP, 2005). The Kenya National Cleaner Production (KNCPC) was set up in 2000 for the purpose of promoting Cleaner Production in small and medium industries (SMEs) in Kenya. KNCPC has since its inception been implementing a number of programmes targeting the adoption and implementation of Cleaner Production in SMEs. However, the Government of Kenya is yet to develop a comprehensive policy and legislative framework to guide Cleaner Production integration in development.

The hotel industry is characterised by very high competition. The response of hotels is to apply a combination of strategies and tools to enable them have a competitive advantage over their rival. A common tool that hotels apply is star-rating. There is currently no universal scheme for the rating of hotels. However, the rating of hotels on 1-5 star categories seems to be the most common in a number of countries (Dodds and Joppe, 2005). This study chose to focus on star-rated hotels due to its significance in the hotel industry in defining the quality of service a client should expect. As such, star-rating of hotels presents an opportunity for intervention by external stakeholders such as the government to proactively address the likely negative effects of hotels on the environment and people.

Completion of this study would generate information and create knowledge on the extent of Cleaner Production implementation in the industry. It will enable government to develop laws and policies that would encourage and enhance Cleaner Production adoption and implementation, enable hoteliers identify and implement practices that would make their businesses more profitable and sustainable, provide information to facilitatory actors such as hotel business associations, NGOs and funders to develop more effective programmes and services in promoting sustainable development of the hotel industry through Cleaner Production. Last but not least this study would also to be an important contribution to the on-going discourses on strategies and practices for sustainable tourism and hospitality development.

1.6 Operational Definitions

i) A **hotel** is a commercial establishment that provides paid lodging, meals and other guest services on a short-term basis. For such an establishment to qualify as a hotel, it must have a minimum of six letting bedrooms, at least three of which must have attached (ensuite) private bathroom facilities (WTO, 1991).

ii) **Hospitality industry** an umbrella term for a broad variety of service industries including but not limited to lodging and food preparations (Angelo and Vladimir, 1996).

iii) **Sustainable development** is development that meets the needs of the present generation without compromising the ability of future generations to meets their own needs (WCED, 1987).

iv) **Sustainable hospitality:** A hospitality operation that manages its resources to maximize economic, social, and environmental benefits and meet the need of the present generation while protecting and enhancing opportunities for future generations (Houdre, 2007).

v) **Cleaner Production**: Continuous application of an integrated preventive environmental strategy to processes products to reduce risks to humans and the environment. For production processes, it includes conserving raw materials and energy, eliminating toxic raw materials, and reducing the quantity and toxicity of all emissions and wastes before they leave a process. For products, the strategy focuses on reducing impacts along the entire life cycle of the product, from raw material extraction to the ultimate disposal of

the product. It involves applying expertise, by improving technology, and by changing attitudes (UNEP, 1994).

vi) **Eco-efficiency** is the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the earth's estimated carrying capacity World Business Council for Sustainable Development [WBCSD], 1992)

vii) **Pollution prevention** is the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source. It includes practices that reduce the use of hazardous materials, energy, water, or other resources and practices that protect natural resources through conservation or more efficiently use (EPA, 1992).

viii) **Waste minimization** is preventing or reducing the generation of waste at source, improving the quality of waste generated such as reducing the hazard and encouraging reuse, recycling and recovery of waste (Organization for Economic Co-operation and Development [OECD], 1996).

ix) **Corporate Social Responsibility (CSR)** is a situation where the firm goes beyond compliance and engages in actions that appear to further some social good beyond the interests of the firm and that which is required by law (McWilliams and Siegel, 2001).

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

Chapter 2 presents an analysis of literature relevant to this study. The concepts discussed in this chapter include sustainable tourism, sustainable hospitality, Cleaner Production itself, factors that drive or hinder its implementation in the hotel industry and the progress in implementation in Kenya. The chapter also discusses the effects of hotel operations on people and the environments and the efforts by the hotel industry to address these effects through Cleaner Production. Finally, it also examines various conceptual models and frameworks related to Cleaner Production, based on which a conceptual framework for the study is presented and discussed. The conceptual framework summarizes and schematically presents the questions that this research sought to address.

2.2 Sustainable Tourism Development

In its report, Our Common Future, the World Commission on Environment and Development (WCED), also known as the Brundtland Commission, defines sustainable development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987, p.43). Although this definition received criticism for being vague, too general, rhetorical and impractical (Redclift, 1987), it led to an important debate among stakeholders within government, academia, and industry regarding the characteristics of development that could be sustainable. In 1991, the United Nations Environment Program (UNEP) and the World Wide Fund for Nature (WWF) in the publication: "Caring for the Earth: A Strategy for Sustainable Living" defined sustainable development as "Improving the quality of human life while living within the carrying capacity of supporting ecosystems". This definition built upon the Brundtland Commission's definition, but changed its focus from man's responsibility over future generations to the current balance of the earth's ecological systems.

In 2002, the World Summit of Sustainable Development (WSSD), held in Johannesburg South Africa, broadened the definition of sustainable development even further by including the concept of social justice and the fight against poverty. There is a general understanding that sustainable development encompasses the three aspects of society, economy and the environment

(Barbier, 1987; Pezzey, 1989; Hamilton and Clemens, 1999). John Elkington (1998) explained application of the sustainable development concept in businesses. The triple bottom line concept can be summarized with the 3Ps mnemonic, which stands for "Profits, People and the Planet". The 7th Session of the UN Commission on Sustainable Development (CSD) reinforced the need to consider the triple bottomline, and stressed that sustainable consumption included, "---meeting the needs of present and future generations for goods and services in ways that are economically, socially and environmentally sustainable" (CSD, 1999). During the 2002 World Summit on Sustainable Development (WSSD), participants reaffirmed that sustainable development was a central element of the international agenda, and its meaning broadened with regard to important linkages between poverty, the environment, and use of natural resources (UN DESA, 2002).

In tourism, there are a multitude of definitions for sustainability and sustainable tourism (Page and Dowling, 2002; Butler, 1999). Butler (1993) suggests that sustainable tourism is done in a way that is economically and environmentally safe. On the other hand, The World Tourism Organization (WTO) (2001) states that sustainable tourism should be able to meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is aimed at managing all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems. From these two definitions, it is clear that that the sustainable tourism concept anchors on the broader sustainable development concept.

One of the outcomes of the Rio Earth Summit was a global action plan called Agenda 21. Approved by 182 countries, Agenda 21 integrated the goals of environmental protection and economic development into an action plan for sustainable development, based on free market principles (McCormick, 1997). In relation to tourism, Agenda 21 promoted the, "----formulation of environmentally sound and culturally sensitive tourism programmes as a strategy for sustainable development" (United Nations, 1992). The WTO, World Travel and Tourism Council (WTTC) and the Earth Council subsequently translated Agenda 21 into an action plan for the travel and tourism industry (WTTC, WTO, OMT and Earth Council, 1996). This plan emphasized the importance of partnerships between government, industry and other organizations, and recognized that the tourism industry had a stake in protecting natural and cultural resources in order to secure long-term future development. UNEP and WTO (2005) further articulate a set twelve aims (*Table 1*) that should guide sustainable tourism development:

Table 1: Sustainable Tourism Aims

1) *Economic viability:* To ensure the viability and competitiveness of tourism destinations and enterprises, so that they are able to continue to prosper and deliver benefits in the long term
2) *Local prosperity:* To maximize the contribution of tourism to the economic prosperity of the host destination, including the proportion of visitor spending that is retained locally.
3) *Employment quality:* To strengthen the number and quality of local jobs created and supported by tourism, including the level of pay, conditions of service and availability to all without discrimination by gender, race, disability or in other ways.
4) *Social equity:* To seek a widespread and fair distribution of economic and social benefits from tourism throughout the recipient community, including improving opportunities, income and services available to the poor
5) *Visitor fulfillment*: To provide a safe, satisfying and fulfilling experience for visitors, available to all without discrimination by gender, race, and disability or in any other ways.
6) *Local control:* To engage and empower local communities in planning and decision making about the management and future development of tourism in their area, in consultation with other stakeholders.
7) *Community wellbeing:* To maintain and strengthen the quality of life in local communities, including social structures and access to resources, amenities and life support systems, avoiding any form of social degradation or exploitation.
8) *Cultural richness:* To respect and enhance the historic heritage, authentic culture, traditions and distinctiveness of host communities
9) *Physical integrity:* To maintain and enhance the quality of landscapes, both urban and rural, and avoid the physical and visual degradation of the environment
10) *Biological diversity*: To support the conservation of natural areas, habitats and wildlife, and minimize damage to them
11) *Resource efficiency*: To minimize the use of scarce and non-renewable resources in the development and operation of tourism facilities and services
12) *Environmental purity:* To minimize the pollution of air, water and land and the generation of waste by tourism enterprises and visitors

Source: UNEP and WTO, 2005

2.3 Sustainable Hospitality

The concept of sustainable hospitality is synonymous with the concept of “green hotels” (Bohdanowicz, 2005). The term "green hotel" describes hotels that strive to be more environmentally friendly through the efficient use of energy, water, and materials while providing quality services. The 1992 Earth Summit in Rio identified tourism as one of the priority areas for sustainable development. Over the years, a number of initiatives aimed at incorporating environmental and socio-cultural responsibility into tourism and hospitality business practice have been developed (Bohdanowicz, 2005; Hawkins and Holtz, 2001). The most significant ones are the 1995 Lanzarote Charter for Sustainable Tourism (issued jointly by the UNWTO, the United Nations Environment Program - UNEP, the United Nations Educational, Scientific and Cultural Organization UNESCO and the Commission of European Communities), Agenda 21 for the Travel and Tourism Industry: Towards Environmentally Friendly Sustainable Development. Others include the Millennium Development Goals (adopted by the United Nations in September 2000 following the Millennium Declaration) and the 2003 Djerba Declaration on Tourism and Climate Change.

The main actors promoting sustainable hospitality development and operations include the International Hotel and Restaurant Association – IH&RA, the International Hotel Environmental Initiative – IHEI, UNEP, WTTC, UNWTO, the European Commission, and the World Wildlife Fund – WWF (Bader, 2005). International and national tourism hotel associations are also becoming increasingly active in championing environmental issues in the industry. Priority areas identified for hotel businesses under Agenda 12 were waste minimisation, energy efficiency, conservation and management, management of fresh water resources, waste water management, management of hazardous substances, sustainable transport, land-use planning and management, involving staff, customers, and communities in environmental issues, design for sustainability, and partnerships for sustainable development (WTTC, WTO and The Earth Council, 1995). These guidelines stimulated the hospitality sector to adopt numerous strategies, approaches and measures in response to the challenge of sustainable development, which include environmental management systems and tools, education, awareness creation, training and information dissemination, voluntary initiatives, multi-stakeholder communication and consultation, environmental reporting, and implementation of the Rio principles.

Hotels have developed a number of voluntary initiatives variously named as green development, ecotourism, cleaner production, eco-efficiency, sustainable growth, CSR and corporate citizenship. Houdre (2007) observes that in most hotels, sustainable development initiatives are *ad hoc* and more driven by the individual executive directors and board members that care about the environment and social impacts of their businesses. Houdre (2007) further identifies Accor, InterContinental Hotel Group and Taj Hotels Group as the hotel companies that have fully integrated sustainable development into their business. Other hotel companies on the way to full integration of sustainable development into business strategies include Fairmont Hotels and Resorts, the Hilton Corporation, Kimpton Hotels and Marriott.

Chief executives from a number of top international hotel chains formed a working committee, coordinated by The Prince of Wales' Business Leaders Forum, to promote responsible environmental management throughout the industry (IHA, IHEI and UNEP, 1995). They formed the International Hotels' Environment Initiative in 1993, drew up the `Charter for Environmental Action in the International Hotel Industry', and pooled their experiences to convert the Intercontinental manual into the first manual for environmental management for hotels. Information and feedback solicited from the hotel and other tourism stakeholders was incorporated into the publication "Environmental Management for Hotels – the Industry Guide to Best Practice" The hospitality industry in many countries adopted and used this publication (Twist, 1993). The second edition, revised by Eclipse Research Consultants, was published in 1996 to reflect developments that had taken place and ensure the approaches recorded in the publication conform to the latest environmental management standards. New best practices case studies were also added. The third edition of the manual was released in 2008. The primary focus on this resource still remains environmental management, with broadened view focusing on completely "going green" that embraces issues such as sustainable supply chain management, engagement with the local community, poverty alleviation, the Millennium Development Goals (MDGs) and guest involvement in environmental and community issues (ITP, 2008).

The International Hotels and Restaurants Association (IH&RA), a global network representing over 750,000 hospitality operators, associations and suppliers in more than 150 countries, is spearheading an initiative of facilitating the exchange of experiences among national hotel associations. Other initiatives that IH&RA has undertaken jointly with others include publication of the 'Environmental Action Pack for Hotels' (1998), jointly produced with

the International Hotels Environment Initiative (IHEI) and UNEP DTIE. The manual is a practical, systematic guide to setting up an environmental programme in a hotel. Other publications include 'Environmental Good Practice in Hotels' by IH&RA and UNEP (1996), which is a compilation of case studies of environmental good practices in hotels and 'Sowing the Seeds of Change: An Environmental Teaching Pack for Hospitality Professionals' jointly by IH&RA, UNEP and the International Hotel School Directors' Association (2001), which is a manual is designed to promote the teaching of environmental management in hotel schools.

In Kenya, the voluntary ecotourism certification scheme developed by Eco-tourism Kenya has been at the forefront in promoting sustainable development of the hospitality sector. The scheme, which became operational in 2002, has three progressive levels of certification (bronze, silver and gold). It rates a tourism facility's performance against a criteria comprising of level of compliance with environmental laws and regulations, management of air emissions, affluent and solid waste, level of environmental awareness of staff and other stakeholders in the value chain, and corporate social responsibility efforts of the hotel to the community and other stakeholders (Eco-tourism Kenya, 2002). By October 2007, there were thirty-one (31) eco-rated facilities under this scheme. Twenty-three of these were rated bronze, six were rated silver and two were rated gold (Eco-tourism Kenya, 2008)

2.4 The concept of Cleaner Production

The UNEP Cleaner Production Program, established in 1989, popularized the Cleaner Production concept. A number of related terms have been used to describe the concept. These include low or no-waste technologies; waste minimization (India); waste and emissions prevention (Netherlands); source reduction (United States); eco-efficiency (World Business Council on Sustainable Development) and environmentally sound technology (United Nations Council on Sustainable Development) (Hamner, 1996). Hamner (1996) notes that all these terms essentially describe the same concept of integrating pollution reduction into the production process and even in designing products. There have been various definitions of Cleaner Production, however, the most recognized and widely used definition was developed by UNEP in 1989. It states that Cleaner Production is a process of continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment (UNEP, 1994).

For production processes, Cleaner Production results from one or a combination of conserving raw materials, water and energy; eliminating toxic and dangerous raw materials; and reducing the quantity and toxicity of all emissions and wastes at source during the production process. For products, Cleaner Production aims to reduce the environmental, health and safety impacts of products over their entire life cycles, from raw materials extraction, through manufacturing and use, to the 'ultimate' disposal of the product. For services, Cleaner Production implies incorporating environmental concerns into designing and delivering services (UNEP, 1994). According to UNIDO (2002), Cleaner Production is a preventive, integrated strategy that is applied to the entire production cycle in order to increase productivity by ensuring a more efficient use of raw materials, energy and water. It also promotes better environmental performance through reduction at source of waste and emissions and reduces the environmental impact of products throughout their life cycle by the design of environmentally friendly but cost-effective products. Prevention, which is the basis of Cleaner Production, contrasts earlier end-of-pipe treatment approaches in which waste and emissions were cleaned up after they had already been generated. According to UNEP (2002) the term "Cleaner Production" was chosen to encompass a comprehensive approach to production. The term acknowledges that continuous improvement is required in not only efficiency and material substitution, using tools such as technology and expertise, but also in managerial skills and policies. It also recognizes the importance of design and use of products and services. Van Berkel (2000), points out that Cleaner Production, is a journey and not and destiny in itself: Once present Cleaner Production opportunities are implemented new ones will emerge as a result of further optimization and improvement of technology, management and information systems and changing demands of products and services.

In 1989, the United Nations Environment Programme (UNEP) launched the Cleaner Production Programme (CPP) following the directives of the UNEP's 16th Session Governing Council in Nairobi, Kenya. Since then, the UNEP Division of Technology, Industry and Economics (UNEP-DTIE) has been promoting the concept of Cleaner Production around the world. The immediate objectives of the programme were to create awareness of the concept, build institutional capacities and demonstrate its benefits to foster sustainable development. Today, Cleaner Production is a flagship program of not just for UNEP-DTIE but also of several other organizations across the world.

2.5 Drivers and barriers of Cleaner Production

Cleaner production improves a business's financial bottom line by increasing efficiency and productivity; reducing costs for waste disposal and treatment; reducing raw material, energy and water costs and reducing liability one of the basic premises of Cleaner Production is that it improves efficiency and productivity for industry (Kasim, 2007; 2005; Cooray, 1999). Although Cleaner Production usually requires huge capital investments, it often gives monetary returns by minimizing energy consumption and lowering material and handling costs (Graedel and Howard-Grenville, 2001). A study on hotel managers' attitudes towards the environment in Edinburgh by Kirk (1998) found that hotels with an environment policy saw the greatest benefits in relation to increasing profitability, gaining a marketing edge over competitors and favourable public image (Hillary, 2004). Other authors such as Gonzalez-Benito (2005) and Bohdanowicz (2005) reaffirm these findings. Kassim (2007) observes that that a business is more likely to take on environmental management practices if they can see the benefits in the form of reduced costs and/or higher revenues and profits

A survey conducted by Deloitte (2008) on balancing opportunity and risk in the hospitality industry found out that large numbers of business travellers have concern about the environment. 65 per cent were concerned about global warming; 55 per cent believed that their awareness about the environment had increased since one year ago; 74 per cent purchased fluorescent lights and/or green cleaning products for their home in the past 12 months (ITP, 2008). This awareness is helping to raise the bar on their expectations from hotels in terms of environmental responsibility. The same study also found out that 40 per cent of the survey respondents were willing to pay more to stay at a green lodging facility. Benchmarking and target setting can help to enable easier facilitation and implementation of an environmental programme, which can lead to increased staff motivation and productivity. Repeatedly, environmental programmes have proved to be an effective means of generating enthusiasm and motivating staff to work as a team to achieve a common purpose. Many hotels have developed incentives and reward schemes for employees with commitment to environmental management programmes (Park, 2009). For instance, as part of the Fairmont Hotels and Resorts staff programme, 'Seeing the Forest through the Trees', Fairmont Green Committees at each property compete for environmental superiority and the title of Environmental Hotel of the Year. The

hotel that completes the highest number of environmental initiatives in one year receives a one-week, all expenses paid eco-exchange for all ten Green Committee members (Fairmont Hotels and Resorts, 2008)

Incorporation of cleaner production practices also leads to greater employee involvement in, and commitment to, the production process that often leads to higher quality product (Greenhotelier, 2006). Bohdanowicz (2005) observes that businesses with strong environmentally minded leaders helped build team spirit among employees, extending their environmentally friendly behaviour to home and within the local community. Kassim (2007) reaffirms this observation. Businesses, especially multinational corporations use corporate social responsibility (CSR) as a means of building trust in the organization and its products (Lafferty and Godsmith, 2005). In addition, CSR enhances competitive advantage and corporate reputation (Bohdanowicz and Zientara, 2008). A number of global indices and principles with environmental and social considerations have been developed. These include the FTSE4Good index, Dow Jones Sustainable Group Index (DJSI) and the Equator Principles (based on the policies and guidelines for the International Finance Corporation) (Wood, 2010). There is an increasing interest of hotel businesses in CSR and sustainability indices such as the Global Reporting Initiative (GRI), DJSI, FTSE4Good indexes (WTTC, 2004). The DJSI has found that companies that focus on a 'triple bottom line' of economic, environmental and social sustainability outperform other companies in the stock market ((KPMG International, 2008; WWF-UK and IBLF, 2005).

According to a 2008 study by the American Hotels and Lodgings Association (AH&LA) the biggest challenges/barriers hoteliers face in implementing green lodging practices include having enough capital to invest, achieving return on investment, ability to find vendors/suppliers offering the products they need, having enough time. Others include limited knowledge/resources, receiving support from government or local organizations, and last but certainly not least, and possibility of negative guest reactions (Park, 2009). Focusing on Environmental Management Systems (EMS), Chan (2008) documented a number of factors that hinder hotels from the adoption of EMS. The factors include lack of knowledge and skills, lack of professional advice, uncertainty of outcome, certifiers/verifiers, lack of resources, and implementation and maintenance costs. Perhaps the greatest barrier preventing hoteliers from promoting "greener" establishments is a widespread belief that environmental measures are

prohibitively expensive (Chan, 2008). Each of these barriers can be categorised as being either internal or external to a business (Kassim, 2007). Looking generally at the application of Cleaner Production in businesses, the Second African Roundtable for Sustainable Production and Consumption (ARSCP-2) held in March 2002 in Tanzania went a step further to place most of the barriers into six broad categories including attitudinal, systemic, organizational, technical, economic and governmental, which can be summarized as follows:

Attitudinal: It involves the general resistance to change**,** fear of additional taxation upon disclosing economic benefits originating from Cleaner Production adoption and employees regard it as time-consuming exercise without added benefits for them

Systemic: There is low awareness by government and entrepreneurs on the potential benefits in Cleaner Production adoption, low numbers of qualified staff at the National Cleaner Production Centres and lack of culture to measure and keep data/records relevant to production. Additionally, it is difficult for decision makers in businesses to appreciate the value of inputs being wasted and the contribution of their operations to environmental pollution. Enterprises employing cheap labour consisting staff with low levels of education even at supervisory level—as well as using inefficient management systems. Compounded by lack of systematic training of employees, this leads to limited enterprise capacity to absorb new and innovative ideas on Cleaner Production.

Government: There is lack of appropriate laws on pollution management in some countries and weak enforcement of environmental legislation. Even so, the environmental laws in many countries are largely reactive, Cleaner Production not well defined in the Act. Additionally, there is weak recognition of Cleaner Production in most industrial development policies and the absence of enforceable national pollution standards in many countries. Local authority by-laws are also outdated and weakly enforced. Also witnessed is lack of appropriate consumer rights, policies and legal instruments for promotion of sustainable consumption ad incoherent policies and legislation on natural resource management, e.g. wood energy policies in many countries, which forbid charcoal production, yet allow charcoal use.

Organizational: The absence of collaborative projects and exchange programmes in the region and beyond, to facilitate experience sharing to promote Cleaner Production. It requires

centralized decision making especially in private or family-owned enterprises. Other employees are not motivated to make any improvements for the sake of the company.

Technical: Lack of capacity for product development attributed to absence of product design and development components in human resource development programmes**.** There is weak institutional capacity to measure a wide range of pollution parameters in industry due to lack of basic instruments such as monitoring equipment, accessories that could also contribute to income-generation additionally, wide scale reliance on obsolete technologies

Economic: In involves financial instability and insecure future of the National Cleaner Production Centres, under-pricing and abundance of natural resources such as groundwater and forests are a disincentive in the implementation of Cleaner Production programmes. It is also characterized by lack of appropriate financing mechanisms for Cleaner Production investments. Poverty has compelled communities to choose short-term consumption patterns, which could have more detrimental effects to human health and environment in the end.

2.6 Environmental Impacts of Hotels

Amidst all the benefits, tourism also presents many negative environmental and social impacts. They include degradation and depletion of natural resources, biodiversity loss, air, water, and noise pollution, revenue leakage from the community, labour issues, cultural erosion, and encroachment (Bohdanowicz, 2005; Dodds, 2005; Graci, 2009). A hotel affects the environment at each stage of its life cycle, from planning through to closure. The International Tourism Partnership (2008) summarizes key impacts at the keys stages as follows: At the planning stage, the most important issue relates to choices about its sitting and design. Even the most sustainably operated hotel will have major impacts if it is built in a biodiversity-sensitive area. Choices of construction materials, their source and the total physical footprint of the hotel will also influence how significant its impacts will be in the operational stage. At the construction stage, impact is determined by the size and location of the area cleared for development and where construction activities are taking place. It also depends on the choice of construction methods, the sources and amount and type of materials, water and energy used to build the hotel (ITP, 2008). Others include the location of temporary camps for construction workers, inadequate storage facilities for construction materials, the amount of construction waste that has to be disposed of, and other types of damage such as surface soil erosion or

compaction caused by construction activities or disruption of natural water flows and drainage patterns.

In the operational stage, a hotel's impact comes mainly from the energy, water, food and other resources that are consumed in running the hotel, by the solid and liquid wastes it produces, by the way its grounds are managed, and by the direct impacts of its guests (ITP, 2008; Bader, 2005). In addition, regular renovation and replacement of furniture, appliances and facilities can impact through purchasing choices and increased waste generation. Using energy and water more efficiently, using organic and sustainably produced food, reducing, treating and disposing of waste appropriately, making sustainable purchasing decisions and managing gardens with natural-style plantings can all help a hotel to reduce its adverse impacts on biodiversity. Similarly, a hotel's relationship with host communities not only affects the sustainable operations of the hotel but also the use of environmental resources by communities themselves.

At the closure stage, a hotel's impacts come from the disposal of materials removed from the hotel to refurbish it, convert it for other uses, or demolish it, and from the work involved in these activities. It may be possible to reuse and recycle some materials, but there may also be some toxic materials, particularly from older buildings, which will require careful handling and management. A responsible hotel operator should also foresee supporting activities of ecological restoration as required.

This study focused on the impact of hotels at the operational stage. The three key areas of environmental impact at the operational stage are energy, water, and waste. It has been estimated that seventy-five per cent of hotels' environmental impacts can be directly related to excessive consumption (Hall and Lew, 2009; Bohdanowicz, 2005). Due to the high level of resource utilization (energy, water, consumables) in hotel facilities, the environmental footprint of hotels is typically larger than those of other types of buildings of similar size (Graci, 2009; Rada, 1996). Further, a recent study suggests that the hotel industry contribution to global anthropogenic CO emissions is in the order of just 5% (in 2005), but may be higher (from 5% to 14%) if measured as radiative forcing, i.e. the warming caused by CO as well as other greenhouse gases (UNWTO-UNEP-WMO, 2008). There are also a number of social impacts especially in relation to staff (ILO, 2001), host communities (Mitchell and Ashley, 2010; Gossling, 2003; McLaren, 2003) and the society as a whole (Merrett and Hill, 2005).

Table 2: Key Environmental Impacts of Hotel Operations

Service / Activity	Description	Main environmental impacts
Administration	• Hotel management • Reception of clients	• Energy, water, materials (mainly paper) • Generation of water and hazardous waste (toner cartridges)
Technical services	• Equipment for heating and hot water production • Air conditioning • Lighting • Swimming pool • Green areas • Mice and insects extermination • Repair and maintenance	• Energy and water consumption • Consumption of a wide range of hazardous products • Generation of hazardous materials • Air and soil emissions • Generation of waste water • Pesticide use
Restaurant and bar	• Breakfast lunch and dinner • Beverages and snacks	• Use of energy, water, and raw materials • Packaging waste • Organic waste
Kitchen	• Food preservation • Food preparation • Dish washing	• Consumption of energy and water • Packaging waste • Oil waste • Organic waste • Generation of odours
Rooms	• Use by guests • Guest of use of consumable products • Housekeeping	• Energy, water and raw materials consumption • Use of hazardous products • Packaging waste • Waste water generation
Laundry	• Washing and ironing of guest clothes • Washing and ironing of hotel linen	• Consumption of energy and water • Use of hazardous chemicals for cleaning • Waste water generation

Source: Graci, 2009

2.6.1 Impact on Energy

In many hotel facilities, energy costs are the second-highest operational costs after staff remuneration (UNEP and IH&RA, 2005). According to Gossling et al (2005) hotels generally use more energy per visitor than local residents, as they have energy intense facilities, such as bars, restaurants, and pools, and have more spacious. Air conditioning, importing and refrigerating food, transporting water, waste disposal, cooking, laundry, elevators, transportation and facilities such as swimming pools all require significant amounts of energy (IHA, 1995). Naturally, this high level of energy consumption and release of emissions can contribute to air pollution and ecosystem damage in host destinations. Although some hotels take advantage solar power, hotels have traditionally met the vast majority of their energy needs by burning fossil fuels, including coal, oil and natural gas (Gossling, 2003; McLaren 2003). The burning of fossil fuels for energy emits pollutants such as carbon dioxide, sulphur and nitrogen oxides into the atmosphere, causing local air pollution and acid rain. Fossil fuels can cause serious environmental impacts not only during use, but also during extraction, refining and transport. Studies have determined that a hotel emits an average 20.6 kg of carbon dioxide per night (Gossling, et al, 2005).

In Kenya a survey conducted in selected sub-sectors (paper, tea, textile, and hotels) indicate that energy wastage ranges between 10 per cent and 30 per cent of total energy input (Kenya Association of Manufacturers [KAM], 2011). Substantial energy saving can be achieved by Kenya hotels by changing behaviour and adopting use of simple energy saving technologies (Eco-tourism Kenya, 2009). The Kenya Association of Manufacturers has collaboratively with the Ministry of Energy Established the Centre for Energy Efficiency and Conservation (CEEC). The centre runs programmes aimed at encouraging companies to identify and implement energy conservation measures (KAM, 2011). KAM has also collaboratively with the Ministry of Energy and UNDP developed an annual energy award programmes that aims at recognising and rewarding energy conservation efforts among various industries in the country (KAM, 2011).

2.6.2 Impact on Water Resources

Water is perhaps the hospitality industry's most important resource. Tourist demand for water, like that for energy, usually far exceeds that of local residents (Dixon, et al, 2001). In a number of regions in the world, demand for water exceeds supply. The Mediterranean region for

instance is a major tourist destination in the world, but also water-stressed (WWF, 2004). Tourism activity peaks in summer, coinciding with the time when natural water availability is at its lowest. Hall and Lew (2009) estimates that 15,000 m^3 of water would typically supply 100 rural farmers for three years and 100 urban families for two years, yet only supply 100 luxury hotel guests for less than two months (Holden, 2000). In destinations that do not have the required infrastructure and systems to manage these impacts, severe degradation of the environment can occur (UNEP, 2008). In many destinations, excessive water usage to support tourism has resulted in the drying up of streams, lowering of the groundwater table and Stalinization of groundwater resources (Hall and Lew, 2009). This, in turn, damages the health of terrestrial, aquatic and marine habitats by reducing the quantity and quality of water available to plants and animals. In estuaries and coastal areas, disruption of water flow can cause erosion and diminish the flow of nutrients necessary for the health of coastal ecosystems.

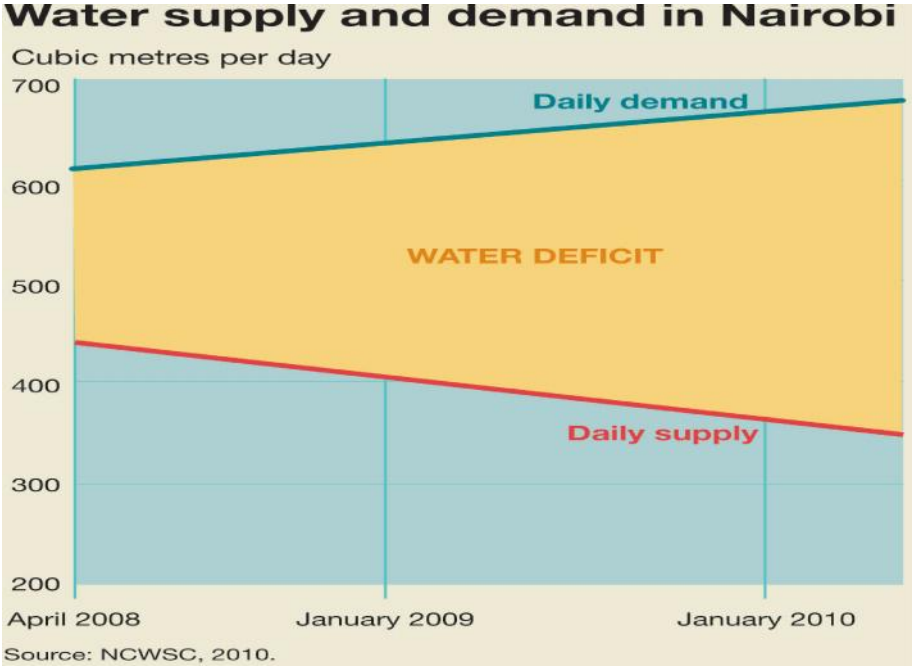
Around the world, tourism development is concentrated in coastal areas and on small islands, where potable water is typically scarce. This scarcity can be caused by either a physical absence of freshwater, or because the necessary infrastructure or resources are lacking (UNEP, 2008). Tourism's water demands can even lead to the appropriation of supply to the detriment of local domestic and agricultural needs, caused by the overexploitation of aquifers and reservoirs and the lowering of groundwater tables (Sharpley, 2009). In a popular resort area of one South Asian country, for example, privately owned water tankers buy water from villages through local elites and transport it to supply nearby hotels. This leaves villagers with water supply to their communal standpipes for a few hours a day only (Sharpley, 2009). Luxury resorts on an East African island are estimated to use up to 2,000 litres of water per tourist per day, almost 70 times more than the average daily domestic consumption of local people (Gossling and Hall, 2006).

Golf tourism is rapidly expanding. An estimated 9.5 billion litres of water are used to irrigate the world's golf courses per day, equivalent to the daily needs of 80 per cent of the global population. One Mediterranean island, where water is so scarce it must sometimes be shipped in, is planning to increase its golf courses from three to 17, with tourism cited as the principal driver. This will involve building over agricultural land and constructing several desalination plants to ensure continual supply (Hall and Lew, 2009). WWF estimated that between 10,000 and 15,000 cubic meters of water per hectare were pumped out of freshwater supplies to keep golf courses green in southeast Spain (WWF, 2004). At this rate, the water used

on one golf course could supply a town of 12,000 inhabitants with enough water for a whole year (Hall and Lew, 2009).

The United Nations classifies Kenya as a chronically water-scarce country (Mogaka et al, 2006). Currently, this country ranks twenty first for the worst levels of access to potable water in the world (UNEP, 2009). A water-stressed nation has a per-capita freshwater supply of 1,000-1,700 cubic meters; a water-scarce country on the other hand, has less than 1,000 cubic meters per capita. Kenya's natural water endowment is 647 cubic meters per capita (Mogaka, et al, 2006). The estimated water demand for Nairobi City is 650000 m^3/day compared to the production of 482940 m^3/day (Water Resources management Authority [WRMA], 2010). The difference between production and demand has been widening over time due to population growth, inadequacy of the carrying capacity of the distribution network and climate shocks. Moving into the future, the situation is expected to be worse.

Figure 1: Water Supply and Demand in Nairobi City



2.6.3 Impact of Solid Waste Generation

Waste management is another increasing and well-recognised challenge in the industry. Every international tourist in Europe generates at least 1 kg of solid waste per day, and up to 2 kg/person/day for the USA (UNEP, 2003). In comparison, CalRecovery Ltd and UNEP (2005)

report total country waste generation, including industrial and other sources, in Austria (1.18 kg/person/day), Mexico (0.68 kg/person/day), India (0.4 kg/person/day) and the USA (2.3 kg/person/day). Approximately 30 per cent of waste in hotels can be diverted through reuse and recycling (Bohdanowicz, 2005).

Hotels produce large quantities of solid waste, from packaging to food scraps to cleaning and maintenance materials, some of which is toxic. As observed by CELB and TIO (2003) the waste hotels generate is most cases collected in badly designed waste dumps, discarded directly into water bodies or simply dumped in areas out of sight of guests. In addition, improper waste disposal can lead to water and soil pollution through leaching of contaminants from waste piles. Poorly designed waste dumps can result in fires, odours, flies and ineffective containment of wastes. Uncontrolled disposal of toxic items such as paint cans and batteries can severely contaminate water, air and soil resources, threatening the environment and human health. Even where waste is disposed of legally, landfills have limited capacity, which is a particular problem on small islands.

Tourists on average consume far greater quantities of processed resources, such as packaged foods, cleaning products and disposable goods, than local people. These products, in combination with the use of appliances and other equipment to provide services, create large quantities of solid waste, some of which is toxic. In many areas, hotels do not dispose of their waste properly, using badly designed dumps or simply putting waste out of the sight of tourists. This practice can aesthetically degrade the area. Moreover, uncontrolled disposal of toxic items such as paint cans and batteries can severely contaminate water, air and soil resources, and often directly threatening human health. For instance, only about 25% of the estimated 1,500 tonnes of solid waste generated daily in Nairobi gets collected (Ikiara et al, 2004). Where organic waste is not dumped in controlled areas, local species may quickly change behavioural patterns to become scavengers around hotel areas. Even when dumps are used, poor design can result in fires, odours, flies and ineffective containment of leachate, leading to water and soil pollution (Hall and Lew, 2009). Coastal areas, which have very porous soils, are particularly susceptible to groundwater contamination from dumps.

A study conducted by Muthini et al (2003) focusing on two hotels in the Kenyan coast found out that mean per-capita waste generation rate was 1.90 kg/person/day and the relative

proportions by weight of the respective waste categories were: paper 3.5%, plastics 3.3%, tins 1.7%, glass 4.5%, food waste 79.1%, cartons 2.0%, and residual waste 6.0%. In the same study, the annual waste load was found to be 362 tons for Jadini Beach Hotel and Africana Sea Lodge; 200 tons for Leopard Beach Hotel; 159 tons for Diani Sea Lodge; 192 tons for Severin Sea Lodge and 150 tons for Mombasa Beach Hotel.

2.6.4 Impacts of Waste Water and Sewerage

In addition to solid waste, the other form of waste produced by hotels and other tourism facilities is wastewater and sewage. Wastewater is liquid or water-carried waste removed from residences, institutions, commercial and industrial establishments, together with groundwater, surface and storm water. In hotels, approximately 90% of the water consumed becomes wastewater discharge after it has been contaminated by the various uses to which it has been exposed. The wastewater can be categorised as grey water (including water from laundry machines, sinks, showers, and run-offs) and black-water (which includes water from kitchen dishwashers and toilets). In a number of cases, little or none of the wastewater produced is treated. In adequately treated wastewater poses serious threats to both humans and the environment due to pollutants such as feacal coliforms and chemicals.

The impact of wastewater is high even in high-income countries. Some of the threats to human include typhoid and cholera. To the environment, untreated water can result in the contamination ground and surface water as well as poses dangers to marine and aquatic life (UNEP, 2003). In the Mediterranean region, for instance, it is commonplace for hotels to discharge untreated sewage directly into the sea (WWF, 2004). In the European Mediterranean, only 30 per cent of municipal wastewater from coastal towns receive any treatment before discharge (Bohdanowicz, 2005). Graci (2009) notes that many other countries outside the European Union have experienced similar situations.

In many areas, little or none of this waste is treated. Even in areas with regulations, sewage disposal can still be a severe problem. Mycoo (2006) notes that 75 per cent of wastewater treatment plants operated by hotels in the Caribbean do not comply with basic effluent discharge criteria. According to Caribbean Alliance for Sustainable Tourism (CAST), this pollution has also resulted from a failure to consider environmental features when designing sewage systems (Mensah, 2006). In Negril, Jamaica, water levels along the coast have risen, and

many septic tanks are now located below the water table, causing them to leak untreated sewage into the water (Graci and Dodds, 2009; McNamara and Gibson, 2008; Rivera, 2004). Coastal areas with little water movement are especially vulnerable to damage from badly treated sewage. Poor sewage treatment can lead to pollution of ground and surface water, bacterial growth, the smothering of corals the accumulation of toxins in aquatic and marine organisms, and algal blooms, which reduce oxygen available to other organisms and can cause biologically dead areas (Mycoo, 2006). In Negril, Jamaica, the disposal of garbage and untreated wastewater and sewage into the sea is destroying the reef and polluting the water along the entire coast. In addition to the death of marine life, this pollution was linked to bacterial infestation, causing ear and vaginal infections in people swimming in the area. As a result, dive shops have been forced to cancel trips, and tourists are increasingly abandoning the area for alternative vacation destinations (Ashley et al, 2004).

In Kenya some game lodges in the wildlife protected areas hotels along the coast have constructed their own wastewater treatment plants and the treated effluent is used for the irrigation of gardens (UNEP, 2009). Prior to 2006, most municipalities in Kenya had their own sets of quality standards with which an effluent was supposed to comply, but there were inconsistencies between those individual standards. In September 2006, the National Environmental Management Authority (NEMA) imposed National Regulations for effluent standards. The Regulations were gazetted as the Environmental Management and Co-ordination (Water Quality) Regulations, 2006 (GoK, 2006). A study by Githuku (2009) found out that the levels of BOD and Coliform bacteria in the raw sewage in Nairobi City were higher than National Environment Management Authority limits.

2.6.5 Impacts of Tourism Transport

Global warming is now accepted throughout the world as a reality and its effects are already being experienced (Gore, 2008). According to UNWTO/UNEP/WMO (2008), emissions from tourism transport, accommodation and activities (excluding the energy used for constructions and facilities for example) account for about 5% of global CO2 emissions. In 2005, tourism's contribution to global warming was estimated to contribute between 5% and 14% to the overall warming caused by human emissions of greenhouse gasses. Tourism, transport is by far the most important sector contributing to emissions of greenhouse gases from tourism, and

within the transport sector, aviation is most relevant. Virtually all energy for transport comes from petroleum based fuels. Of the 5% of the global total of CO2 emissions contributed by tourism, transport generates around 75%, and in terms of the radiative forcing specific to transport, the share is significantly larger ranging from 82% to 90%, with air transport alone accounting for 54% to 75% of the total (UNWTO/UNEP/WMO 2008).

The impact of vehicular pollution on human health is well studied and documented (Walter, 2003). Hydrocarbons, volatile organic compounds, particulate matter and benzene produced by petroleum and diesel engines are carcinogenic (Walter, 2003). Lee et al., (2009) have compiled a substantial body of literature that outlines the impacts of emissions from air transport. The major environmental impacts from tourism transport arise from air travel and use of private cars. For the majority of trips involving air travel, it has been estimated that the journey to the destination will account for 60-90% of the trip's overall contribution to climate change (Gossling et al, 2005). Critically, the damage from air transport emissions is increasingly being recognised, but even though the overall impact of air transport emissions is relatively small, the concern is that the rate of growth of global international air transport, and to some extent its association with leisure activities such as tourism, render it a target for mitigation action (Sausen and Schuman, 2000).

The impacts of car use in tourism consist of traffic congestion, air pollution, visual and noise pollution, and danger to both people and wildlife. Road traffic also causes noise, dust, congestion and particulate emissions that are worsened in many cities by badly maintained exhaust systems. It is worth noting that many of the world's major tourism city destinations such as Bangkok, Paris, Rome, Los Angeles, Mexico City, New York, Athens, and Manila – are also on the global list of urban areas with very poor ambient air quality (EUHOFA, IHRA and UNEP, 2001; Transport for Leisure Ltd, 2000). . By 2035, tourism's contribution to climate change may have grown considerably as shown by a recent scenario developed by the expert team of the technical report in the UNWTO/UNEP/WMO (2008). The accommodation sector represents approximately 20% of emissions generated from tourism activities, and is an intensive energy user, but there is huge potential for improving its carbon efficiency

2.6.6 Impacts on Biodiversity

Recreational activities, including water sports, golfing, hiking, wildlife viewing and shopping are often an important part of a resort-based vacation. There are many examples where large-scale tourism has had detrimental effects on biodiversity, including coral reefs, coastal wetlands, rainforests, arid and semiarid ecosystems and mountainous areas (Hall and Lew, 2009). Coral ecosystems have suffered strong adverse impacts from the use of coral for construction materials for hotels, over-fishing off reefs to feed tourists, sewage dumping and sedimentation from improperly managed runoff from buildings, parking lots, and golf courses. Coastal wetlands, particularly mangroves, have routinely been damaged or destroyed to build beach resorts and in arid and semi-arid ecosystems, golf courses and other water-intensive activities have lowered water tables affecting local fauna and flora (Kirkman, 2001). Biodiversity will be greatly affected by the way, in which tourism grows and develops, especially in developing countries (Cashman et al, 2012). Failure to incorporate biodiversity concerns in destination planning and investment will have detrimental effects on the natural environment, increase conflict with local communities, and lead to reduced value-creation potential for both the destination and investors (Pickering and Hill, 2007; Amelung and Viner, 2006).

2.7 Social and Economic Impacts

On a positive note, tourism provides jobs; improve quality of services such as water and energy, roads and transport services, health services, shops, garages, leisure and entertainment facilities, and outdoor amenities (Ashley and Mitchell, 2008). Conversely, however Ashley et al (2001) observe that the presence of visitors can put pressure on facilities and services, adding to the cost of their provision and maintenance, reducing the enjoyment of them by local people and making access to them difficult or even impossible. Tourism developments and activity also sometimes interfere with other sources of livelihood and disrupt access to them. Tourism can be socially disruptive in other ways including stimulating abnormal rise in housing and property prices, increase in the general cost of living (Hall and Lew, 2009; Butler and Hinch, 2007). In addition, visitors may cause noise and general disturbance, leave litter and on occasion may be the source of crime. Tourism may also lead to unacceptable social practices amongst such as prostitution and drug use (Butler and Hinch, 2007). Child sex tourism, which is a clear violation

of human rights, is of considerable global concern and is the subject of an international campaign for its eradication (Tourism Concern, 2011; Fraley, 2005).

2.7.1 Economic Impacts

Many communities turned to tourism as a source of employment, wealth, resources and infrastructure development. However, as tourism developed it failed to provide employment and other benefits the local people envisioned (McLaren, 2003). At a macro-economic level, a significant portion of potential revenue from tourism is often lost to "leakages". There is widespread agreement that very little of tourism revenue actually remains in the local economy due to "leakages" (Gossling, 2003; McLaren, 2003). Leakage from tourism can be: a) internal, or import-related; b) external, or pre-leakage; and c) invisible leakage associated with resource damage or degradation (Diaz, 2001). Internal leakage is highest where there are insufficient backward and forward linkages between tourism and other related sectors of the economy (Sandbrook, 2010; WTO, 2002; Diaz 2001). In most developing countries, the average internal leakage is 40 to 50 per cent of gross tourism earnings for small economies, and 10 to 20 per cent for more advanced and diversified economies (Sandbrook, 2010).

External leakage refers to tourism revenue that is not captured by the destination country and is of greater concern among researchers. The external leakage effect in developing countries is exacerbated by the structure of international tourism and anti-competitive behaviour in the sector (McLaren, 2003; Min and Wall 2002; Diaz, 2001; Sharpley, 2000). Foreign ownership within the destination country can also influence the extent of the leakage effect. Leakages can be even larger if tourists travel to and from the country on foreign airlines. High levels of foreign ownership and control (especially by trans-national corporations) lead to repatriation of tourism revenue in the form of profits, income and imports (McLaren, 2003).

Employment is another critical area for tourism leakage. Some critics argue that employment opportunities promised by tourism have not been realized in many developing countries (McLaren, 2003). Besides quantity issues, jobs are usually temporary, menial and low wage when compared to other socially comparable occupations (Hochuli and Pluss, 2005; McLaren, 2003). McLaren (2003) argues that most middle and top management positions tend to be occupied by foreigners with little opportunity for locals to move up. Local people, especially in relatively undeveloped areas, often lack tourism-related skills. Because hotels throughout the

tropics have generally chosen to employ skilled expatriate labour rather than training local people, higher managerial positions are often not available to local community members. Even in countries where nationals have the necessary skills, developers have generally hired expatriates for higher-level management and development work (Sadi and Henderson, 2005). Of those jobs, which are available to local people, many are menial or undesirable and often seasonal. Further, migrants, who will often work for lower wages than local people, may compete with local people for these jobs (Sadi and Henderson, 2005).

2.7.2 Socials Impacts

Tourists often observe "traditional" or "authentic" people and rituals as vacation attractions. For instance, traditional funerals are advertised as a tourist attraction in Bali, Indonesia. Attendance by tourists is widespread that local people have been crowded out in some areas (McLaren, 2003). Tourist observance of traditional events, cultural practices and ceremonies has caused in many cases profound distortions and loss of significance. For instance, in Hawaii, USA, the marketing of the hula dance has changed the basic nature of the dance. To younger generations, it is no longer an important cultural practice, but merely a dance to perform for tourists (McLaren, 2003). The extreme of commercialization is the "zoo effect," where tourists come to observe local people like animals in a zoo, and there is no positive interaction (Sweeting and Sweetings, 2003).

In the tropics, ethnic groups such as the Maasai in Kenya or the Mlabri in Thailand have become spectacles for curious tourists (Mitchell and Ashley, 2011). This problem can result in loss of pride and complete reliance on tourism for subsistence. In many cases, tourism development has been largely responsible for forcing these changes, directly by either destroying or prohibiting traditional means of livelihood, or more subtly by providing a potentially easy way to earn badly needed resources. Tourism can also contribute to the spread of disease, prostitution, drug abuse, human rights abuse and the exploitation of vulnerable groups (McLaren, 2003). There are many examples in Africa, Asia and Latin America where locals have been displaced and denied access to their land and resources for the purpose of tourism development. In addition, women and youth are being exploited in the growing tourism sex-trade, and children are used as labour in the industry (McLaren, 2003). Some estimates indicate that approximately

10 to 15 per cent of employees in tourism are children and youth under the age of 18 years (Butler and Hinch, 2007).

By contrast, in some areas, tourism has been instrumental in reviving cultural practices. Although tourism-driven revival often changes the significance of practices, in certain areas it has also led to increased pride in tradition. In Malta, for instance, tourist interest in traditional arts, history and folk culture has been associated with helping to build a sense of national pride and identity. As a result, local inhabitants welcomed tourism throughout the 1980s (Butler and Hinch, 2007). Tourism development also brings new cultures and previously unheard of amounts of people and money into relatively isolated communities. The potential impacts of these changes are often compounded by extremely rapid growth of tourism after a destination is "discovered." Immigrants from other parts of the country, like tourists, also bring significantly different cultures that may conflict with local beliefs and practices. Even when migrants are from similar cultures, serious negative impacts may result (Ashley, 2000). In Negril, Jamaica, for instance, tourist wealth has lured large numbers of migrants from surrounding areas. Migrants now make up more than 60 per cent of the population. Many earn a living from drug dealing and hustling, resulting in serious local discontent with the character of their community (Butler and Hinch, 2007).

One other key impact is the disruption of traditional and subsistence activities by wage labour opportunities and marginally higher incomes offered by tourism (Gossling, 2003; Stronza, 2001). For example, in Zanzibar, Gossling observed that after tourism had become a major economic sector, much of the local population shifted their labour from traditional activities such as fishing and seaweed farming, to tourism-related activities. The industry has also been associated with increased cost of necessities such as land and food, making them unaffordable for locals (Gossling, 2003; McLaren, 2003). In Zanzibar, Gossling (2003) also found out that the price of fish—a vital protein source for the local population—had risen substantially after the growth of tourism. As a result, parts of the population were forced to substitute carbohydrates and vegetables for fish.

Tourism can provide a positive opportunity for cultural exchange and growth in knowledge and understanding. However, today, particularly with mass tourism, this sort of positive cultural interaction between tourists and local communities is rare, because of relatively

short visits by tourists and a general lack of understanding, and in some cases respect, by each group about the other's culture. Language barriers often aggravate this problem (Butler and Hinch, 2007). In many cases, tourists enjoy luxuries such as electricity, clean water, sewage, security and expensive recreation activities to which local people have no access. Large, self-contained hotels that discourage interaction and contact may increase a local sense of being underprivileged (Brunt and Courtney, 1999). Further, according to Butler and Hitch (2007) differences in wealth and lifestyle are exaggerated, as tourists tend to splurge on holidays and due to these differences, local people often envy perceived and real advantages in tourists' lifestyles. In some cases, differences can result in a "demonstration effect," in which local people seek to emulate the culture of visitors. Some of the most common changes are in social behaviour, dress and eating habits (Jenkins, 1997). For instance, Mbugua and Cornwell (2008) have noted that tourism in this coastal town of Malindi has resulted in a very significant change in moral and cultural values of people particularly the youth. A study by Irandu (2006) revealed that in addition to environmental impacts social ills such as breakdown of traditions and crime were on the rise at the Kenya coast as a result of high intensive tourism activity. Kibicho (2009), similarly, observes an increase in sex tourism at the Kenyan coast and in particular homosexuality.

Some tourists travel to other countries with the motives of engaging in sex with children. Thailand, Cambodia, India, Brazil, Colombia and Mexico have been identified as countries where child sexual exploitation is prevalent (Butler and Hinch, 2007). In Thailand, children make up about 40 per cent of prostitutes in that country (Burke and Ducci, 2005). In Kenya, according to a 2006 study by the Government and the UN Children's Fund, 30 per cent of teenage girls in the coastal towns of Diani, Kilifi, Malindi and Mombasa were involved in casual sex work (UNICEF, 2006). In 2004, Kenya introduced the "Code of Conduct for the Protection of Children against Sexual Exploitation in Travel and Tourism" to create awareness and prevent commercial sexual exploitation of children (Ministry of Tourism, 2003). Irandu (2004) emphasises the need for proper visitor management to minimize negative impacts on the host communities.

2.7.3 Labour Issues in Tourism

Tourism employs more women and young people than most other sectors; providing economic benefits and independence to women is very important in terms of supporting child development and breaking the cycle of poverty (Ashley, 2006). A number of labour issues affect the tourism industry. They include women's rights, fair wages, long working hours, qualification and skills requirements for employees, inability to join trade unions, importing of labour and displacement of traditional employment to benefit from tourism dollars. In 2005, the International Society of Hospitality Consultants (ISHC) published a report in which human resources development was identified as one of the 10 most critical issues facing the hotel industry (ISHC, 2006). Although hotel chains have been addressing environmental concerns for years, the labour issues that affect the hospitality industry have only recently come to light (Dodds and Joppe, 2005).

Tourism workers often do not earn a living wage and are dependent on tips and service charges. Many workers have temporary contracts or none at all, work long hours and are employed in low skilled areas such as waitressing and/or house cleaning. Employment in the hotel industry is usually characterized by low-wage positions with little opportunity for advancement. A majority of employees are hired at minimum wages set by local governments, while managers in higher-paid positions are typically imported from the home countries of the large international hotel chains, allowing them to reap most of the financial benefits (Dodds and Joppe, 2005). By contrast, local populations benefit only from low or semi-skilled, poorly paid jobs (cooks, maintenance workers, hotel cleaners, barmen, gardeners, bus drivers, etc.).

According to the International Labour Organisation, women make up 70% of the labour force in tourism industry and half are under 25 years of age. Yet women are often the most undervalued, underpaid exploited workers within the tourism industry (ILO, 2001). The UNWTO states that women in tourism typically earn 10% to 15% less than their male counterparts, and many undertake unpaid work in family tourism businesses. Women are often excluded from decision-making and see less of the tourism's benefits. They are more vulnerable to exploitation from sex tourism, fuelled by poverty and unequal power relations (Simpson, 2007)

2.8 Measures Taken by Hotels to Address Negative Impacts

The tourism industry faces a multitude of significant sustainability-related challenges that need to be resolved through the greening of the industry include energy and greenhouse gas emissions, water consumption, waste management, loss of biological diversity; and, effective management of cultural heritage. The hotel industry, as one of the critical components of tourism has a major role to play in addressing the negative social and economic impacts of tourism (Peeters et al, 2010). Hotels and hotel companies around the world have implemented creative initiatives to reduce their impact on the environment. This section discusses some of the best practice examples various hotels of differing sizes, ownership and location.

2.8.1 Corporate Social Responsibility Programmes and Strategies

CSR in the hotel industry has rapidly grown in the past few years with a number of hotels and hotel companies taking a more holistic approach in addressing sustainability issues in their businesses (Hawkins and Bohdanowicz, 2011). Individual travellers, NGOs, governments and banks are changing their perceptions regarding the impact current business practices have on the future state of the environment and societies, and in view of that, about what responsibilities hotels bear with regard to improving the outlook for the future (PriceWaterHouse Coopers, 2006). Accor Hotels is one of the earliest hotel companies to embrace Sustainable Development. The hotel group has an Earth Guest Policy that focuses on the local development, child protection, fight against epidemics, and food elements of social responsibility. The program started as an environment strategy in 1994, and sustainable development became an official company strategy in 2002 (Houdre, 2007). Other major hotel chains that have taken steps towards sustainable business practices are InterContinental Hotels Group (IHG), Fairmont Hotels and Resorts, and Rezidor Hotel Group (Houdre, 2007). Central to the IHG CSR strategy is the idea of simultaneously addressing business objectives and issues affecting the community in which the hotel operates (IHG, 2007). In 2006, the company created and hired a manager to fill a senior position of Vice President Global Corporate Responsibility (Houdre, 2007).

In India, the Taj Hotels Group is another good example of a hotel chain with a strong corporate social responsibility history. As one of the companies of the multi-billion dollar Tata group, and being based in India, it has developed many endeavours in all areas of sustainable development and particularly helped support a number of social projects including building

livelihoods with a clear focus on women, artisans, and the education of children. Taj's fundamental belief is based on the saying from Mahatma Gandhi, that "the Earth provides enough to satisfy every man's needs, but not every man's greed" (Houdre, 2007).

As networking and a general environmental responsibility measure the Regional Chief Engineer of InterContinental Hotel Nairobi complied two environmental information booklets, designed for non-engineers on "Energy Conservation and Awareness and Environmental Auditing" and "Environmental Management for Small and Medium Sized Hotels in Developing Countries" (IHA, IHEI and UNEP, 1995). The booklets were developed to improve hoteliers' understanding of environmental issues and provide practical suggestions on simple, low-cost measures to improve environmental performance. They were disseminated to over 50 small and medium sized hotels in Kenya and to other InterContinental Hotels in Africa in place of a traditional Christmas cards. A number of facilities reported application of the measures identified in the booklets with many positive results (IHA, IHEI and UNEP, 1995). A review of websites of various hotel chains indicates that the Serena Group, Intercontinental Hotel Group and Fairmont Hotels and Resorts have active CSR programmes in Kenya.

2.8.2 Development of Environmental Management Systems

ISO 14000 is a series of environmental management standards and guidelines developed and promoted by the International Organization for Standardization (ISO). The series that is most relevant to tourism and hospitality is ISO 14001, which provides standards and certification for corporate environment management systems (Whitelaw, 2004). Companies seeking certification under ISO 14001 are required, as a minimum, to have developed and implemented an environment management system and conducted an audit on environment management system. Certification is based on 'production or service processes' rather than on the product or service itself. In other words, ISO 14000 is concerned with how companies manage the processes through which goods and services are produced, rather than the environment attributes of the final product or service itself. Many tourism and hospitality businesses all over the world have already applied and received certification under ISO 14001.

Green Globe 21 combines both the Agenda 21 principles and the ISO 14001 Environmental Management System (Green Globe 21, 2001). It was launched in 1994 by WTTC and IH&RA following the 1992 Earth Summit in Rio and is currently one of the most widely

used self-regulation systems within the travel and tourism industry (Bohdanowicz, 2005). The Green Globe 21 initiative is dedicated to improving the environmental performance of all travel and tourism companies, regardless of size, sector, location or level of environmental activity. Currently four operational standards have been developed: the GG21 Company Standard; the GG21 Community Standard; the GG21 International Ecotourism Standard; and the GG21 Design and Construction Standard (Green Globe 21, 2003; 2004). Just like ISO 14001, GG21 requires an environmental policy, environmental targets and a system to measure performance against those targets, commitment to comply with legal requirements, and communication and documentation procedures. Under the Green Globe 21 standard, facilities must re-certify annually as opposed to every three years with ISO 14001 (Font and Harris, 2004).

At sector level, in 2001, the International Hotels Environmental Initiative (IHEI) collaborated with WWF-UK to develop the environmental benchmarking tool for hotels called IHEI Benchmark hotel tool. A number of IHEI hotel member groups including Hilton International, Marriott International, Scandic Hotels, and Six Continents Hotels participated in the development of this tool by providing data and testing the tool to ensure its usefulness for various types of hotels (Hooper et al, 2001). A number of other NGO-led or country level sustainable tourism initiatives have also been developed. Examples for these include Voluntary Initiatives for Sustainable Tourism (VISIT) applicable in Europe, the LEED (Leadership in Energy and Environmental Design) certification program developed in the USA by the United States Green Building Council, the Costa Rican standard Certification for Sustainable Tourism (CST), Green Deal (Guatemala), and Scotland's Green Tourism Business Scheme (GTBS) (Dodds and Joppe, 2005).

At the company level, some hotels have developed their own benchmarking and reporting mechanisms. For example, the Hilton Environmental Reporting (HER) scheme developed by the Hilton International was applied to more than 400 hotels of its hotels worldwide. Launched in 2004, HER is based on experience from 7 years of resource consumption reporting at the Scandic Hotel chain. Scandic had developed a system called SUS (Scandic Utility System) to help in keeping track of resource usage and its variation over time. When Scandic was acquired by Hilton International, SUS was upgraded into a more sophisticated HER and introduced to all Hilton International facilities worldwide (Bohdanowicz, 2007).

ISO certification is rapidly growing in Kenya. The Kenya Bureau of Standards (KEBS) has published in its website a list of firms and other establishments operating in Kenya that have been ISO certified in various categories. The InterContinental Hotel Nairobi, Hilton Nairobi Limited and Sarova White Sands Beach Resort and SPA are listed as having been awarded ISO (KNWA 01:2009) for excellence in food and hygiene catering (KEBS, 2011). There is no hotel listed as having been as ISO 14001-2004 on Environmental Management Systems.

2.8.3 Energy Management

The sustainability and competitiveness of tourism depends in part on energy efficiency (reductions in overall energy use) and a more intensive use of renewable resources. Other than transport, accommodation is the most energy intensive component of the tourism industry, through its demand for heating or cooling, lighting, cooking (in restaurants), cleaning, pools and, in tropical or arid regions, the desalination of seawater (WWF-UK and IBLF, 2005). Energy is also one of the most important overhead costs in hotels. It is demonstrated that to be the second highest operating cost, coming after salaries (ITP, 2008).A general rule is that the more luxurious the accommodation, the more energy will be used. In a wide review of studies, energy use in hotels range between 25 and 284 MJ/guest-night (ITP, 2008).

Most hotels can reduce energy consumption by 20 to 40 per cent without compromising guest comfort (ITP, 2008). In order to do so, hotels need to benchmark performance from year to year to be able to monitor and improve performance (WWF-UK and IBLF, 2005). Energy consumption in hotels varies depending on a number of factors such as the amount of water consumed; whether they operate absorber chillers; if they have pools and spa facilities; or the number of covers served. Energy benchmark standards have been set. For example, the excellent electricity benchmark for a typical luxury hotel in a temperate climate zone is <135 kWh/m^2, whereas the excellent electricity benchmark for a typical luxury hotel in a tropical climate zone is <190 kWh (ITP, 2008). Key energy conservation measures in hotels include: Measuring and benchmarking energy consumption; frequent maintenance to ensure equipment is operating efficiently; installing meters, low-energy lighting and timers on appliances; using energy management systems linked to room occupancy; and installing combined heat and power systems (WWF-UK and IBLF, 2005). Investments in more efficient energy uses and improved

management practices may lead to lower operating costs and energy bills, with relatively short investment payback periods.

Tracking utility bills can help properties monitor the effectiveness of their energy conservation initiatives. By installing energy-efficient technologies such as appliances, lighting and heating/cooling systems, hotels can produce cost savings on their monthly utilities bills. As documented by WWF-UK and IBLF (2005), the Hilton International continuously monitors the global impact of its operations and energy consumption, and the associated CO_2 emissions are monitored and targeted to reduce global impact. In 1997, the chain carried out an energy investigation programme in all its European hotels to see how energy was being used. Energy audits identified areas for improvement to plant, equipment and housekeeping methods. A process called Monitoring and Targeting was undertaken at the Hilton Strasbourg and required detailed sub-metering of energy usage in the hotel so that each area and department could take responsibility for his or her own energy consumption. The process reduced Hilton Strasbourg's energy use from 571kWh/m^2 to 527kWh/m^2. The Fairmont Dallas has installed tinted windows and digital thermostats in their guest rooms to reduce the consumption of energy resulting in US$50,000 savings in electricity costs annually (Fairmont Hotels and Resorts, 2008). The Otani in Japan, on the other hand, installed a new air conditioning and kitchen system, through which it achieved a 14% savings in energy and a 30% carbon emissions reduction (Ernst and Young, 2008).

Lighting is the second largest energy-using system in a hotel, and is probably the easiest and most cost-effective area for reducing energy costs. According to the Alliance to Save Energy, fluorescent lamps produce four times as much light per watt than incandescent lamps, and they can last eight to ten times longer. A compact fluorescent light used in place of an incandescent light that is left on continuously for 12 months, all 8,760 hours of the year, will pay for itself in less than one year. The Sheraton Tacoma Hotel developed a project to transition to compact fluorescent light fixtures. The staff replaced 2,000 incandescent light fixtures with quadruple-tube compact fluorescent light bulbs in various areas of the hotel such as the guest rooms and the lobby. The cost saving was calculated at up to $15,000 with a payback rate of 18 months. The Seattle Westin Hotel, on the other hand, achieved a 66 per cent reduction in guest room wastage and an annual savings of $400,000 by changing incandescent bulbs to energy

saving compact fluorescent light bulbs and improving control mechanisms (CELB and TIO, 2003).

In 2007, Singapore launched the Energy Smart Buildings Scheme for hotels as part of the Singapore Ministry of the Environment and Water Resources' push for energy efficiency in the country, since hotels are among the largest energy consumers in the building sector. Singapore hotels account for about 18% of the electricity consumption in buildings. Hot water production in a hotel often makes up a considerable portion of total energy use. The Regent Hotel Singapore used to rely on diesel boilers to produce hot water at a cost of S$29,000 per month. In 2006, a new heat recovery system was implemented. This system uses a small capacity chiller that also acts as a heat pump to produce hot water. A simple return on investment analysis demonstrated that the payback period for this new system was only 1.5 years (WTO and UNEP, 2008)

In the US, the Seattle Westin Hotel in the state of Washington, overhauled its entire lighting system in 1993, changing incandescent bulbs to CFLs and improving control mechanisms. Through this program, the hotel has achieved a 66 per cent reduction in guest room wattage with overall savings from the lighting system estimated at US$400,000 per year (TIO and CELB, 2003). The Taj Group of Hotels uses solar heating to meet 50 to 100 per cent of the hot water needs of all of its hotels. The Group has found that its investments in solar power pay for themselves in as little as two years (TIO and CELB, 2003). In the US, the number of hotels and lodges installing energy sensors in guest rooms is on the increase. In 2010, the practice was estimated to be at 43 per cent up from 21 per cent in 2006 (AH&LA, 2010)

Solar power is being recognized more and more commonly as a limitless natural resource with economic and environmental benefits. In contrast, gas and oil are non-renewable resources and contribute emissions of greenhouse gases. Today, solar power is being harnessed in many new systems providing thermal and light power to hotels in innovative ways. For example, the Taj Group of Hotels, which uses solar heating to meet 50 to 100 per cent of the hot water needs of all of its hotels, has found that investments in solar power pay for themselves in as little as two years (TIO and CELB, 2003). At the Frogs Hollow Lodge in Darwin, Australia, solar water heaters on the roof meet up to 50 per cent of the lodge's hot water requirements (Tourism Council Australia and CRC Tourism, 1998). Maryland Sea Lodge Hotel in China generated 50 per cent more power than needed from solar panels and wind turbines. The hotel is completely

carbon neutral---with no carbon offsets (China National Cleaner Production Centre, 2011). In Kenya, Sanctuary Olonana, Basecamp Masai Mara, Campi Ya Kanzi, Elephant Pepper Camp and Amboseli Porini Camp, that have all been given a 'Gold' level eco-rating certification by Eco-tourism Kenya have combined use of low energy bulbs and tapping of solar energy for lighting in order to cut back on energy costs (Eco-tourism Kenya, 2008). Further Campi Ya Kanzi and Amboseli Porini Camp uses charcoal briquettes for all its cooking and have developed innovative charcoal fridges for preserving vegetables (Eco-tourism Kenya, 2008). Severin Sea Lodge, a four star hotel at the Kenyan coast was the first develop a solar energy system for lighting in the country (Severin Sea Lodge, 2011).

2.8.4 Water Management

Reducing water consumption and preventing encroachment into wetlands can only be achieved if the tourism industry, the government and individual tourists take concrete measures such as installing water saving devices, reusing water, enacting water saving policies and adopting a land use plan that respects environmental considerations. Efficient water use is one of the easiest measures to implement, not only through facilities design but also through good management practices. Hotels can take up a number of measures to water more wisely. IHEI and WWF-UK (2001) outline the key measures.

Operational practices such as staff training programmes for efficient water management, regular and effective maintenance, guest education, washing towels and linen on guests' request, minimising water use in the grounds by planting indigenous species and sweeping rather than hosing down exterior walkways. Collecting rainwater for use in garden irrigation and (after purification) for washing food, cooking and drinking. Taking advantage of water saving technologies such as water meters, low flow taps, timers, grey water systems, cooling water re-circulation, rinse water re-circulation and waterless urinals. Water meters are a useful tool, as they allow managers to detect heavy water consuming equipment and activities. Through regular reading and monitoring, a water meter can enable comparisons to industry benchmarks and water saving measures to be undertaken.

With regard to direct water use for tourists, Fortuny et al. (2008) demonstrated that many water-saving technologies relevant to hotels and other businesses have short payback times (between 0.1-9.6 years), making them economically attractive. Investments in water-saving

systems, grey water reuse and rainwater collection and management systems can help reduce water consumption by 1,045m^3 per year, or a 27 per cent lower volume per guest per night. Many water conservation strategies have payback periods measured in months, weeks, or even days. Cost savings result from 1) direct water cost savings, 2) reduced energy costs for pumping, heating, and treating water, and 3) reduced size requirements, initial costs, and maintenance costs for water-related infrastructure such as pumps, tanks, grease traps, septic tanks, and wastewater treatment plants (IHA, IHEI and UNEP, 1995).

The Fairmont Royal York in Toronto saves 476,000 litres of water per day by having an installed water softener that reduces water use for laundry. Previously, the ice machines and freezer units at the Fairmont Palliser in Calgary, Alberta would discharge the water used to cool the compressors. This water is now redirected, reducing the hotels water consumption by 30 per cent. The heat energy from these units is also reclaimed to heat the domestic hot water and pool water (Graci and Dodds, 2009). The first eco-friendly resort, the Maho Bay Camp in St. John was opened in 1976 and utilizes low flush composting toilets, spring action faucets and showers, rainwater catchments and solar heated water to conserve natural resources and minimize the footprint that the hotel and visitors leave on the island (Ernst and Young, 2008). Newer or more efficient technologies can also reduce water use through recycling. For example, toilets that use "graywater" from showers for flushing can result in significant savings. For example the Apple Farm Inn and Restaurant, a luxury hotel in California, USA, which uses discharged water from washing machines to flush toilets, saving 15,900 litres of water per day and approximately $5,000 per year (TOI and CELB, 2003).

Toilets and urinals are high consumers of water. Presently, there are options to control this situation such as lower flush volumes, and systems are being introduced that separate solids from the fluids. For instance, the Willard Intercontinental in Washington D.C. has implemented water-free urinals resulting in savings of 95,000 gallons of water in 2005 (Willard InterContinental Hotel Washington D.C, 2009). The THC Rotorua Hotel in New Zealand, on the other hand, had urinals that flushed automatically every nine minutes. Each flush used 10 litres of water. This added up to 66 litres per hour or 1,580 litres per day, regardless of whether the urinals had been used or not. The total consumption for three urinals was 4,740 litres daily. The hotel then installed detectors that sense when the urinals are being used and allow flushing to occur at a specified time after use. This program reduced water consumption in the three urinals

from 66 litres per hour to 40 litres during the day and 20 litres in the evening. In addition to installing the urinal sensors, the hotel installed low-flow showerheads at a cost of $3,060. The annual cost savings for the water conservation came to $5,244, with a payback of only seven months (TOI and CELB, 2003).

Another target for hotels is water consumption in washing machines and air-cooling systems. For example, the Saunders Hotel Grouphad to reduce water use due to high water rates and uses restrictions. The hotel chain includes the Boston Park Plaza Hotel, the Copley Square Hotel, and the Lenox Hotel. The hotel group's SHINE program annually saves four million gallons of drinking water, 225,000 kilowatts of electricity, and more. They installed new and efficient laundry systems, switched from water-cooled to air-cooled ice machines, and eliminated water-cooled air conditioning equipment. These projects saved the hotel 1.5 million gallons of water annually (IHA, IHEI and UNEP, 1995).

2.8.5 Waste Water Management

Reusing treated wastewater reduces the volume of freshwater used and this minimizes pressure on freshwater resources. About 50 per cent of wastewater from hotels can be recycled (ITP, 2008). For example, Minneapolis City Centre Marriot Hotel, Minnesota inaugurated laundry grey water and cold-water reuse systems. The grey water reuse system obtains the last rinse water from one wash load, filters and transfers it to a holding tank where it is heated to 140^0F using a steam heat exchanger. The grey water is then used as first wash water for the next wash load. The cold-water reuse system obtains water from the discharge of water-cooled condensers, water-cooled heat pumps and heat exchanger on the dry cleaning machine. The water is held in a cold-water storage tank and used as a cold water supply for the washing machines. Both of these systems allow water to be used twice before being discharged (UNEP, 2003).

Hotels can also improve the quality of their wastewater discharge by both reducing contaminants that they put into wastewater and improving treatment through non-bleached, recycled paper and organic foods, use biodegradable products,. In addition, through control of the use and disposal of items such as grease, food wastes, chemical pesticides, fertilizers, chlorine bleach, oil and paints. Instead, natural products such as salt, vinegar and baking soda may be used as a substitute for chemicals used to clean ovens, drains, windows and floors. On

water recycling, Severin Sea Lodge, a 400-room facility at the Kenyan coast was the first one to set up a biological wastewater purification system. The purification system is developed in accordance to international standards and can clean up to 150,000 litres of wastewater per day (Severin Sea Lodge, 2011). The Fairmont Royal York, in Toronto, Canada, installed a commercial water softener that reduced water use in the laundry on one wash and one rinse per cycle, saving 476,000 litres of water per day (ITP, 2008). The Radisson SAS Resort located in Sharjah, United Arab Emirates, on the other hand, increased the proportion of water that it reused to 75 per cent through filtration and cycling of all grey water from public areas, hotels rooms, kitchen and restaurants.

In Australia, the Green Island Resort is known for its best environmental management especially water and disposal of waste. The high cost of importing water from 20 kilometres away from the mainland calls for optimum harvesting of rainfall. The architecture of resort buildings is designed to allow direct infiltration of runoff on to the land surface and deep percolation to the underlying aquifer. Grey water from the island's sewerage treatment plant is recycled and reused for toilet flushing, landscape irrigation and as a reserve for fire fighting. The tertiary treatment sewerage plant has been designed to handle both the resort's effluent and grey water. Sludge residue from the treatment plant is pumped on to a barge each month and transported to the mainland for processing. Liquid effluent from the treatment plant is discharged to the sea through an outfall pipeline with special care taken on the coral environment surrounding Green Island (UNEP, 2003). Serena Kilaguni Lodge, located in Tsavo West National Park in Kenya has installed a waste water treatment system capable of recycling up to 180m^3 waste water per day used mainly for irrigation of the park (Serena Group, 2010). Severin Safari camp, also located in Tsavo West National Park the first holiday camp in Kenya to set up a biological wastewater treatment system in the bush (Severin Safari Camp, 2011).

2.8.6 Solid Waste Management

Waste management can involve solid, liquid, gaseous or radioactive substances, with different methods and fields of expertise for each. A hotel can reduce the amount of waste generated by implementing and following a waste management system that is modeled around the concepts of reduce, reuse and recycle--3Rs (Baker, 2008). The 3Rs waste hierarchy classifies waste management strategies according to their desirability in terms of waste minimization

(Baker, 2008; Kirk, 1996). The waste hierarchy remains the cornerstone of most waste minimization strategies. The aim of the waste hierarchy is to extract the maximum practical benefits from products and to generate the minimum amount of waste (Kirk, 1996).

Hotels can reduce waste by recycling paper, plastic, used batteries, plastic bottles, wine corks, bathroom amenities, cooking oil and even water; reusing materials; composting and buying in bulk to reduce packaging. In addition to environmental benefits, an effective waste management program can have financial benefits for a resort through fewer trash pickups and lower hauling and disposal fees (Hawkins et al, 1995). For existing hotels, the first step in developing a successful waste management program is a thorough review of the types and quantities of waste produced and current disposal methods and costs (IHA, IHEI and UNEP, 1996). Managers should evaluate the environmental impact of their waste, local waste regulations, markets for recycling, and the capacity and constraints of existing or planned facilities (Hawkins et al, 1995). Based on this review, they can determine how each type of waste can be reduced, reused or recycled. Once a waste management program has been established, it should be regularly monitored to ensure compliance with stated targets and guidelines (IHA, IHEI and UNEP, 1995).

A number of hotels run successfully solid waste management programmes. For instance Radisson Suite Hotel in Toronto, implements numerous strategies to achieve its green objectives (AH&LA, 2010). The hotel is recycles aluminium cans, glass, plastic water bottles, and corrugated cardboard. In guest rooms, the hotel has a linen and towel reuse program in place and it has placed blue containers where guests discard used beverage containers. When the linen and towels are no longer usable, they are donated to a local shelter. Used soaps are also sent to a local charity. In back-of-house operations, batteries and light bulbs are being recycled. Recycled paper is used for all in-house printing and staff are strictly encouraged make double sided copies. In Singapore, InterContinental Hotel has saved over quarter of a million US dollars through a range of initiatives from recycling to saving water and energy. In Japan, the hotel management and owners of the mixed-use building housing the Hilton Osaka worked together to improve its solid waste and recycling programme. The hotel believes that this strengthened the relationship between hotel managers, building owners and city officials.

Hotels are increasingly recognizing that composting is a better alternative to dumping food waste, as composted waste can be used as organic fertilizers (Alexander, 2002). Fairmont Hotels and Resorts has a program for converting its cooking oils into bio-diesel at more than 22 of its proper ties worldwide. The Fairmont Scottsdale, for example, has teamed up with an outside firm to transform leftover oil into fuel and has recycled enough bio diesels to supply the annual fuel consumption of about five cars (Greenhotelier, 2008). In Tokyo, the Hilton Tokyo Bay's 'Garbage to Fertiliser' programme sends around 15 per cent or 100 kilograms of the hotel's average daily garbage production for composting. The Willard Intercontinental in Washington D.C. recycled a total of 191 tons in 2008. Landfill wastes (non-recyclables) decreased from 1029 tons in 2005, to 635 tons in 2008, which is a 38% reduction. In 2005, the hotel was able to compost one ton. By 2008, the composting increased to 37 tons with a 33% increase over 2007 (IHG, 2009). The hotel in return has received numerous rewards such as the Mayor's Environmental Award in 2009 and Business of the Year 2009 award for such efforts (IHG, 2009). In Kenya, the Fairview Hotel Nairobi, Amboseli Porini Camp, Campi Ya Kanzi, Sanctuary Olonana, Baobab Sea Lodge and Baobab Beach Resort and Spa have and organic waste compositing units what produces mature used in gardens and flower beds (Eco-tourism Kenya, 2007).

2.8.7 Transport Management

A transportation strategy for hotels and destinations as a whole should reduce the use of fossil fuel-powered vehicles wherever possible (Peeters et al, 2004). Gossling and Peeters (2007) have noted that it is unlikely that hotels and tour firms will abandon the use of motorized transport. However hotel businesses should consider minimizing its use can enhance the experience of tourists by decreasing noise and pollution, contributing to a more relaxed atmosphere and increasing recreation options (WTO and UNEP, 2008). Any motorized transport that can be avoided will make a considerable contribution to reducing the overall emissions caused by an individual trip. Destinations should also consider "no-vehicle zones," which can increase the quality of entire areas. In some cases, electric motors can be an effective substitute for fossil fuel-powered engines. Electric golf carts, for instance, are one option for moving tourists and their luggage around hotel grounds (Gossling and Peeters, 2007). Most cars used by tourists are private cars, even though rental cars have become increasingly important, particularly when visitors have arrived by other means of transport such as air, coach or train, and want to

remain mobile at the destination. Clearly, both tourists using their own cars as well as car rentals have a considerable influence on emissions through their choice of automobiles. The general rule is that smaller, lighter and less powerful cars driven at lower speeds can substantially reduce energy use and emissions (Gossling and Peeters, 2007).

A number case studies on emission reduction from vehicular transport have been documented: For example Scandic Hotels, offers free hire of a bike and helmet to its guests that want to tour the city as a company-wide measure to reduce its carbon footprint (Goodman, 2000). In Sweden (where technology is well integrated) Scandic has a policy that all cars should be hybrids or urn on renewable fuels (ITP, 2008). Hybrid vehicles recharge batteries, which in turn power an electric motor, reducing overall fuel use. On the island of Jersey, UK, a group of hotels and rental car agencies are promoting the use of sustainable technology by encouraging the rental of electric cars. At five of the island's prestigious hotels, guests can rent electric vehicles for the same cost as a mid-size vehicle. At the end of the day, guests can plug in at the hotels to recharge their vehicles. Tourists accepted the project enthusiastically (Jesery Hotels, 1997). Harbour Air Canada, transports more than 300,000 passengers a year. In January 2008, Harbour Air began offsetting every aspect of its corporate operations including lights, heating, paper consumption and ground transportation (WTO and UNEP, 2008).

Managers may also find it practical to combine guest transportation with staff travel or delivery of supplies. Similarly, managers can arrange carpools, boat-pools or a single vehicle to bring staff to work (Gossling and Peeters, 2007). Staff should learn about proper maintenance of vehicles, to reduce environmental impacts and increase the life of expensive machinery. Cars and buses should be kept well-tuned, with wheels aligned and tire pressures at recommended levels. Boat operators should ensure that engines and drives are well tuned and not leaking, and that the hulls are free of barnacles and other objects, which increase drag.

2.8.8 Sustainable Procurement

Green purchasing or green procurement is the purchase of products and services that have a lesser or reduced effect on human health and the environment compared with competing products and services that serve the same purpose (Priego et al, 2011; Greenhotelier, 2007). The most effective way to ensure green procurement is considered is to develop standard procurement policies to help staff select the most suitable product available with the least

environmental and social impacts. Many countries such as Austria and Finland require suppliers to take back and reuse or recycle their packaging waste. A hotel can help reduce hazardous waste generation by making an effort to purchase environmentally friendly products. In Indonesia, the Damai Lovina Villas in Bali has effectively reduced cost by decreasing waste and energy usage. The resort collaborates with a local research centre that provides the resort with environmentally safe agricultural and household products. The resort's restaurant sources 80 per cent of it such as using permaculture to reduce water consumption and increasing crop health, and composting in lieu of using chemical fertilizers, the farm was able to reduce crop production costs by 90 per cent and increase crop production by 20 per cent (ITP, 2008).

Green Seal, an environmental standards organization, has developed an environmental certification program for suppliers that can help hotels choose environmentally friendly products (Salzman, 2008; Bohdanowicz, 2005). Hotels can also take an active role in influencing and working with suppliers. The Langham Hotel in Auckland, New Zealand has developed a Green Suppliers Questionnaire and Sustainable Procurement Policy, which applies the cradle to grave approach to all procurement activity. Suppliers are requested to provide environmental credentials or evidence of an environmental management system. A list of preferred product characteristics has been developed stipulating a range of preferred environmental criteria. The purchasing manager is trained on sustainable procurement by attending conferences and workshops. The Sydney Convention and Exhibition Centre, Darling Harbour, Australia upon reviewing its purchasing procedures decided it would no longer accept food deliveries in Styrofoam packaging which could not be recycled. Thanks to the cooperation of the venue's supplier, food deliveries now arrive in recyclable and reusable packaging (Bohdanowicz, 2009).

Buying locally is crucial in enabling local communities to benefit from tourism. For instance, the Holiday Inn in Sanya, China, uses local bakers and launderers in order to increase the benefit to the community and reduce the impact on the environment (Lee et al, 2010). The Grecotel hotel chain in Greece is using the link between tourism and agriculture to promote sustainable development in the two sectors. The company has made its interest in locally grown organic produce known to local farmers' groups, many of which have expressed a desire to participate in the program, as the hotel offers a guaranteed market and technical assistance from its agronomist. Starwood Hotels and Resorts opened their first 'eco-smart' hotel in the US with the hotel procuring several 'Green Products' in order to maintain a healthy internal environment

(Graci, 2009). Some of the features were challenging builders and suppliers to review how their products and services are produced, packaged and delivered in order to create a more environmentally product. It also ensured all paint, wallpaper, carpets and curtains are free of toxic chemicals; wooden furniture is painted with catalytic varnish through which cannot penetration of harmful chemicals. Bamboo, a sustainable product, was used on the walls of the lobby area; recycled materials feature strongly in the design process; beds are 'organic sleep systems' comprising of organic cotton and wool produced without any toxic bleaches or dyes and the cleaning of rooms and linens is carried out using non-toxic detergents.

2.8.9 Development of Local Economies

Tourism is an important and effective driver of local economic development. Tourist spending enters the local economy to varying degrees depending principally on the structure of the tourism business and its supply chain at a destination (Ashley, 2000). According to Cooper (2008), tourism affects income in different ways depending on the country or region where it develops. Every US dollar spent by overnight tourists, impacts income in the economy between 1.12 to 3.40 times. This high variability indicates that local economic impact development will depend on particular characteristics of the tourism business “model”, in particular the quantity and type of products and services sourced from the local economy. Empirical studies suggest that, at best, between one-fifth of “the poor” from direct earnings and supply chains capture one-third of total tourist expenditure in the destination (Mitchell and Ashley, 2007). The impact of tourism on poverty depends on various factors including employment, the skill level of the labour force, changes of prices (goods and services and factors of production), ownership of micro and small enterprises and labour-market composition. As with income effects, there is increasingly convincing evidence that more sustainable tourism (particularly in rural areas) can lead to more positive poverty-reducing effects. Following are examples of tourism economic impacts in various destinations.

Meyer (2007) found out that in Zanzibar estimate “poor” local people capture that only 10.2 per cent of total tourism income. The study found that the industry is heavily dependent on imports for both primary supplies and staff of suitable quality, both of which are normally avenues for participation of locals. In Panama, households capture 56 per cent of total local tourism income (Hall, 2007). Which households benefit the most, however, depends on the

region in which the tourism revenues are generated. In the Colón Zone, most of the gains in household incomes (63 per cent) go to urban non-poor households and only 20 per cent of the income gains accrue to poor households. In contrast, in Bocas del Toro, where poor households account for a larger share of the regional labour force, 43 per cent of the total increase in household incomes accrues to the poor while the percentage gain in household incomes is nearly the same across household groups. The results for Chiriqui Province report household income gains received by the poor of 19 per cent, although the share earned by rural households is higher (46 per cent). In Costa Rica, Van Der Duim, and Caalders (2008) estimated the impact of tourism on poverty levels and found that without tourism incomes the local incidence of poverty would be higher in urban and rural sectors. In Kenya a study involving communities living adjacent to wildlife protected areas with high tourism activity yielded similar results (Manyara and Eleri, 2007).

2.8.10 Biodiversity Conservation

Tourism and biodiversity are closely linked in terms of both impacts and dependency. Many types of tourism rely directly on ecosystem services and biodiversity (e.g. ecotourism, agri-tourism, wellness tourism and adventure tourism (Sweeting, 2003). According to Christ et al (2003), sustainable tourism, which draws on the principles of ecotourism, can directly contribute to biodiversity conservation in a number of ways in including providing livelihood alternatives for local communities, generating community interest and involvement in conservation, visitor education and generating political support for conservation through environmental education during travel. A survey by Rainforest Alliance (2010) indicated that more than 70 per cent of Latin American hotels support biodiversity conservation and 83 per cent of them indicate that conservation practices have created competitive advantages through operation savings, improved image and process improvements. Ringbeck et al (2010) report significant returns of green investments in tourism at major sun and beach destinations in Spain. The Morgan's Rock Hacienda and Ecolodge in Nicaragua, is part of a 2,500-acre tree farming and restoration project and is surrounded by 2,000 acres of private nature reserve (Graci, 2009). Fiji's Turtle Island Resort has helped to restore the island's ecological diversity by planting 500,000 native trees and maintaining a four-acre organic farm, which provides the island with fruits and vegetables (Graci, 2009).

Fairmont Hotels and Resorts has been committed to the protecting the environment for over 20 years, and as a part of that commitment is always brainstorming creative ways to enhance the brand's eco-focused Green Partnership Program. With growing concerns about Colony Collapse Disorder in North American honeybees, Fairmont saw an opportunity to help by placing hives on some hotels' rooftop gardens. Not only will this help the local environment by providing plenty of bees to pollinate area gardens and parks, but also by harvesting the honey, chefs can offer delicious, local and sustainable honey for use in onsite bars and restaurants. Proving to be a success, the program has now extended beyond North America, with onsite hives thriving in Kenya and China as well (Fairmont Hotels and Resorts, 2010). The Fairmont Norfolk hotel, Nairobi, has planted numerous tropical fruit trees and is upgrading the herb garden so that it can provide fresh produce year-round. In addition to the honey initiative, the Fairmont Mount Kenya Safari Club has a large organic vegetable garden supplying lettuce and vegetables for the hotel and is in the process of building an extensive formal herb garden (Fairmont Hotels and Resorts, 2010).

2.9 Cleaner Production Implementation in Kenya

The Government of Kenya signed the International Declaration on Cleaner Production in August 2000 (NEMA, 2004). Cleaner Production was introduced in Kenya in 2000 and took root with launch of the Kenya National Cleaner Production Centre (KNCPC) in 2001. KNCPC was established in 2000 as a joint project between the Kenya Government and the United Nations Development Programme. The Kenya Industrial Research and Development Institute (KIRDI) host the centre, with technical backstopping from United Nations Industrial Development Organization (UNIDO). Its mandate is to coordinate Cleaner Production activities in Kenya and develop national capacity to implement and sustain pollution prevention systems in industry and businesses in the country. Cleaner production implementation in Kenya has followed a strategy of moving from awareness creation through capacity building of institutions to the actual implementation of Cleaner Production Projects. The centre has been operating for the last 7 years and through its efforts registered tremendous progress Cleaner Production implementation in industries and businesses (KNCPC, 2006). In 2001 the KNCPC, collaboratively with Ecotourism Kenya, introduced Cleaner Production in the hotel industry targeting hotels located in high potential areas such as Nairobi City and the Coast region (Eco-tourism Kenya, 2003).

KNCPC is implementing a Cleaner Enterprise Programme involving over 60 companies drawn from major industrial towns in Kenya (KNCPC, 2011). The centre has also established an annual award scheme that recognizes companies that have made great achievements in Cleaner Production adoption and implementation. The centre works with a number of stakeholders in implementing its Cleaner Production programmes. Key ones include an awareness raising initiative implemented jointly with the International Labour Organization (ILO), the United Nations Environment Programme (UNEP) the Federation of Kenya Employers (KFE) and the Kenya Association of Manufacturers (KAM). The centre is working with KAM to facilitate waste and energy audits at the firm level. Through these programmes KNCPC has completed resource efficiency and Cleaner Production audits for about 90 enterprises in Kenya in more than 20 industrial sectors. One of the success stories of the KNCPC interventions is Chandaria Industries Ltd, a firm that produces paper and tissue products. Through Cleaner Production Interventions, the firm achieved 25% reduction in energy consumption, 50% reduction in water consumption and 60% reduction of waste and of waste water. This achieved annual savings in excess of USD 600,000, with negligible total investment (UNIDO and UNEP, 2010). Hotels operating in Kenya that have been internationally recognized for their Cleaner Production implementation efforts include Hotel Inter-Continental in Nairobi and Severin Sea Lodge in Mombasa (TOI and CELB, 2003).

2.10 Classification of Hotels and Restaurants in Kenya

Classification of hotels and restaurants in Kenya is the responsibility of the Hotels and Restaurants Authority. This responsibility is stipulated in the Hotels and Restaurants Act (Cap.494) under regulations 2 and 7 of the Hotels and Restaurants (Classification of Hotels and Restaurants) regulations. These classes and standards for hotels and restaurants were established 1988 and revised in 2001 (Kenya Law Reports, 2011). According to regulation 2 of the Hotels and Restaurants (Classification of hotels and Restaurants) Regulations Act 1988, hotels are divided into the following classes: Vacation Hotels, Town Hotels and Lodges. These are further divided into five classes denoted by stars including 2-star, 3-star, 4-star and 5-star (2-star being the lowest and 5-star the highest). The star rating system is based on an international rating system that has been domesticated to suite the local context. The regulations define a vacation hotel as one located within or near a resort area with majority of its clients being holidaymakers;

a town hotel is one located within or near an urban centre with majority of its clients being business travellers. A lodge is one that is located within or near a natural habitat rich in flora and fauna with majority of its clients being leisure seekers. Each of these categories has special requirements that a hotel has to meet to be rated in any of the star categories.

One shortcoming of this classification system is that it does recognize a number of contemporary types of facilities such as villas, cottages, and tented camps. It is also voluntary, meaning a company may chose not to undergo the rating scheme. These are some of the reasons why the Ministry of Tourism made a decision to revise the classification system in 2011 (Ministry of Tourism, 2011). The review and reclassification process was launched in March 2011. This exercise targeted hotels, lodges, villas, cottages, serviced apartments, motels and restaurants). The classification was based on standard criteria developed for the East Africa Community (Ministry of Tourism, 2011). The Ministry's intention is to have all tourism facilities in Kenya, old and new, star-rated and reclassification undertaken on annual basis to ensure high standards are maintained and that the industry remains competitive.

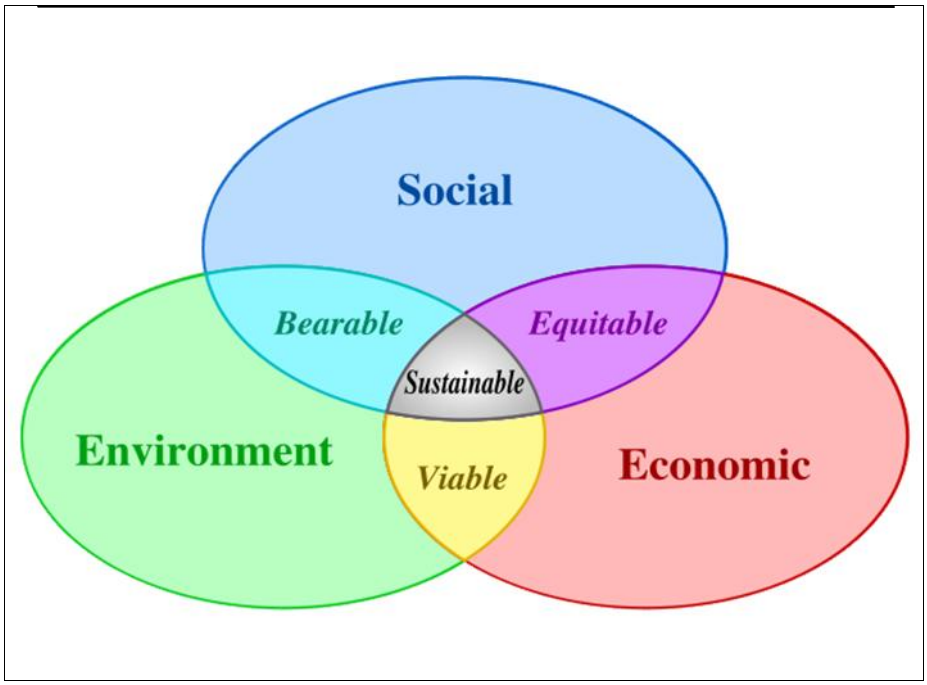
2.11 Sustainable Development Models

The term sustainable development is defined by its proponents as balancing the fulfilment of human needs with the protection of the natural environment so that these needs can be met not only in the present, but also in the indefinite future. The Brundtland Commission (1987) used this term, which coined what has become the most often-quoted definition of sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs. The field of sustainable development can be conceptually broken into four constituent parts. They include environmental sustainability, economic sustainability, social sustainability and political sustainability. Various models have been conceptualized in efforts to explain the concept of sustainable development. This section describes eight of the most common models including the three circles model, the triple bottom line, the Russian doll, environmental footprinting, integrated catchments management system, the five capitals, the natural step framework model, life cycle management model, and cleaner production excellence model.

2.11.1 The Three Circles Model

Also referred to as the three pillars model, this is the widely known model of sustainability. The model is represented by a diagram of interlocking circles reflecting areas of overlap between different attributes (Brady, 2006). Using this model, sustainability conditions are met when decisions sit in the central zone where the environmental, social and economic attributes are all addressed. It is based considering the society, but does not explicitly take into account 'human quality of life'.

Figure 2: The Three Circles Model



Source: IUCN, 2006

2.11.2 The Triple Bottom Line

Closely related to the three cycles model is the Triple Bottom Line model. The phrase Triple Bottom Line (abbreviated as TBL) was coined by John Elkington in 1994 and first published in his 1997 book: "Cannibals with Forks: the Triple Bottom Line of 21st Century Business" (Elkington, 1998). Elkington's argument was that companies should be preparing three different (and quite separate) bottom lines - people, planet, profit representing the three the three pillars of a business or firm. One is the traditional measure of corporate profit—the

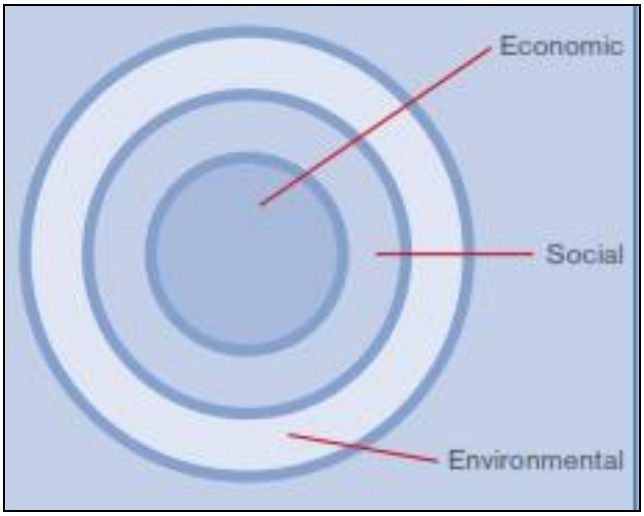
“bottom line” of the profit and loss account. The second is the bottom line of a company's “people account”—a measure in some shape or form of how socially responsible an organization has been throughout its operations. The third is the bottom line of the company’s “planet” account—a measure of how environmentally responsible it has been. The triple bottom line (TBL) thus aims to measure the financial, social and environmental performance of a corporation over a period of time.

Freer Spreckley (1981) first articulated the triple bottom line in a publication called 'Social Audit - A Management Tool for Co-operative Working'. In this book he argued that enterprises should measure and report on social, environmental and financial performance. As it evolved, triple bottom line reporting has been employed by organizations for a plethora of purposes. Some argue that the primary application is no more than a means for enhancing the organization’s public image (Schilizzi, 2002). Others (Cheney, 2004) argue that it is a method for the organization to show its engaging in legitimate environmentally and socially responsible activities. A third application is an acknowledgement and representation of trade-offs made among the three components (CICR, 2004). The reporting formats range from providing a “dashboard” of measures (Epstein and Weiser, 2001) to attempts to monetize all three perspectives (Richardson, 2004).

2.11.3 The Russian Doll Model

This model also acknowledges dependencies among the three (social, economic and environmental) attributes of sustainability. The model emphasizes the primacy of the environment as the supportive medium of humanity and the totality of social activity places it as the largest circle. Within the large circle, society sits and, acknowledging that the economy is a social construct and not an end or viable entity in itself, the third circle of economy sits within society, as illustrated in Figure 3. Economic capital is placed at the centre as the basis of wealth creation, which drives the development engine but at the same time is constrained by environmental and social considerations. This model serves a valuable educational role, though at odds with prevalent views in a world often dominated by economic decisions to the detriment of social and environmental wellbeing.

Figure 3: Russian Doll Model



Source: O'Riordan et al, 2001

2.11.4 Environmental Footprinting Model

Another widely known model, which helps communicate readily understood and important messages about sustainability in a graphic way, is environmental footprinting. An environmental or ecological footprint is a calculation of the land area for the provision of resources and absorption of wastes required to support the total environmental resource demand of a region, individual or corporate activity. This is achieved by various methods that include land use requirements for crop production, absorption of carbon dioxide emissions, and so on. The concept of the ecological footprint is well known amongst ecological economists. It represents the human impact on the Earth in a clear manner. The ecological footprint is one attempt at developing a biophysically based ecological economics, which approximates reality better than many economic expansionist models (Wackernagel and Rees, 1996).

2.11.5 Integrated Catchment Management Systems Model

Integrated catchment management systems (ICMS) is a subset of environmental planning which approaches sustainable resource management from a catchment perspective, in contrast to a piecemeal approach that artificially separates land management from water management (Ashton and Mackay, 1996). Integrated catchments management seeks to take into account complex relationships within those ecosystems: between flora and fauna, between geology and hydrology, between soils and the biosphere, and between the biosphere and the atmosphere. In

its widest possible sense, ICM recognizes the need to integrate all environmental, economic and social issues within a river basin (or related to a river basin) into an overall management philosophy, process and strategy or plan. Thus, ICM is aimed at deriving the greatest possible mix of sustainable benefits for future generations and the communities in the area of concern whilst protecting the natural resources upon which these communities rely (Ashton and Mackay, 1996).

2.11.6 The Five Capitals Model

The Five Capitals model of sustainability was conceptualized by UK sustainable development charity, Forum for the Future. The Five Capitals Model suggests there are five types of capital assets from which we get the goods and services we need to improve our lives: These include natural, human, social, manufactured, and financial capital (Forum for the Future, 2002).

Natural capital (also sometimes referred to as environmental or ecological capital) is the natural resources (energy and matter) and processes needed by organizations to produce their products and deliver their services. This includes sinks that absorb, neutralize or recycle wastes (e.g. forests, oceans); resources, some of which are renewable (timber, grain, fish and water), whilst others are not (fossil fuels) and processes, such as climate regulation and the carbon cycle, that enable life to continue in a balanced way.

Human capital incorporates the health, knowledge, skills, intellectual outputs, motivation and capacity for relationships of the individual. Human Capital is also about joy, passion, empathy and spirituality. Social capital is any value added to the activities and economic outputs of an organization by human relationships, partnerships and co-operation. For example networks, communication channels, families, communities, businesses, trade unions, schools and voluntary organizations as well as social norms, values and trust.

Manufactured capital is material goods and infrastructure owned, leased or controlled by an organization that contribute to production or service provision, but do not become part of its output. The main components include buildings, infrastructure (transport networks, communications, waste disposal systems) and technologies (from simple tools and machines to IT and engineering). Financial capital represents an organisation’s assets that exist in a form of currency that can be owned or traded, including (but not limited to) shares, bonds and banknotes.

Financial capital (shares, bonds, notes and coin) reflects the productive power of the other types of capital.

A sustainable society can be thought of as living off the income generated by capitals (flows) rather than degrading the capitals themselves (stocks) (Forum for the Future, 2002). Sustainability is only possible if all stocks of capital are maintained or increased over time (Brady, 2006).

Table 3: Forum for the Future's Five Capitals Model

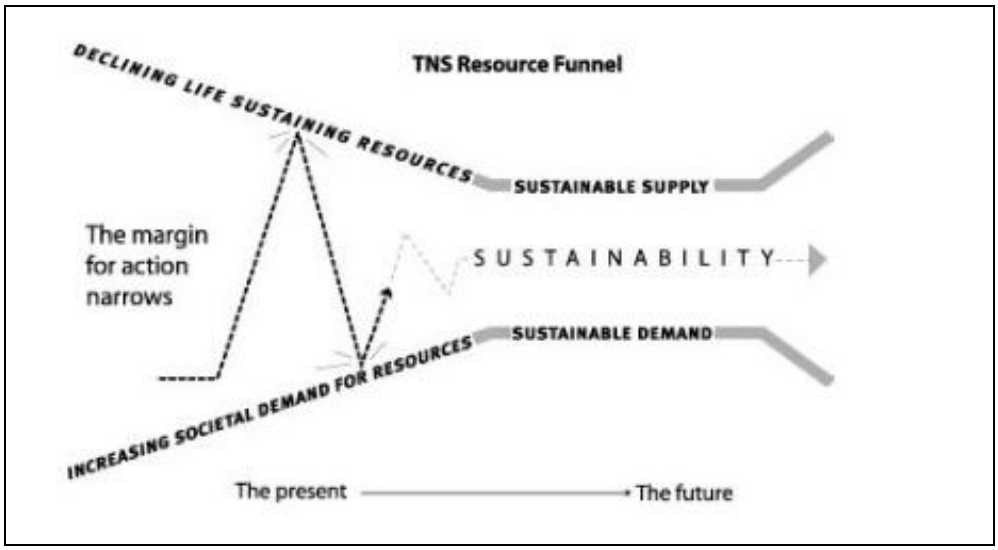
Capital / Resource	**Stock**	**Flow**
Natural	Land, sea, air, vegetation, ecological systems	Food, water, energy, waste disposal, climate
Human	Knowledge, skills, health, motivation, spiritual ease	Happiness, creativity, innovation, work, energy, participation
Social	Families, communities, organizations, governance, systems, schools	Security, shared goods (e.g. culture, education, inclusion, justice)
Manufactured	Infrastructure, roads, buildings, tools, fixed assets	Living working space, access, distribution, recyclates
Financial	Money, stocks, bands, banknotes	Means of valuing, owning or exchanging the other 4 capitals

Source: Forum for the Future, 2002

2.11.7 The Natural Step Framework

International sustainable development charity The Natural Step has developed a set of tools, collectively known as The Natural Step Framework (TNS Framework), based on a systems view of the sustainable natural cycles of this planet and presented within a methodology supporting practical sustainable development decision making. Karl-Henrik Robert pioneered TNS as a non-profit organization in Sweden in 1989 (The Natural Step, 2006). The TNS Framework uses the metaphor of a funnel (Figure 4) to help visualise the economic, social and environmental pressures that will inevitably impinge on society as natural resources continue to diminish and population grows.

Figure 4: The Natural Step Framework



Source: Robert et al, 2002

Chambers et al (2008) explain this funnel as follows "Imagine humanity being poured into the funnel. The sides of the funnel represent the way in which we encounter natural and social limits. One side is the 'supply' axis: the declining ability to provide products and services because of damage caused by pollution and the destruction of habitats. The other represents demand: the increase in the world's population and with it the rate of resource consumption. Entering the funnel, humanity finds itself in increasingly stressful conditions, leading to more intense competition for the remaining resources. As well as further affecting the natural environment, this increased competition yields social problems: inequalities, limited access to the essentials for life, and conflict. As the walls of the funnel close in, we need to ensure we do not place more demands on the environment than can be sustained, either by reducing per capita consumption, or by reducing population, or a range of other activities that will avoid a damaging impact with the many factors that make up the walls of the funnel. This is what it means to live 'within environmental limits'. Ultimately, it is possible for the walls of the funnel to open out again, as we work to restore the capacity of the environment whilst reducing our demands on it."

The Framework translates the fundamental principles that lie behind the environmental limits within which we must live into a set of four basic System Conditions–the rules that govern the relationship between all of us, even the business, and nature. Three basic conditions must be

met if we want to maintain the essential natural resources, structures and functions that sustain human society. Further, a fourth system condition focuses on the social and economic considerations that drive those actions and the capacity of human beings to meet their basic needs (The Natural Step, 2006). The following table contains the four system conditions on the left and the reworded the basic sustainability objectives on the right.

Table 4: The Natural Steps Framework Summary

The Four System Conditions	**Sustainability Objectives**
In a sustainable society, nature is not subject to systematically increasing:	To become a sustainable society we must:
1. concentrations of substances extracted from the earth's crust	1. eliminate our contribution to the progressive buildup of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels)
2. concentrations of substances produced by society	2. eliminate our contribution to the progressive buildup of chemicals and compounds produced by society (for example, dioxins, PCBs, and DDT)
3. degradation by physical means	3. eliminate our contribution to the progressive physical degradation and destruction of nature and natural processes (for example, over harvesting forests and paving over critical wildlife habitat); and
4. and, in that society, people are not subject to conditions that systemically undermine their capacity to meet their needs	4. Eliminate our contribution to conditions that undermine people's capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on).

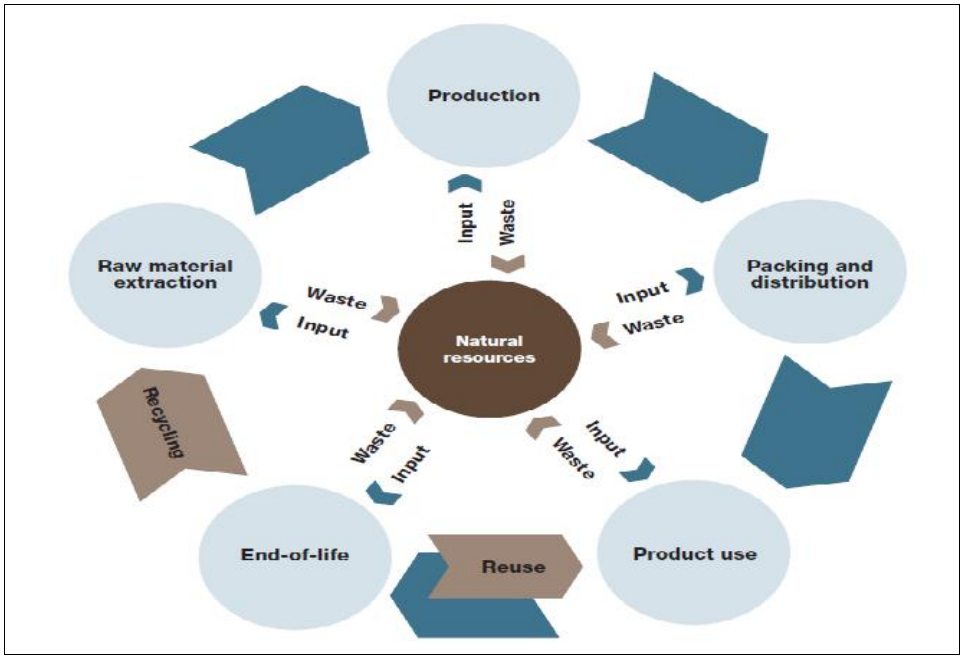
Source: Robert et al, 2002

2.11.8 Life Cycle Management Model

Whereas the triple bottom line, approach considers the social, environmental and economic costs and benefits of a venture. The life cycle approach considers all the steps in the consumption and production process. Life cycle of a product or service life cycle of begins with extracting raw materials that are then produced, packaged, transported, used, and eventually recycled, reused, or disposed. Life Cycle Management (LCM) is a product management system that aims to minimize environmental and socioeconomic burdens associated with an organization's product or product portfolio during its entire life cycle and value chain. LCM is

making life cycle thinking and product sustainability operational for businesses through the continuous improvements of product systems, and LCM supports the business assimilation of policies such as integrated product policies. Remmen et al (2007) note that LCM is not a single tool or methodology but a management system collecting, structuring and disseminating product-related information from the various programmes, concepts and tools incorporating environmental, economic, and social aspects of products, across their life cycle. The organization must 'go beyond its facility boundaries' and be willing to expand its scope of collaboration and communication to all stakeholders in its value chain (Remmen et al, 2007). A life cycle approach allows understanding how choices influence what happens at each of the points in the cycle so as to balance trade-offs and positively impact the economy, the environment, and society. This way of thinking helps recognizing how individual choices and actions are one part of a whole system. Overall, life cycle thinking can promote a more sustainable rate of consumption and production and a more efficient use of our limited financial and natural resources. It enables increased value generation by optimizing output and deriving more benefit from the time, money, and materials we use (McLaren and McLaren, 2009; Remmen et at, 2007; Takata et al, 2004).

Figure 5: Product Life Cycle Model



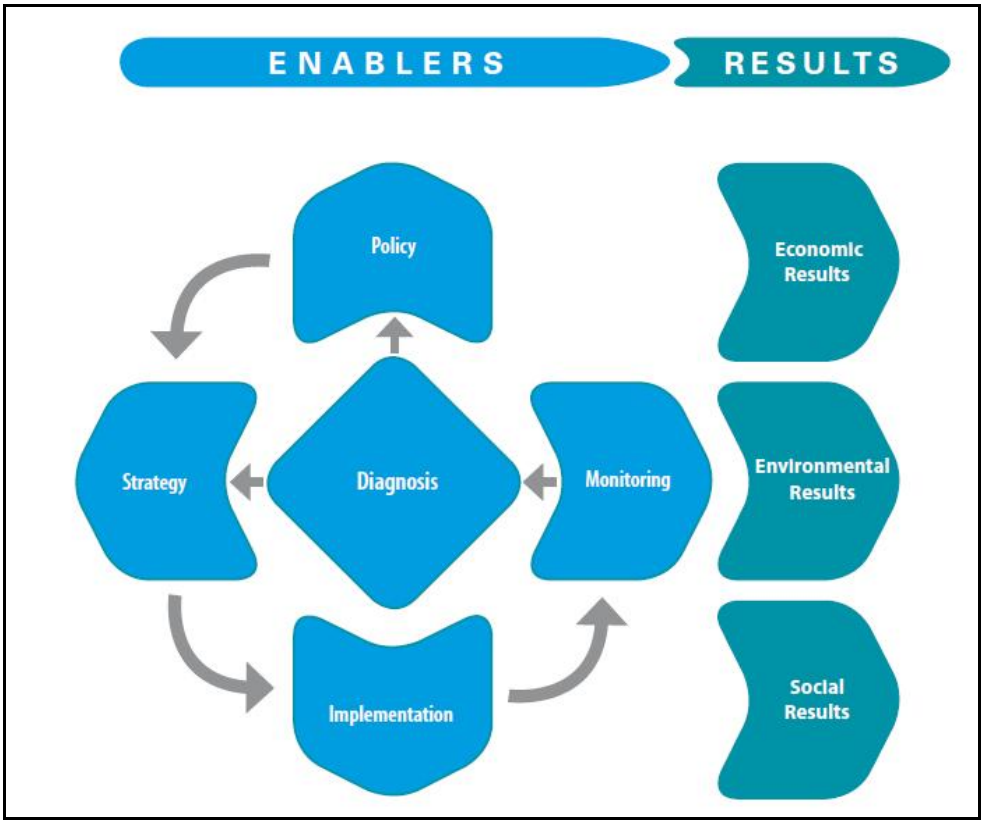
Source: Adapted from UNEP, 2005

2.11.9 The Cleaner Production Excellence Model

The Cleaner Production Excellence Model has been inspired from the European Foundation for Quality Management (EFQM) Model, a non-prescriptive framework for business excellence. The EFQM Model is the most widely used organizational framework in Europe and the basis for the majority of national and regional Excellence Awards (SECO, SBA, RSS & FHNW, 2007). The CP Excellence Model is applicable to all kind of manufacturing organisations regardless of industrial sector (food, beverage, chemical, textile, metal, etc.) or size (large, medium, small). It has been designed as part of a Cleaner Production project financed by the Swiss State Secretariat for Economic Affairs (SECO) and implemented by SBA, the University of Applied Sciences Northwestern Switzerland (FHNW) and the Environmental Research Centre of the Jordanian Royal Scientific Society (RSS).

The Cleaner Production Excellence Model is a framework based on eight criteria. Five of these are 'Enablers', which cover what an organisation does, and the other three are 'Results', which cover what an organization achieves. Enablers cause Results and are improved using feedback from Results. The Model is based on the premise that: 'excellent and sustainable environmental, economic and social results are achieved by applying Cleaner Production in a systematically mode which implies the development and establishment of a diagnosis, a policy and a strategy, the implementation of Cleaner Production options and the monitoring of results'. Since the model represents a sound management system approach, all criteria are directly or indirectly linked (dynamic model) and are interdependent. Figure 6 presents the model in diagrammatic form and illustrates the interrelationships among enablers and results.

Figure 6: Cleaner Production Excellence Model



Source: SECO and SBA-RSS-FHNW, 2007

There are a number of fundamental concepts involved in this model including leadership and management commitment, employee motivation, pollution prevention, recycling, reuse and recuperation, energy efficiency, economic sustainability, social responsibility and continuous improvement. Leadership and Management Commitment are crucial for the establishment of a comprehensive Cleaner Production system. Excellent organisation's senior leaders are committed to set and communicate clear and consistent strategies, which involve the participation of all organizational levels. The development, implementation and improvement of policies and strategies reflect or prove management commitment. Achieving outstanding performances should also be the responsibility of employees throughout the organization. In order to get such "commitment" from them, high levels of motivation are required. Companies could increase their employees' motivation by a continuous training, by increasing their

technical capacities thus making them feel as key contributors to the fulfilment of global objectives and targets.

Pollution prevention involves practices that reduce or eliminate the creation of pollutants at “source” through increased efficiency in the use of raw materials, energy, water, or other resources. Indeed, it includes any practice, such as product or process modifications, input substitutions and good housekeeping that reduces the amount of any hazardous pollutant entering any waste stream (including fugitive emissions) prior to recycling, treatment or disposal. If it is impossible to prevent (reduce or replace) pollution or wastes, they should be considered as potential resources. These can be transformed into useful products or by-products by recycling, reusing and/or recuperation.

Energy efficiency means using energy more efficiently without affecting production levels and quality. Additional benefits could also be obtained as pollutant emissions reduction, production levels increase and materials consumption reduction. It follows the same “prevention” philosophy by focusing on the consumption and losses of energy in processes. Economic sustainability is one of the three pillars of sustainable development. Businesses can survive or achieve reasonable competitiveness if they get economic sustainability. By applying Cleaner Production principles (prevention pollution, energy efficiency, recycling, reusing and recuperation), inputs and outputs costs are reduced thus economic benefits arise.

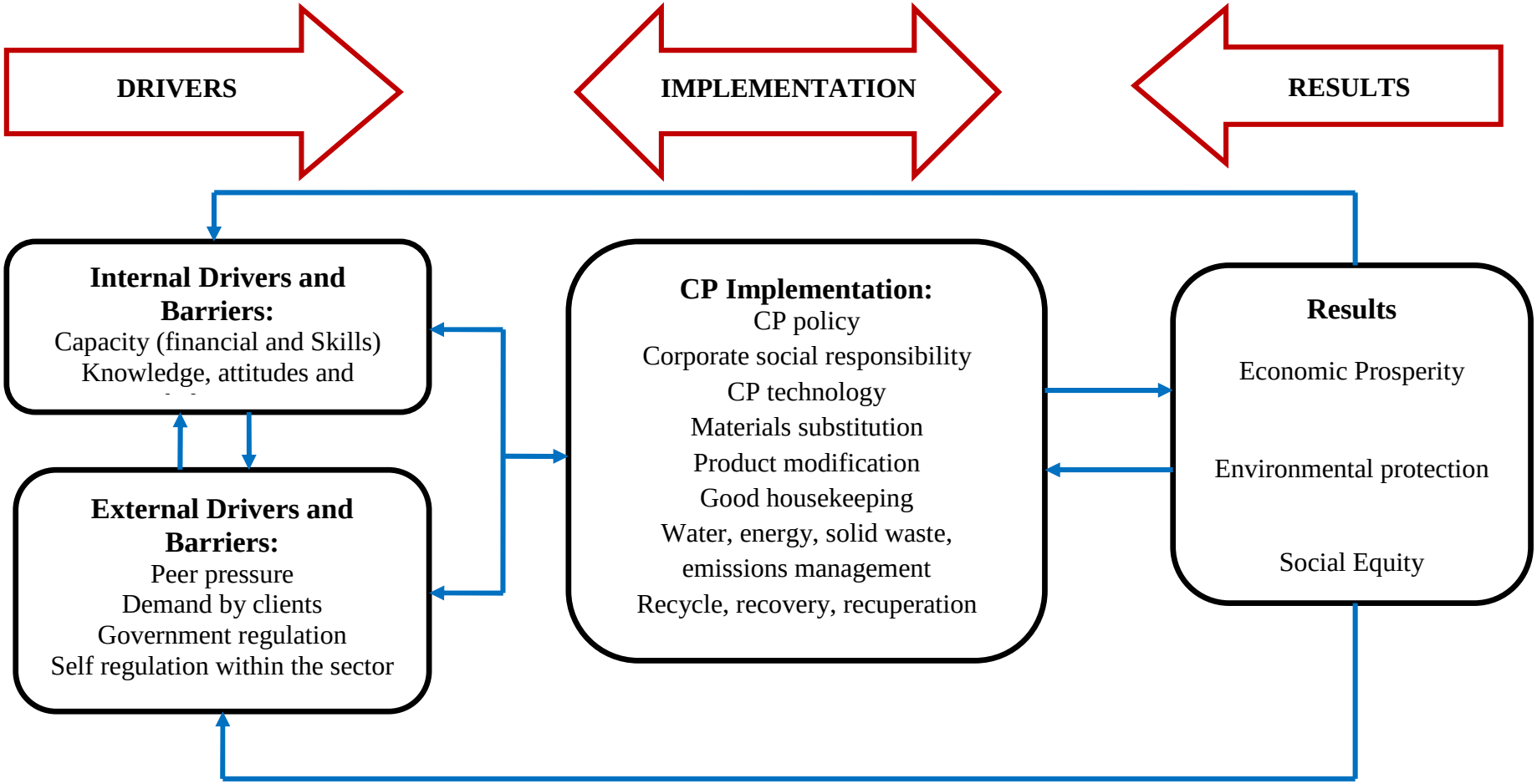
An integrated approach to Cleaner Production creates new capital and employment and improves human health and quality of life. That is why the social aspect, being a component of Sustainable Development, is an integrated part of implementing Cleaner Production. Cleaner Production options should be implemented continuously to achieve high quality standards and thus reach excellence. Continuous improvement means to capture and share knowledge in order to maximize learning across and within the organization, and to look beyond today’s capabilities. Excellent organizations continuously learn, both from their own activities and performances and from that of others (benchmarking). Excellence challenges the status quo by creating improvement opportunities.

2.12 The Conceptual Framework

The Cleaner Production Excellence Model described in section 2.11.9 (and Figure 6) forms the basis of the proposed model for this study. However, researcher has modified the model to suite the hotel industry. The key elements of the model can be divided into three categories: The drivers, implementation, and results. Drivers include all the factors, internal and external, that have an either a positive or negative influence on Cleaner Production implementation (Figure 7). Internal drivers include factors such as financial and technical capacities, knowledge, behaviours and attitudes of those involved in the business. External drivers include peer pressure, client tastes and needs, government and sectoral policies and legislation. The internal and external drivers are interdependent. The actual implementation of Cleaner Production includes particular behaviours and practices in a hotel business involving all stakeholders (shareholders, management, staff, contractors, suppliers and guests). Common Cleaner production practices development of a Cleaner Production policy, corporate social responsibility, cleaner production technology integration, materials substitution, product modification, good housekeeping, water, energy, solid waste, emissions management, recycle, recovery and recuperation.

The outcome (results) of these practices is a more sustainable business that encapsulates all the three attributes of sustainability (environmental protection, social equity and economic prosperity). There is a feedback loop between ‘results’, ‘implementation’ and ‘drivers’. The nature of results attained will not only either positively or negatively influence Cleaner Production implementation at the business level but also strengthen or weaken certain drivers. Interaction of various factors in this system ensures that Cleaner Production is a process of continuous improvement. This study focused on all the three categories of variables in the system: the drivers, implementation practices and results. Specifically, the sought to assess the extent of awareness about Cleaner Production among the star-rated hotels, the Cleaner Production practices the hotels are implementing, and the factors that promote or prevent Cleaner Production implementation among the hotels. The study further aimed at assessing whether there were relationships between star-rating in hotels (external factor) and Cleaner Production implementation, Cleaner Production implementation and compliance (external factor) , and Cleaner Production implementation and hotel occupancy (one of the anticipated results).

Figure 7: Conceptual Model of Cleaner Production in Hotels



Source: Modified from SECO, SBA, FHNW and RSS, 2007

CHAPTER 3: STUDY METHODOLOGY

3.1 Overview

Chapter 3 describes the methodology used in carrying out this this study. It describes the research design for the study, the population and study sample, the sampling design and data collection methods and procedures. The chapter further describes the research procedures to followed and data analysis methods used in summarizing, describing and interpreting the data. Research limitations are also identified and described.

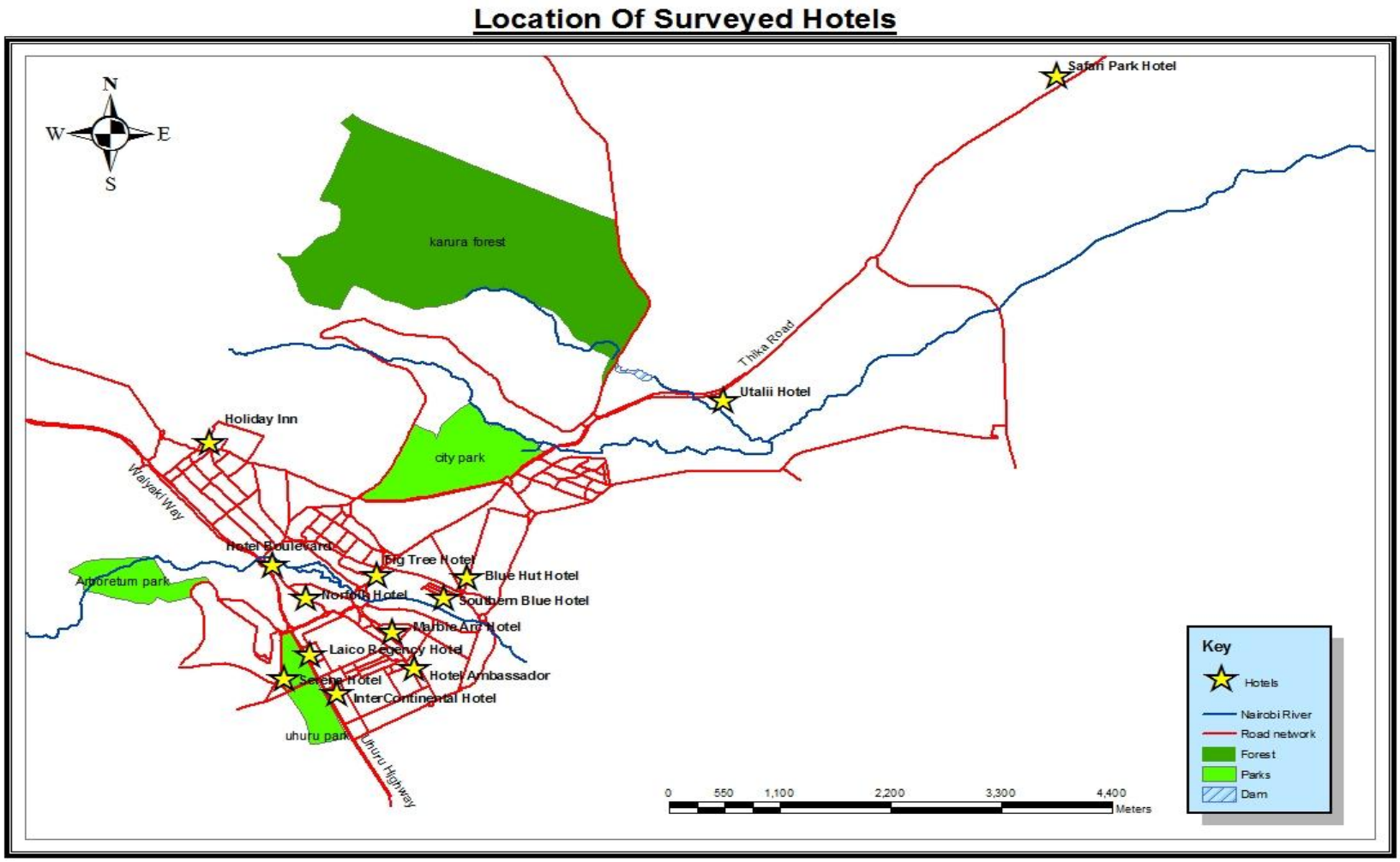
3.2 Research Design

The study will be based on a descriptive survey research design. Saunders et al (2009) and Trochim (2006) recommends a descriptive survey research design for studies aimed at answering the questions on 'who', 'what', 'when', 'how' and 'how much'. Using this research design, the researcher sought to get answers to the questions about which hotels were practicing Cleaner Production, how are they practiced it, to what extent and what are the factors that influence the practices. The design also made it possible for the researcher quantitatively describe the data and describe relationships between that existed between variables.

3.3 Population, Sample Size and Sampling Procedures

The study population was all the twenty-four (24) star-rated hotels in Nairobi County. These included eight hotels in the 5-star category, one in 4-star, eleven in 3-star and four in 2-star. The list of star-rated hotels in Nairobi County, as contained in the Kenya Gazette Notice Number 5693 of July 23rd 2004 was used. This study was a census. The entire population was taken as the study sample in order to reduce the sampling error (Isaac and Michael 1981; Smith 1983). Of the 24 hotels, 13 were responsive and participated in the study. They included four 5-stars, one 4-star, five 3-stars, and three 2-stars.

Plates 1: Location of Surveyed Hotels



3.4 Data Collection Procedures

3.4.1 Nature and Sources of Data

Primary data was obtained through administration of a questionnaire to respondents, conducting interviews with key informants and direct observation. An extensive literature review was also undertaken throughout the study period targeting both published and unpublished sources. The key sources from surveyed hotels included records on occupancy, energy, water and resources consumption, compliance assessments, operational policies, fliers and posters. Other sources were scientific journals, books, and a collection of Cleaner Production case studies published by the hospitality industry stakeholders. Relevant policies and legislation by the Kenyan Government were also reviewed. Websites of selected hotels and hotel corporations, government bodies, United Nations agencies (particularly UNEP and UNIDO that are spearheading the adoption and implementation of Cleaner Production globally) and non-governmental organizations were also visited for information and updates. The researcher also subscribed to online newsletters and email listservs for updates and case studies on sustainable hospitality and Cleaner Production. Comments not observed

3.4.2 Research Instrument

Based on information obtained from the review of relevant literature, a survey instrument was designed for the purpose of collecting primary data (Annex 1). The instrument contained a series of questions based on the performance standards expected of hotels in various aspects of Cleaner Production including regulation and compliance, management of energy, water and other materials, green procurement, food and safety measures, solid waste management, emission and pollution reduction, staff welfare and corporate social responsibility. The questionnaire had both open ended and closed questions. Some questions had checklists for selection and others required respondents to rate variables on a Likert scale of 1 to 3, where 1 was completely implemented, 2 was partly implemented and 3 not implemented at all. Respondents of the survey included managers, department heads and technical staff responsible for various aspects of Cleaner Production in the targeted hotels. The number of respondents ranged between 2-5 persons depending on the extent of specialization and division of labour within the business. Pre-testing of the questionnaire was conducted on two hotels (one being a 5-Star and the other a 2-Star). The actual data collection involved focused group discussions, one-to-one interviews, and perusal of corporate records and observations.

3.4.3 Key Informant Interviews

Open-ended interview technique was used in conducting the key informant interviews for key stakeholders relevant to Cleaner Production mainstreaming in Hotels. Purposeful sampling was used to identify key informants for this study. These included the management of the Kenya National Cleaner Production Centre, Eco-tourism Kenya, the Kenya Association of Hotel-Keepers and Caterers, the National Environment Management Authority, and the Hotels and Restaurants Authority in the Ministry of Tourism. The interviews were conducted with key informants from these stakeholder groups, mainly to corroborate some of the information given through structured questionnaires and to find out respective roles in promoting Cleaner Production adoption and implementation in hotels.

3.5 Data Analysis and Presentation

Data entry and processing was done using Microsoft Excel. Analysis was completed by use of both Microsoft Excel spreadsheet 2007 version (de Levie, 2004) and the Statistical Package for Social Sciences (SPSS) version 17 (Levesque, 2006; Wellman, 1998). As a first step, the data was to sorted and organised into variables. The data was then coded. The research used a numerical coding system than letters to avoid any confusion later during analysis. Once coding was completed, data was then transferred to SPSS for Windows Version 17 for further analysis. During the analysis process, questions that were not answered by the majority of respondents were excluded from the analysis and were treated as missing data. Descriptive statistics and correlation analysis were used in data analysis. The descriptive statistic used included, means, percentages and ratios. The analysis outputs were presented using frequency tables, bar graphs and pie charts. Spearman's rank correlation analysis (at 0.05 level of significance) was used to test the three hypotheses of this study. The hypothesis included assessing existence of relationships between: star-rating of the hotels and Cleaner Production implementation; Star rating and compliance of hotels with government regulations; and Cleaner Production implementation and Hotel occupancy.

3.6 Research Limitations

Key limitations to this study were time, finances, non-responsiveness of respondents and data limitations. Time limitation was mainly in relation with the availability of respondents due to the busy schedules of targeted respondents and the fact that the researcher was a part-time

student utilizing study leave days from work to complete the study. On average, each questionnaire took 30-45 minutes to administer. The researcher arranged with respondents to meet during time they were free especially early mornings and evenings. Questionnaire interviews and discussions were also completed in groups and this helped safe a significant amount of time. Financial limitations were mainly associated with the collection of data on some variables such as measurements of hotel floor space (required to calculate rate of energy consumption), taking measurements of solid wastes and water and air quality assessments, among others. These specific measurements were in the original study design but activities were in the original design, but were later dropped due to high cost implications.

Hotels staffs were generally hesitant to disclose information related to business performance. A few hotels were also worried about exposure of environmental and business malpractices to the regulatory agencies. This was addressed by a pre-visit to the hotel to explain the aim of the study and seek permission from senior management and in certain cases even the owners themselves. The researcher also combined the study with some level of sensitization of hotel staff on the simple things they could to reduce operating costs, which the management of various hotels found very helpful. The researcher also signed confidentiality agreements with the hotels.

On data limitations, Cleaner Production is a new concept in developing countries and very few empirical studies have been carried out on the subject. In fact the researcher encountered severe lack of literature on Kenya- and Africa-based studies on Cleaner Production and sustainable hospitality. A number of hotels were also found not to have the required records especially on solid waste management. In most cases, data collected from the hotels was corroborated with information collected by the Ministry of Tourism on Hotels, the Kenya National Association of Hotel Keepers an and Caterers and the National Environment Management Authority.

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1 Overview

Chapter 4 summarises the findings and results of this study. The areas covered include response rate, the characteristics hotels surveyed, general awareness of Cleaner Production in the survey sample, factors influencing the adoption and implementation of Cleaner production, and the extent of implementation of the various aspects of Cleaner Production (including general environmental management practice, energy, water, waste management, water, solid waste, pollution, air quality, noise pollution, occupational health and safety and staff welfare). Finally, the chapter presents and discusses the results of hypotheses testing on the relationships between star-rating and Cleaner Production Implementation, Star-rating and Compliance, and hotel occupancy and cleaner production implementation.

4.2 Response Rate

As explained in the previous chapter, the population size for this study was the 24-star rated hotels in Nairobi County. Out of the 24 hotels, 13 hotels actually participated in the study representing 54% response rate *(*Table 5*).*

Table 5: Surveyed Hotels Response Rate

Star-Rating Category	No. of Hotels in Category	No. of Hotels participating in the Study	Response Rate (%)
5-Star	8	4	50%
4-Star	1	1	100%
3-Star	11	5	45%
2-Star	4	3	75%
Total	24	13	54%

4.3 Characteristics of the Surveyed Hotels

The hotels surveyed are all private companies save for one, which is public property (i.e. owned by the Government of Kenya). In terms of ownership, majority of the hotels were either individually owned or belonged to an international chain of hotels, while others were owned by

local partnerships and local chain of hotels. Studies elsewhere have found that foreign ownership of hotels accounts for around 18%, of which 14.5% is non-African (Kenya Investment Authority, 2008). Of the 13 surveyed hotels 5 (38%) are owned by foreigners (4 multinational companies and 1 individual-family); whereas five are owned by individuals while nine are owned by companies (both local and international). Further companies (3 multi-national and 1 local) own almost all the four five-star hotels surveyed. Table 6 summarizes the details of the surveyed hotels.

Table 6: General Information about the Surveyed Hotels

Name of Hotel	**Position of Respondents**	**Ownership**
Nairobi Serena Hotel	• Human Resources Manager • Assistant Food and Beverages Manager • Front Office Manager • Hotel Engineer	International chain
Hotel Ambassador	• Food and Beverages Manager • Marketing Manager	Individual
Blue Hut Hotel	• Maintenance Officer • Personnel Manager • Hotel Manager	Individual
Fig Tree Hotel	• Accountant/Admin Officer • Managing Director	Local Partnership
Southern Blue Hotel	• Hotel Manager • Chef Maintenance Manager	Individual
Laico Regency Hotel	• Human Resources Manager • Hotel Engineer • House Keeper, • Food and Beverages Manager	International Chain
Utalii Hotel	• General Manager • Environmental Planning and Management Officer	Government of Kenya
Fair View Hotel	• Pay-roll Coordinator • Assistant Food and Beverages Manager • Maintenance Coordinator • Executive House Keeper	Individual
InterContinental Hotel Nairobi	• Public Relations Officer • Hotel Engineer • Maintenance Technician • Food Safety Officer • Laundry Manager	International chain
Marble Arch Hotel	• Food and Beverages Manager • Front Office Manager	Individual
Hotel Boulevard	• Manager Trainee	Local chain
Holiday Inn	• Home Keeping Supervisor • Human Resources Manager • Maintenance Assistant Manager • Food and Beverages Manager	International chain
Safari Park Hotel	• Human Resources and Administrative Manager • Hotel Engineer • Food and Beverage Manager	International chain

4.4 Bed Capacity and Staffing level of Surveyed Hotels

There are 433 hotels in Nairobi City with 15,684 beds (Ministry of Tourism, Kenya, 2009). Out of these only 24 are star-rated in accordance to the Kenya Gazette Notice Number 5693 of 23rd July 2004 (GoK, 2004). The surveyed hotels had a total 2, 678 beds and 1,636 rooms and served by 2,674 employees. Most of the employees were Kenyan national safe for 10 that were foreign nationals.

Table 7: Number of Rooms, Bed Capacities and Staffing of the Surveyed Hotels

Hotel	**No. of Rooms**	**No. of Beds**	**Star-rating**	**Kenyan national**	**Foreign national**	**No. of Staff**
Nairobi Serena Hotel	183	264	5	456		456
Laico Regency Hotel	196	388	5	450	2	450
InterContinental Hotel	376	590	5	546	4	550
Safari Park Hotel	204	285	5	400	3	403
Fair View Hotel	120	246	4	240		240
Ambassador Hotel	80	190	3	50		50
Utalii Hotel	53	105	3	145		145
Marble Arch Hotel	42	85	3	75		75
Boulevard Hotel	70	140	3	65		65
Holiday Inn	171	349	3	165	1	166
Southern Blue Hotel	50	112	2	32		32
Blue Hut Hotel	56	100	2	26		26
Fig Tree Hotel	35	70	2	16		16
TOTAL	**1,636**	**2,678**		**2,466**	**10**	**2,674**

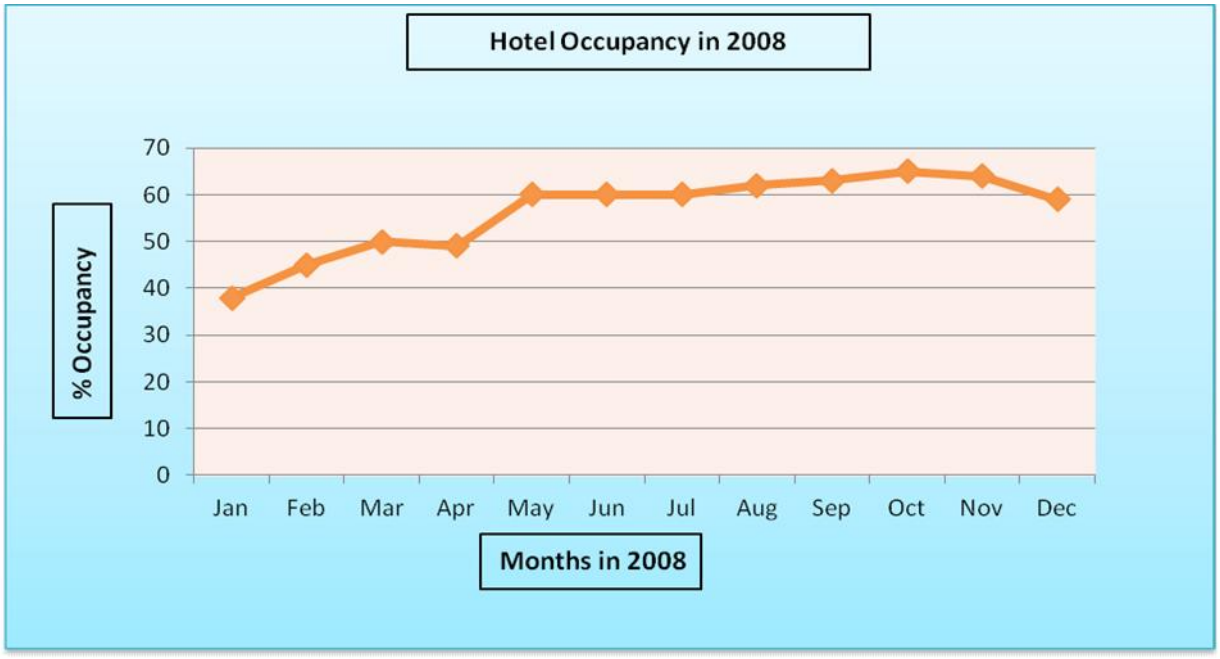
Source: Field data 2009

4.5 Hotel Occupancy Rate for 2008

Year 2008 was Kenya's worst in terms of performances of the tourism sector. The poor performance was attributed to the controversial 2007 presidential elections and the crisis that followed continuing for most part of the first half of 2008. The Kenya Tourist Board (KTB) estimated that tourist arrivals fell 45 per cent to 274,419 in the first three months of 2008 from 501,863 in the same period in 2007. The approximate 30 per cent drop was experienced in most part of the year, with the average national room occupancy rate for the year placed at 34 per cent (KNBS, 2009).

The study found out that the per cent monthly hotel occupancy within the surveyed hotels rose steadily within the year – tapering off from November (Figure 8). Although the general occupancy in most of the hotels dropped by 30.4 per cent the proportion of bed-nights in Nairobi went up by 4.5 to 19.4 per cent in 2008. The surveyed hotels had an average occupancy rate of 57%. This fairly good performance was attributed to the large number of conferences and seminars held in Nairobi City with the aim of finding lasting solutions to national crises resulting from the contested 2007-2008 national presidential elections.

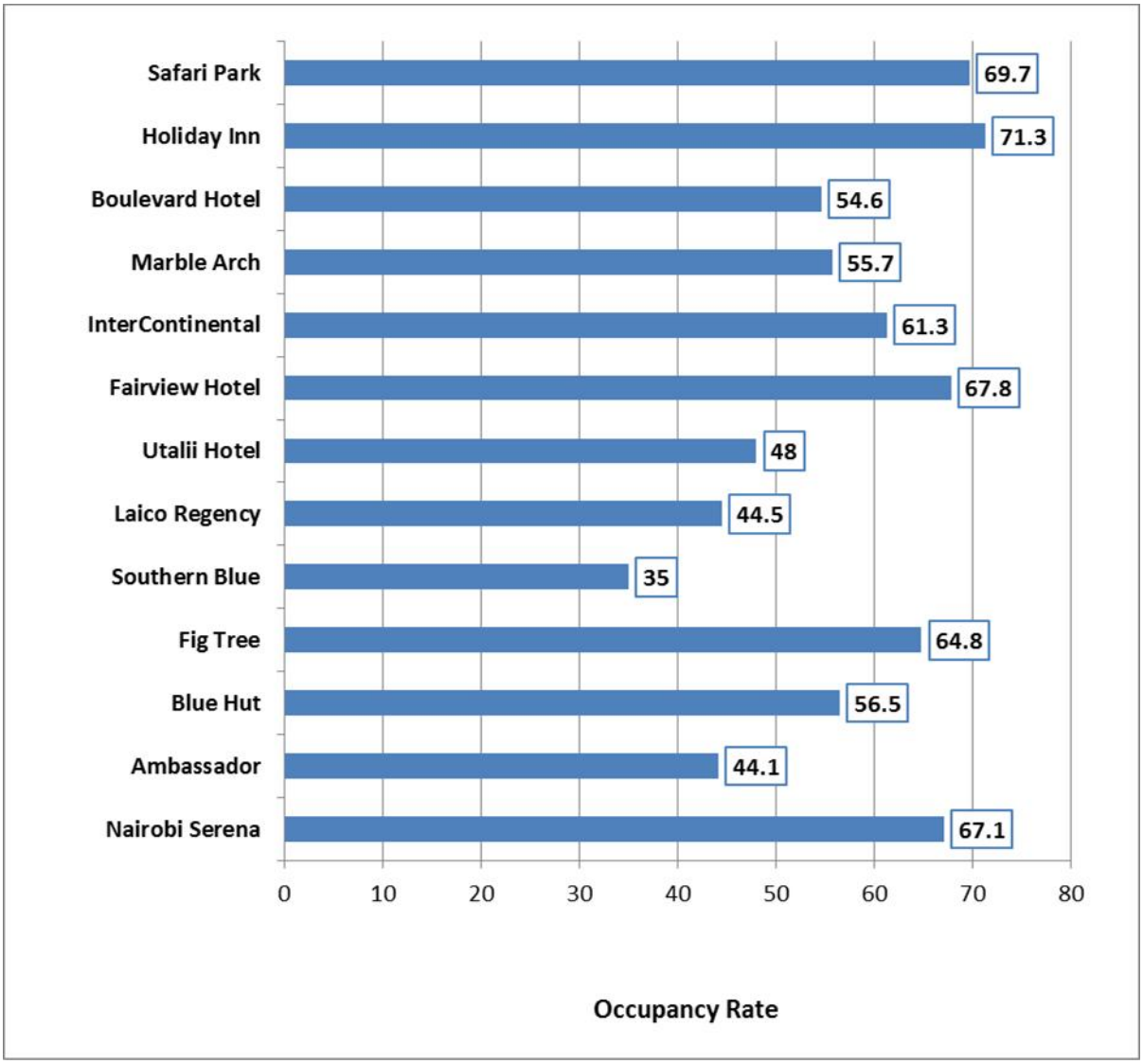
Figure 8: Hotel Occupancy in 2008



Source: Field data, 2009

In terms of average occupancy within individual hotels, there was a very huge margin. This variance was attributed to factors such as location with respect to the Nairobi Central Business District (CBD) as well as the standards observed (e.g. security, guest relations, location, among others).

Figure 9: Occupancy Rate per Hotel, 2008

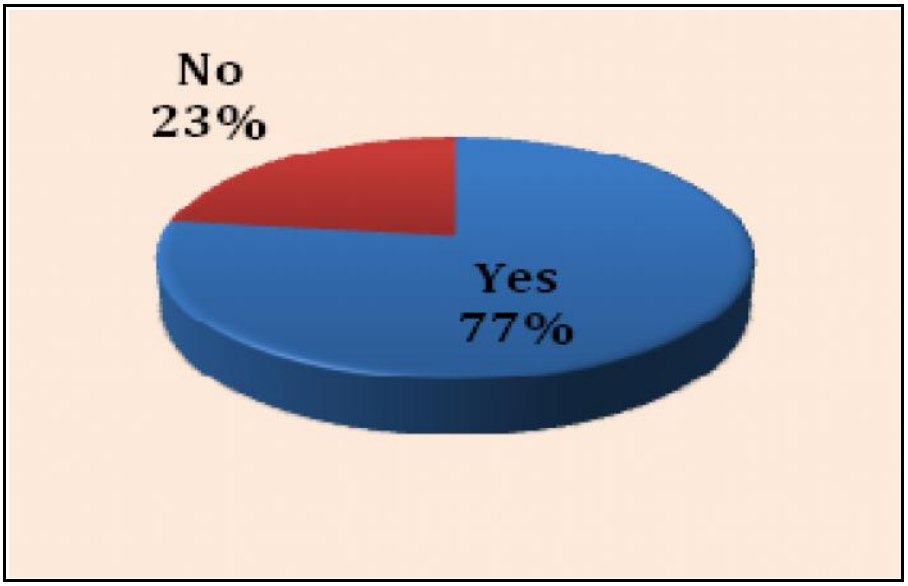


Source: Field data, 2009

4.6 Source of information about Cleaner production

The study found out that 77% of the hotels studied knew about Cleaner Production or related concepts such Good Environment Management Practice, Eco-efficiency, Pollution Prevention and Life Cycle (Figure 10).

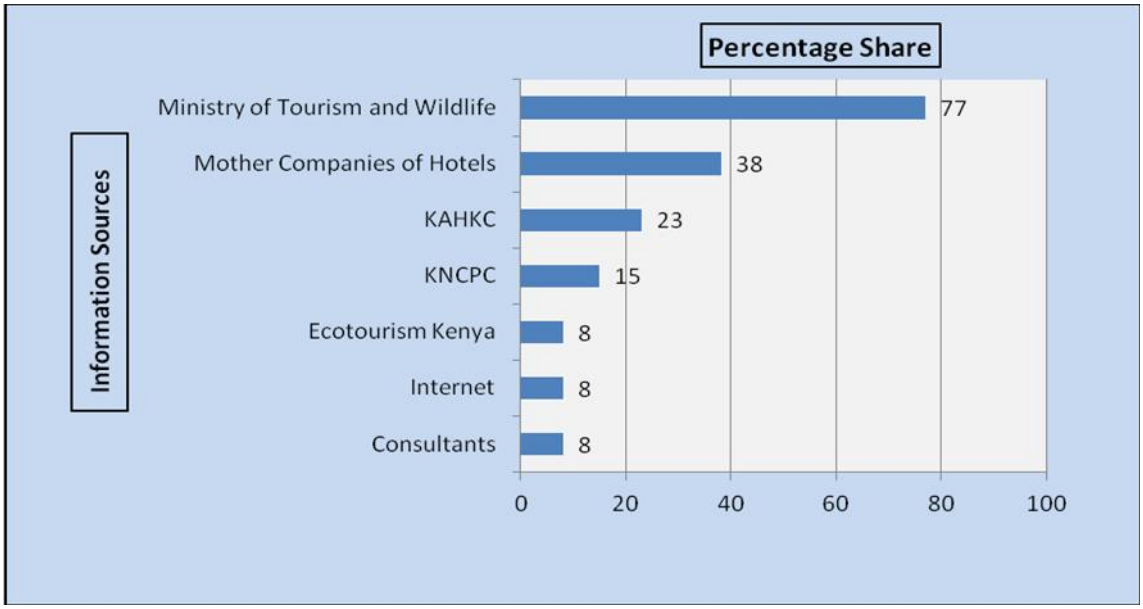
Figure 10: Percentage of Respondents that Know about Cleaner Production



Source: Field data, 2009

Most of the respondents indicated that they came to know about the concept through the Ministry of Tourism and Wildlife. Only 15% and 23% of the respondents knew about the concept from the Kenya National Cleaner Production Centre (KNCPC) and the Kenya Association of Hotel Keepers and Caterers (KAHKC) respectively. None of the respondents reported as having received the information from NEMA nor any other hotel and business applying the concept. A few of the respondents reported having been told about the concept by the mother company for the hotel business. From this analysis, it is very clear that a lot still needs to be done in educating the hotel sector about Cleaner Production.

Figure 11: Sources of Information about Cleaner Production



Source: Field data, 2009

4.7 Year of Adoption of Cleaner Production

The United Nations Environmental Program (UNEP) initiated a program to promote the adoption of Cleaner Production across various industries in 1989 (UNEP, 1994). The Kenyan government signed the International Declaration on Cleaner Production in August 2000 (NEMA 2004). From the survey in can be noted that this happened much later after a number of hotels and businesses had already began implementing Cleaner Production. However, it can be noted that the uptake of Cleaner Production in surveyed hotels has not been very impressive despite the generally high level of awareness about the approach among the hotels (Table 8).

Table 8: Year of Adoption of Cleaner Production

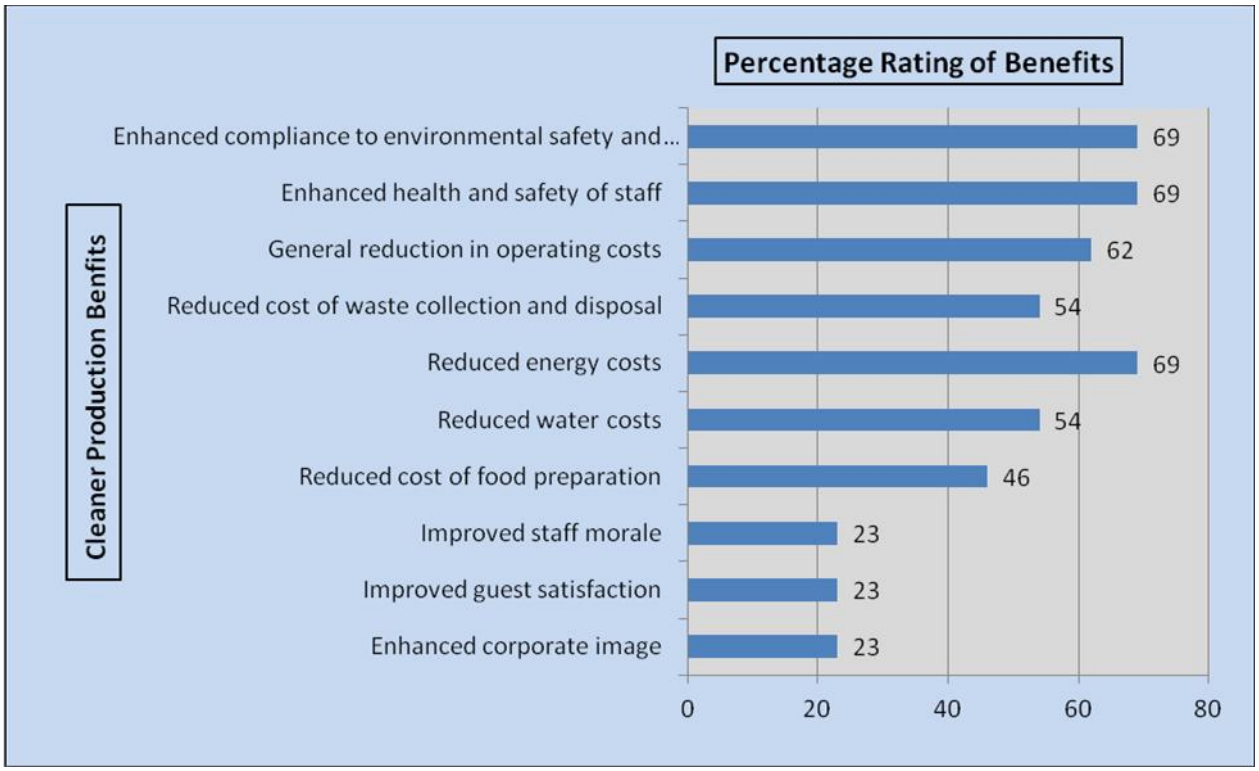
Year of adoption of CP	No. of Hotels
1990	2
1994	1
1998	1
1999	2
2002	3
2004	1

Source: Field data, 2009

4.8 Benefit of Cleaner Production Implementation in Hotels

Empirical studies have variously documented a number of benefits businesses can get from implementing Cleaner Production. These include savings costs (through reduced resource use and enhanced efficiency); enhanced ability to meet customer needs and expectations; increased staff morale and sense of ownership; improved image of the company; compliance and risk management as discussed elsewhere in this report. In this study, respondents were asked to rank various benefits associated with Cleaner Production implementation in hotels. The benefits they favourably ranked included reduced operating costs, reduced energy costs, enhanced compliance with government laws and regulations and reduced health and safety risks for staff (all rated at more than 60% of the respondents). Factors that seemed to least influence the adoption and implementation include enhanced corporate image, improved guest/client satisfaction and improved staff morale (all rated at 23%) as shown in Figure 12.

Figure 12: Benefits associated with Cleaner Production implementation in hotels



Source: Field data, 2009

4.9 Factors Influencing the Adoption of Cleaner Production

This section looks at the factors that may be influencing the adoption and implementation of Cleaner Production in surveyed Hotels positively or negatively. The formula used to calculate these degrees of adoption was based on the Likert Scale (Uebersax, 2006)

$$WACP = \frac{[5(N1) + 4(N2) + 3(N3) + 2(N4) + 1(N5)]}{N}$$

Where:

WACP: Weighted adoption of Cleaner Production by the hotel

N_1 … N_5: Number of respondents per score. The scores are here taken as 1 to 5, with N_1 representing individuals who cited the factors as very significant, while N_5 being the number of respondents who indicated the stated statements as insignificant contributors.

N: Total number of respondents (here taken as 13 hotels)

4.9.1 Internal Drivers

The respondents identified the following factors as the most significant internal factors promoting Cleaner Production.

- The perception that Cleaner Production enhances compliance with government laws and regulations
- The implementation of Corporate Social Responsibility (CSR) program addressing environment and social issues that affect the hotels
- Management commitment to good environmental and social practices

On the other hand, previous proven benefits from that accrue from the implementation of Cleaner Production such as reduced expenditures on energy and water, improved employee morale, and improved community relations was found to have less effect on encouraging adoption and implementation of Cleaner Production in the surveyed hotels. This could be attributed to the fact that not many of the surveyed hotels have developed effective mechanism for tracking use of resources and associated costs.

Table 9: Internal Drivers of CP Implementation in Hotels

Internal Driver	Weighted Rating
CP enhances compliances with government laws and regulations	1.33
Includes CSR programmes that are sensitive to the environment and social issues	1.67
Management commitment to good environment and socially responsible practices	1.90
Synergy with other self-regulation mechanisms	2.22
High level of staff awareness with environmental issues, policies and trends	2.60
Proven benefits of adopting CP practices	3.90

Source: Field data, 2009

4.9.2 External Drivers

External factors influencing the adoption of Cleaner production were also investigated. Key factors identified by respondents included: ability to learn the technology from others (both locally and internationally); availability of expertise to always consult and contract; and high competition within the industry, especially among peers. However, good information sharing among the industry players; support given by other stakeholders including local and international NGOs; and pressure from the community whose levels of awareness have increased, were less significant factors based on rating by respondents as seen in Table 10.

Table 10: External Drivers of CP Implementation in Hotels

External Driver	Weighted Rating
Learning from others	1.90
Availability of local expertise	2.50
Peer influence	2.50
Demand by clients	2.80
Support by the Hotel industry associations	3.10
Skills inflow from new employees	3.11
Incentive programmes on the adoption of CP	3.22
Innovative government laws and regulations	3.56
Information sharing among industry players	3.67
Pressure from sensitized communities	4.00

Source: Field data, 2009

4.9.3 Internal Barriers

Internal barriers for the adoption and implementation of Cleaner Production in Hotels that respondents rated highly include the high cost of investing in environmentally friendly technologies and the high cost of improvement practices and high operating costs. Cases of poor records keeping and low levels of awareness of hotel personnel on good environmental management practices were also highly rated. On the other hand, negative attitude of hotel staffs to environmental conservation and failure of accounting systems to capture environmental costs and benefits of running a business were rated as the least significant deterrents.

Table 11: Internal Barriers of CP Implementation in Hotels

Internal Barriers	**Weighted Rating**
The high cost of CP technologies	1.61
The high cost of integration/implementation of CP practices	1.91
Pressure to make short-term profits	2.29
Resistance to change by hotel management and staff	2.44
Poor record keeping	2.55
Low level of awareness on good environmental management practices	2.55
Low level of awareness on social issues	2.67
Lack of skilled staff	2.70
Negative staff attitudes on environmental conservation	3.27
Weak accounting systems to capture and apportion costs	3.67

Source: Field data, 2009

4.9.4 External Barriers

Respondents identified the following key external barriers the adoption and implementation of Cleaner Production in hotels.

- Lack of government-led mechanisms to promote adoption and implementation of Cleaner Production.
- Inadequate or lack of government-led incentives to encourage businesses to adopt Cleaner Production.

- Lack of appropriate financing mechanism for Cleaner Production. Considering the factor that Cleaner Production technology is expensive, many businesses that may have already embraced it can fail to implement due to financial limitations.
- Weak enforcement of environmental legislations by the government. The factor that the Kenyan Government does not have a policy of Cleaner Production is in itself a major hindrance.
- Inadequate or lack of support by and from the stakeholders (e.g. The Kenya Association of Hotel Keepers and Caterers, other tourism and caterers, eco-tourism Kenya and NGOs) working on tourism. This fact is reinforced by findings in this study that most of the information on the Cleaner Production concept does not come from key industry players such as the Association of Hotel Keepers and Caterers, the Kenya National Cleaner production Center, and NEMA.

Past studies have identified incentives, knowledge and training as key whose presence or lack of drive Cleaner Production implementation in hotels (Kasim, 2009; Bohdanowic, 2006; Edwards, 2004).

Table 12: External Barriers of CP Implementation in Hotels

External Barriers	**Weighted Rating**
Lack of government led mechanism to promote CP adoption and integration in businesses	2.08
Lack of government incentives for CP adoption and integration	2.17
Lack of appropriate CP financing mechanisms	2.55
Weak enforcement of environmental regulations by government	2.55
Inadequate or lack of support from other stakeholders	2.58
There is no national CP policy	2.80
Uncertainty about CP benefits and costs	2.83
Low level of awareness about CP within government	3.45

Source: Field data, 2009

4.10 Regulation and Compliance

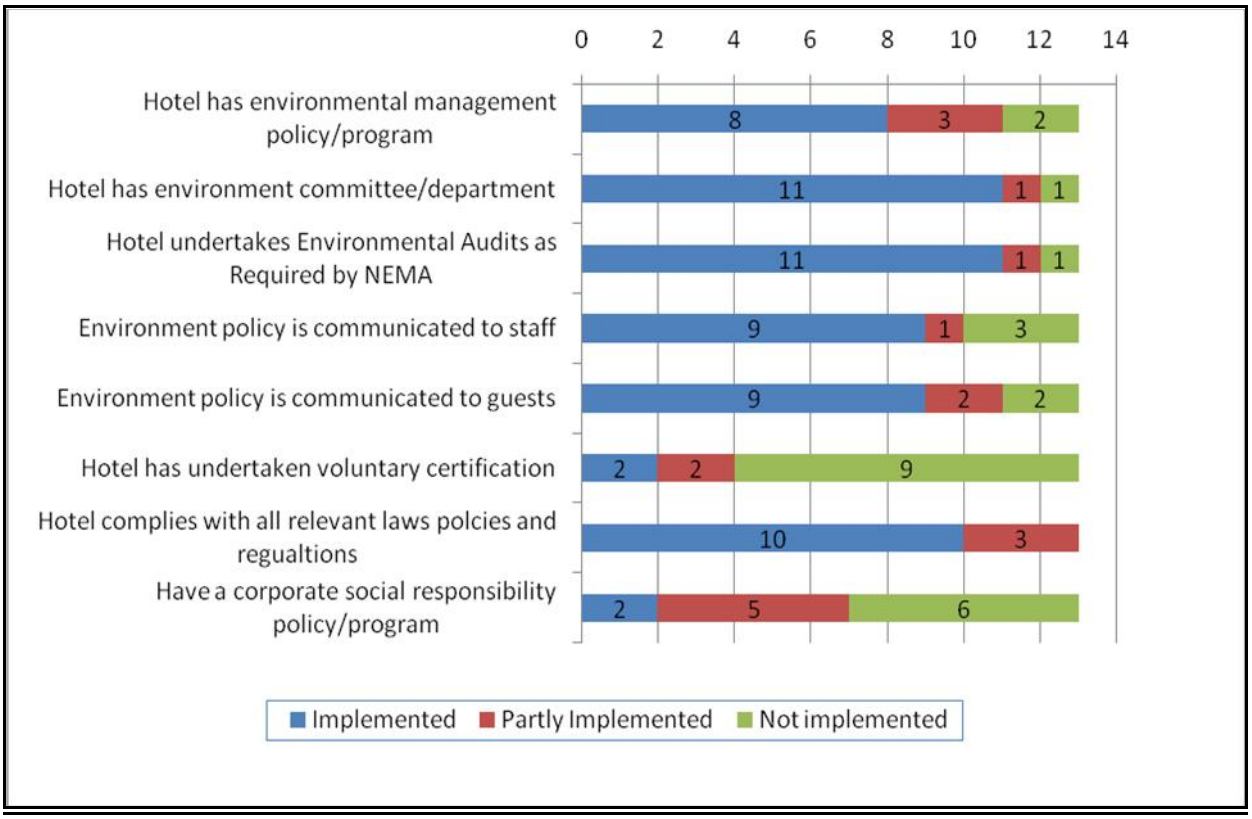
4.10.1 Regulation of the Tourism Sector

The Tourism Industry in Kenya is regulated by two key Acts of Parliament, namely, the Hotels and Restaurants Act (Cap 494) and the Tourist Industry Licensing Act (Cap 381). Other applicable laws include: Environmental Management and Coordination Act, 1999; Water Act, 2002; Local Authority Act (Cap 265); Physical Planning Act, 1999; Building Code 2000; Penal Code Act (Cap 63); Food drugs and Chemical Substances Act (Cap 254); Liquor Licensing Act ; Petroleum Act (Cap 116); Employment Act, 2007; Labour Relations Act, 2007; Work Injury Benefits Act, 2007; Occupational Health and Safety Act, 2007 (Kenya Law Reports, 2009).

4.10.2 Regulation and Compliance in Surveyed Hotels

It was found that 62 % of the hotels had developed environmental management policies or programmes; 85% compliance with NEMA requirements on environmental impact assessments and audits and 77% complied with all policies and laws applicable to the sector. About 69% hotels reported having effective mechanisms for communicating the environment policies and programmes to guest. The types of such mechanisms observed by the researcher included use of notice boards and debriefs of staff and information pamphlets and fliers placed in guest rooms. Eco-tourism Kenya involved only 16% of the hotels under study in voluntary self-regulation mechanisms reported to be the Eco-rating scheme. Figure 13 has more details.

Figure 13: Regulation and Compliance



Source: Field data, 2009

Previous research indicates that the level of hotels' commitment to waste sorting and recycling varies, depending on regulatory pressures and local government's support. For instance European hotels that are fairly well regulated actively implement waste sorting and recycling programmes in offices and kitchens, but not in guestrooms (Bohdanowicz, 2006, Erdogan and Baris, 2007; Alvarez et al, 2001). On the other hand in Ghana, a country that did not have very strict regulation Mensah (2006) found out that only 17 per cent of sampled hotels had developed waste recycling programmes. Erdogan and Baris (2007) pointed out that working with local governments and recycling firms can significantly promote the waste sorting and recycling activities among hotels. Masau and Prideaux, (2003) have also in their study found out that having an environmental policy is an important foundation of sustainable hotel management practices

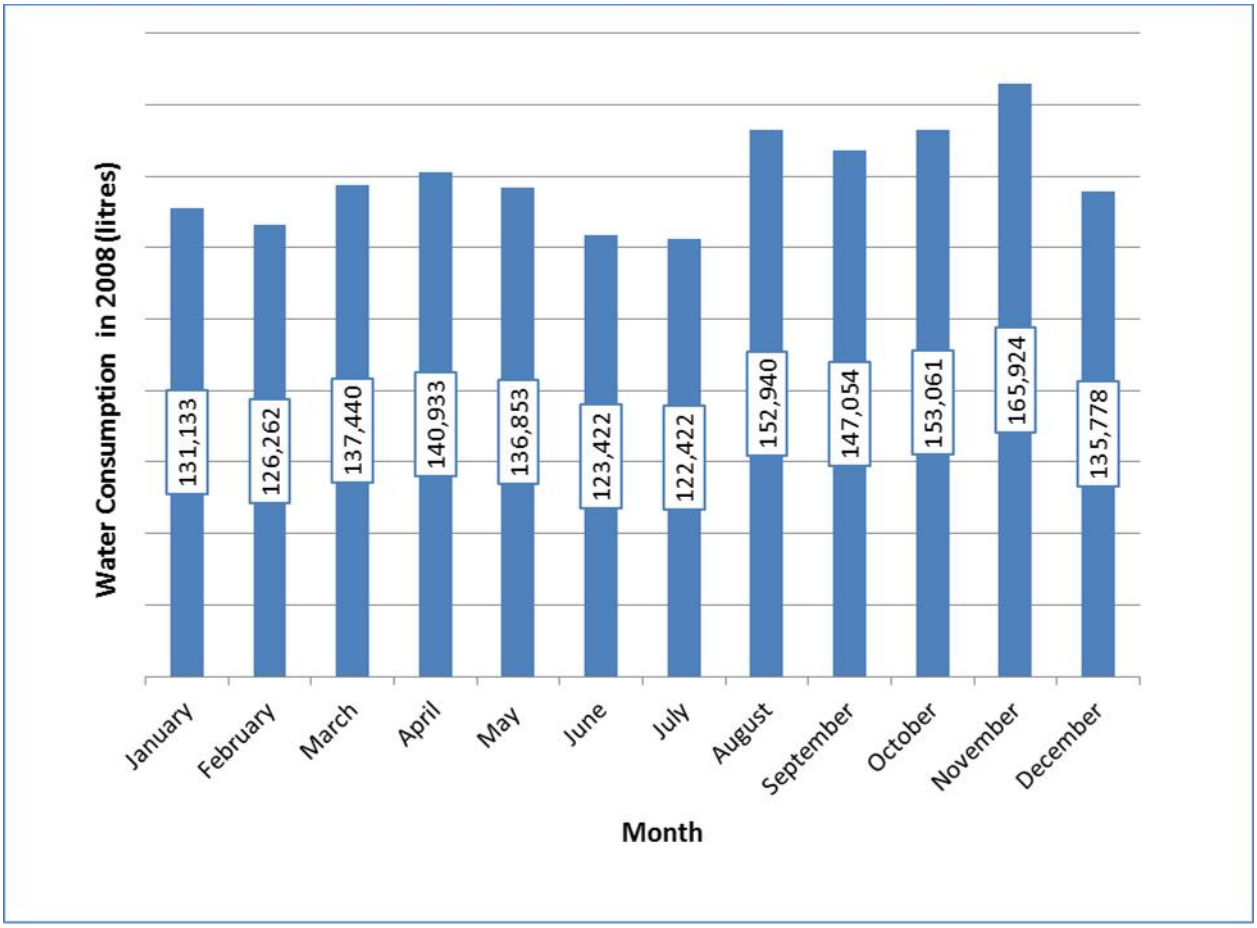
The study also found out that 16% of the surveyed hotels had a corporate social responsibility (CSR) policy or program while 38% implemented CSR but in an *ad hoc* manner. These hotels were involved in a variety of social and environmental initiatives including support to children's homes or homes for the elderly, support to neighbouring schools, environmental clean ups, tree planting, participation in local fundraising events, blood donations and promotion of sporting events. Out of the survey, it was generally appreciated that CSR was one of the mechanisms used by the hotels to address wider community needs as well as general environmental issues. A number of studies (e.g. Judy et al, 2007; Bohdanowicz, 2006; Cunill, 2006; Story and Price, 2006; Dodds and Joppe, 2005) have noted that there is a rapid growth of corporate social responsibility practices among hotels. In a study by Story and Price (2006), 100 companies listed in the Business in the Community Corporate Responsibility Index (BIC, 2004) were asked to state their main reasons for participating in CSR activities. The companies who responded indicated that CSR activities were important mainly as a means of improving risk management systems, enhancing the organization's image as well as for ethical reasons. Judy et al (2007) have noted that hotels are stronger in their social responsibility than their concern and care for the environment.

4.11 Water Management

4.11.1 Water Use and Management in Surveyed Hotels

In this study, water consumption in all the surveyed hotels was determined from the hotels' monthly water meter readings by NWSC as well as the associated water payment bills and receipts. In 2008 alone, the total water consumed by these hotels (i.e. from both metered and borehole water) was over 1.7 million litres – an average of nearly 11,000 litres per month (Figure 14).

Figure 14: Monthly Water Consumption (in litres): Piped and Borehole Combined (2008)



Source: Field data, 2009

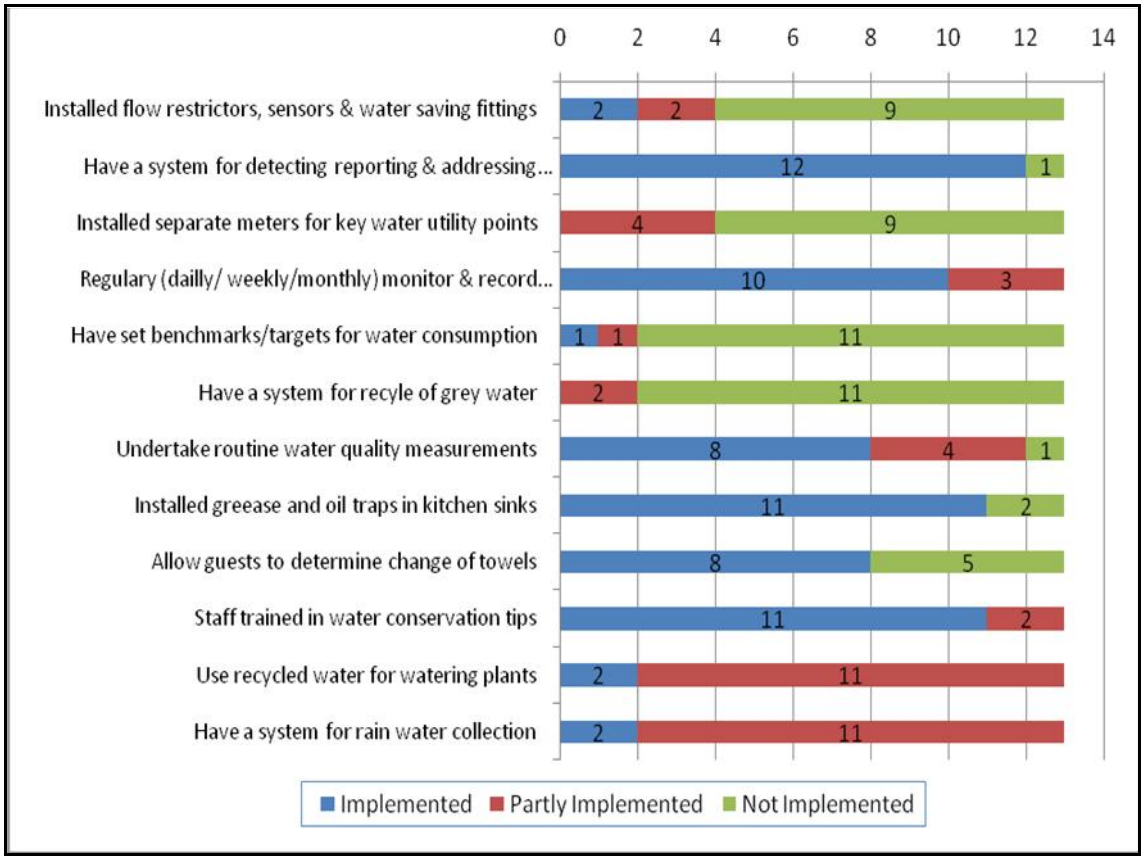
From the Figure 14, it can be noted that the rate of water consumption increased between July and November, with November being the highest water consumption month. The rate of consumption was at a low level between January and July – possibly because of water rationing effected by the NCWSC. Besides the use of piped water eight of the surveyed hotels also had own boreholes as alternative sources of water. Out of the eight hotels, only three had installed meters to track water use separately for piped water and borehole water. The other five had water from the two sources mixed at some stage before consumption is measured.

4.11.2 Water Conservation Measures in Surveyed Hotels

From the survey, a number of key conservation measures were noted. 77% of the hotels regularly (daily/weekly/monthly) monitored and recorded water use, 92% had effective systems for detecting and addressing water leakages, 85% had staff trained in water conservation

measures, and 62% undertook routine water quality measurements and installation of separate meters for key water consumption points/departments from in only 31% of the hotels. Allowing guests to determine frequency in change of towels, a common conservation measure among hotels was observed in 62% of the surveyed hotels. Some of the common measures that the surveyed hotels appeared to observe the least include installation of water saving gadgets and fittings (including sensors and flow restrictors) practiced by only 8% of the hotels, setting performance measures/ targets and striving to achieve them practiced by only 16%, recycling of grey water and rainwater harvesting observed by only 16%. Without clear targets and corrective measures, water management in hotels is evidently a great challenge.

Figure 15: Key Water Conservation in Measures in Surveyed Hotels



Source: Field data, 2009

The findings of this study corroborate some of the findings by similar studies elsewhere. For instance Kasavana, (2008), Hanna, (2008), Sherman (2008), McLeish (2007), Erdogan and Baris (2007), Bohdanowicz, (2006), and Mensah (2006) have identified the following practices

as the most common water conservation measures in hotels: using water-efficient devices (Low-flow or infrared-activated faucets, low-flow showerheads, low-water-volume toilet, sink aerators, and Energy Star qualified cooking devices etc.); instituting a linen reuse program; regularly fixing toilet leaks; using water-efficient laundry equipment and dishwashers; placing water meters in guestrooms to track usage; adopting water saving campaigns in kitchens (washing dishes when there are full loads or not using running water to wash vegetables); adopting water-efficient gardening techniques; and sing treated wastewater in garden irrigation. According to Marriott International's linen reuse program, encouraging guests to reuse lines and towels during their stay contributes to saving 11 to 17 per cent on hot water (Marriott International, 2007). Erdogan and Baris (2007), Bohdanowicz, (2006) and Mensah, (2006) note that addition to a linen and towel reuse program, installing low-flow faucets and showerheads, and low-water-volume toilets has attracted much attention from hoteliers as one of the most efficient water saving measures, because these measures can be implemented through a relatively low level of modification and financial investment.

Plates 2: Water saving tap in use at a hotel kitchen

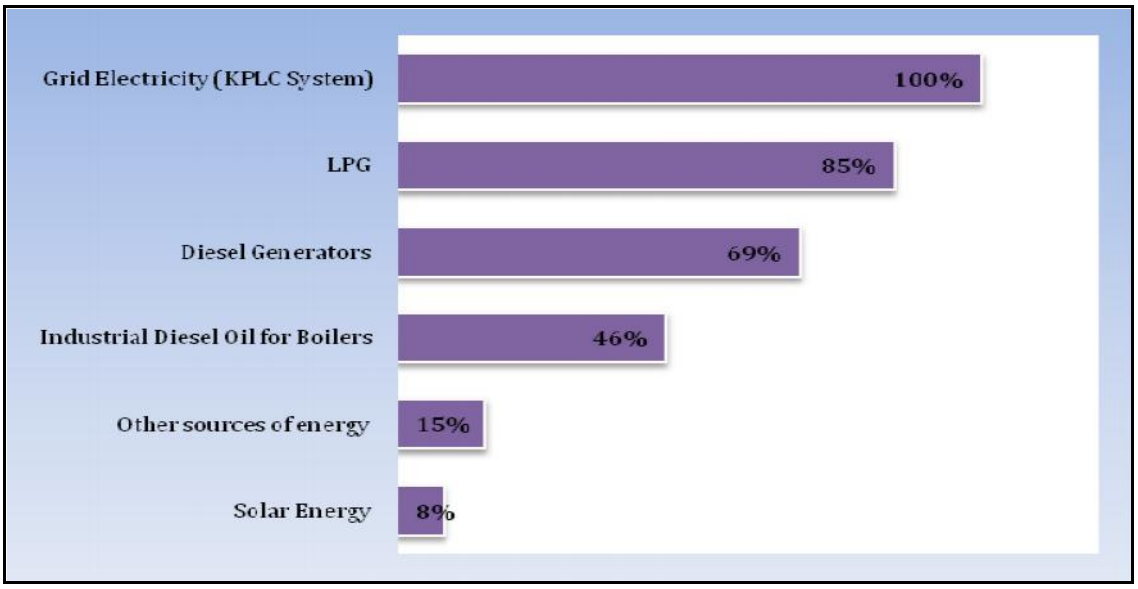
Source: Field data, 2009

4.12 Energy Management

4.12.1 Energy Use and Management in Surveyed Hotels

The study looked at the main sources of energy in hotels, respective consumption rates and costs. It also investigated energy conservation measures and practices among hotels. The study revealed that all the surveyed hotels relied on electricity supply from the National Grid – the Kenya Power and Lighting Company (KPLC). As a backup, 69% of the hotels had installed diesel generators. LPG gas was also common with 85% of the hotels using it mainly for cooking. Industrial diesel oil (IDO) was only used by 46%) that had boilers. Unfortunately, only 8% hotel had tapped solar energy, one of the alternative sources of clean energy.

Figure 16: Sources of Energy in Surveyed Hotels



Source: Field data, 2009

Plates 3: Pack up Generator Installed in One of the Hotels

Source: Field data, 2009

Plates 4: Liquefied Petroleum Gas (LGP) unit in one of the surveyed hotels

Source: Field data, 2009

Table 13: Consumption of Grid Electricity (in kWh) by Surveyed Hotels (2008)

Month	Total Consumption	Monthly Average
January	1,365,682	105,052
March	1,391,365	107,028
April	1,433,890	110,299
May	1,523,645	117,203
June	1,522,437	117,111
July	1,563,714	120,286
August	1,522,421	117,109
September	1,542,811	118,678
October	1,555,730	119,672
November	1,548,724	119,133
December	1,540,288	118,484
Total	**18,006,702**	**115,428**

On the other hand, the average monthly energy consumption of industrial diesel oil for boiler stands at 22,604kWh (Table 10). The persistent and heightened use of this energy source frustrates the global efforts of limiting global greenhouse gas emissions that aims at ensuring that the increase in global temperatures is below 2 degrees Celsius by 2020.

Table 14: Consumption of Industrial Diesel Oil (Litres) in the Surveyed Hotels (2008)

Month	Total Consumption	Monthly Average
January	122,455	20,409
February	125,935	20,989
March	125,088	20,848
April	129,306	21,551
May	139,490	23,248
June	138,068	23,011
July	141,484	23,581
August	141,598	23,600
September	146,091	24,349
October	140,351	23,392
November	141,672	23,612
December	135,961	22,660
Total	**1,627,499**	**22,604**

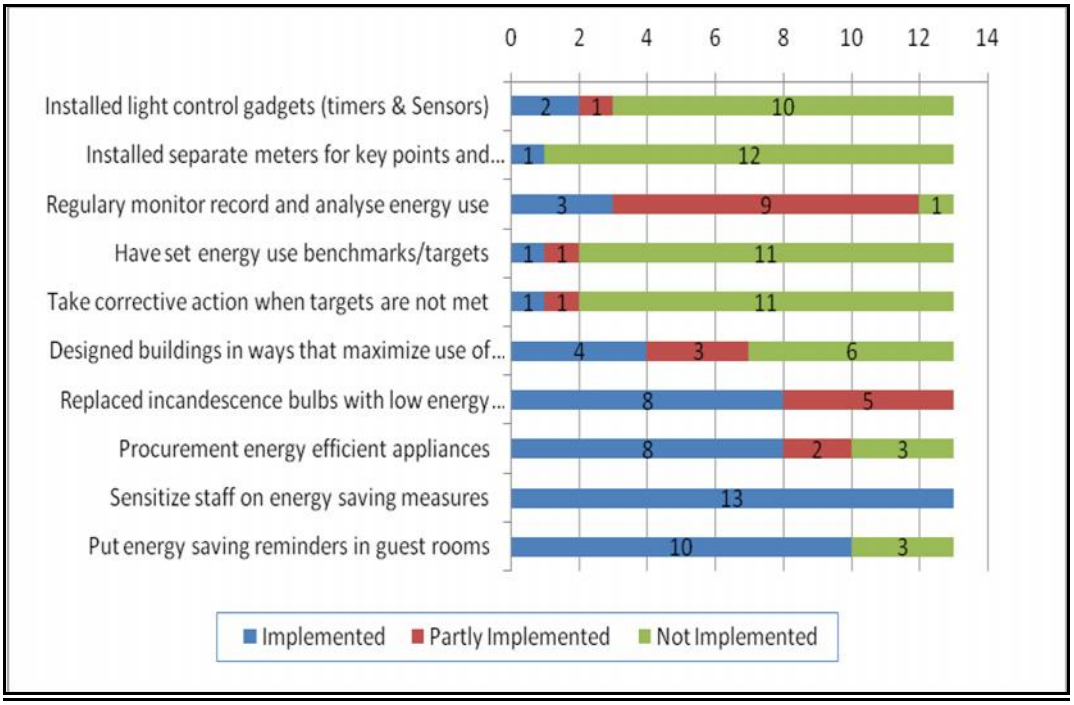
Source: Field data, 2009

4.12.2 Energy Conservation Measures in Surveyed Hotels

All the surveyed hotels had taken measures to sensitize staff about energy conservation while whereas 77% of the hotels put energy saving reminders in guest rooms. Other main energy conservation measures taken by the hotels include replacement of high-energy incandescence bulbs with energy conservation fluorescent tubes and procurement of energy-saving electric appliances (e.g. refrigerators, air-conditioners, etc), both observed by 62% of the hotels. On the other hand, only 31% of the hotels had the hotel premises designed in way that maximized use of natural light (sunlight) and only 24% regularly (daily/weekly/monthly) monitored and recorded energy use. Worse still, only 8% had separate meters installed for key consumption points, set energy consumption targets, strived to meet them, and were utilizing solar energy as an alternative renewable energy source. Failure by a good number of the surveyed hotels to set energy use targets and track energy consumption points to general energy management challenges in hotels.

There are a few similarities in findings between this study and past studies. For instance Kasavana (2008), Hanna (2008), Sherman, (2008), Erdogan and Baris (2007), McLeish (2007), Bohdanowicz, (2006) and Mensah, (2006) found out that use of cleaner alternative sources of energy (wind power, solar power, and run-of river power), adoption of automated (computerized) energy control system, replacing incandescent light bulbs with fluorescent lighting, installing energy-efficient laundry equipment, using digital thermostats to control energy use in guestrooms, use of occupancy sensors (that automatically turn the lights out when guests leave the room), installing triple-glazed windows or reflective glass to save energy for heating and cooling and replacing outdoor and exit signs with Light Emitting Diode (LED) signs were the common energy conservation techniques among the hotels they studied. Erdogan and Baris (2007) and Bohdanowicz, (2006) further note that using energy-efficient lighting is one of the widely used energy saving techniques in hotels. In complete implementation of good full range environmental management practices has, on the contrary, been reported in a number of other studies (e.g. Kassim, 2009; Park, 2009; Mensah, 2006; Webster, 2000; Kirk, 1995).

Figure 17: Energy Conservation Measures in Surveyed Hotels



Plates 5: Energy Saving Notice in One of the Hotels

Source: Field data, 2009

Plates 6: Energy Award Won by One of the Surveyed Hotels

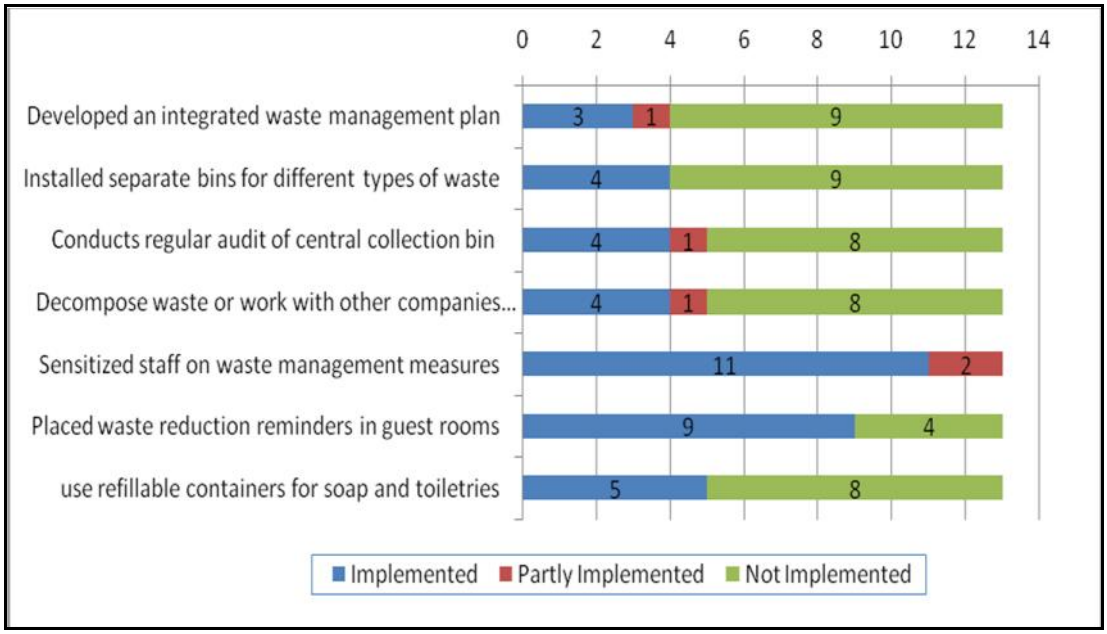
Source: Field data, 2009

4.13 Solid Waste Management in the Surveyed Hotels

The implementation of solid waste management strategies within the surveyed hotels was very poor. The study found out that only 38% of the hotels keep records of waste generated; 23% segregate waste and only 8% composites organic waste.77% of the hotels have contracted out waste collection to the private companies. These companies were paid a flat rate fee for waste collection and disposal, but not based on how much waste was generated. The 31% of the hotels within central business district (CBD) have some of their waste occasionally collected by Nairobi City Council (NCC). From the survey, 85% of the surveyed hotels sensitized staff on waste management measures, while 69% put waste reduction reminders in guest rooms. Only 24% of the hotels had developed comprehensive waste management programmes, 31% had installed separate bins for different type of waste, conducted regular waste audits and were involved in waste decomposition programmes either on their own or in collaboration with waste management companies.

The most common solid waste management practices identified by other studies (Baker, 2008; Kasavana, 2008; Sherman, 2008; Erdogan and Baris, 2007; McLeish, 2007; Bohdanowicz, 2006; Mensah, 2006; Kirk, 1998; Iwanowski and Rushmore, 1994) include: implementation of 4Rs waste management programmes, use of separate bins for different types of waste; composting organic kitchen waste; using refillable amenity dispensers; providing reusable items such as cloth napkins, glass cups, ceramic dished with food and beverage service; grinding guest soaps to use as laundry detergent for hotel uniforms; purchasing food items and cleaning chemicals in bulk containers and recovering used cooking oil and food waste. Safe for a few cases such as compositing of organic waste, developing integrated solid waste management programmes, the findings of this study were largely in agreement with studies carried out elsewhere.

Figure 18: Solid Waste Management Practices in the Surveyed Hotels



Source: Field data, 2009

Plates 7: Separate Bins for Dry Waste Collection in One of the Surveyed Hotels

Source: Field data, 2009

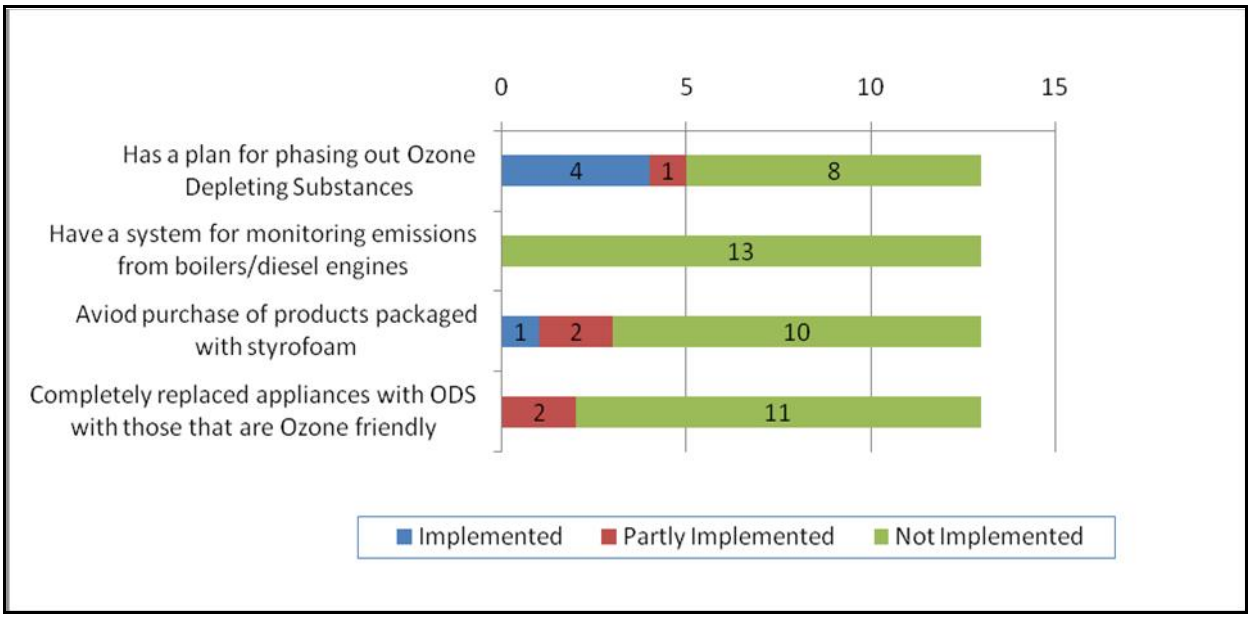
Plates 8: Composite Unit in One of the Surveyed Hotels

Source: Field data, 2009

4.14 Pollution Reduction

The survey found out that none of the surveyed hotels had completely implemented any emissions/pollution reduction program. For instance, systems for monitoring emissions from boilers and diesel engines had not been established, while the purchase of products that are packaged using Styrofoam had not been stopped (Figure 19). Only 31% of the hotels had developed a program for phasing out the Ozone Depleting Substances (ODS). Further, despite government ban on use appliances with ODS, none of the hotels had completely phased out appliances (especially refrigerators) that use Chlorofluorocarbons (CFCs) and only one hotel avoided use of Styrofoam-packaged products. The Government of Kenya banned the importation of Chlorofluorocarbons (CFCs) with effect from January 1, 2009 (NEMA, 2010). A European Commission regulation that came into force on 1st October 2000 require all European Union Countries to phase out CFC and HCFC refrigerants at various dates between 1st January 2001 and 1st January 2015 (Butler, 2001). This is an indication that even in Kenya, and within the hotel industry in particular, a little longer time would be required to completely phase out use of ODS and appliances.

Figure 19: Emissions/Air Pollution Reduction Measures by Surveyed Hotels

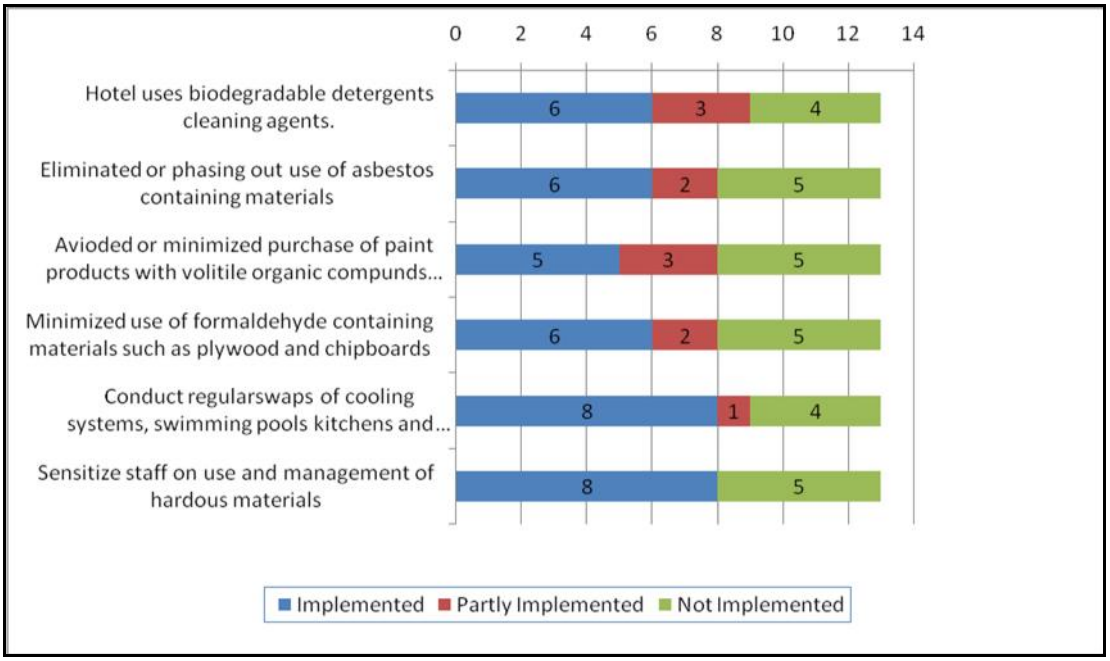


Source: Field data, 2009

4.15 Management of Hazardous and Toxic Substances

Studies have shown that a number of substances associated with hotel buildings and operations pose potential hazards to human health, biodiversity and the environment. Therefore, it is important to handle, store or dispose off carefully, and replace with less hazardous alternatives where possible. Results from this study indicated that some of the hotels have taken several measures manage hazardous and toxic substances. The study found out that 62% of the hotels had sensitize staff on use and management of hazardous materials and also conduct regular swaps a measure of controlling any form of biological contaminants (bacterial, fungal or viral contamination). Another 46%of the hotels eliminated or are phasing out use of asbestos-containing materials, minimized use of formaldehyde-containing materials such as plywood and chipboards and had adopted the use of biodegradable materials that are devoid of nitrilotriacetic (NTA), phosphates, or chlorine substances.

Figure 20: Management of Hazardous and Toxic Substances by Surveyed Hotels

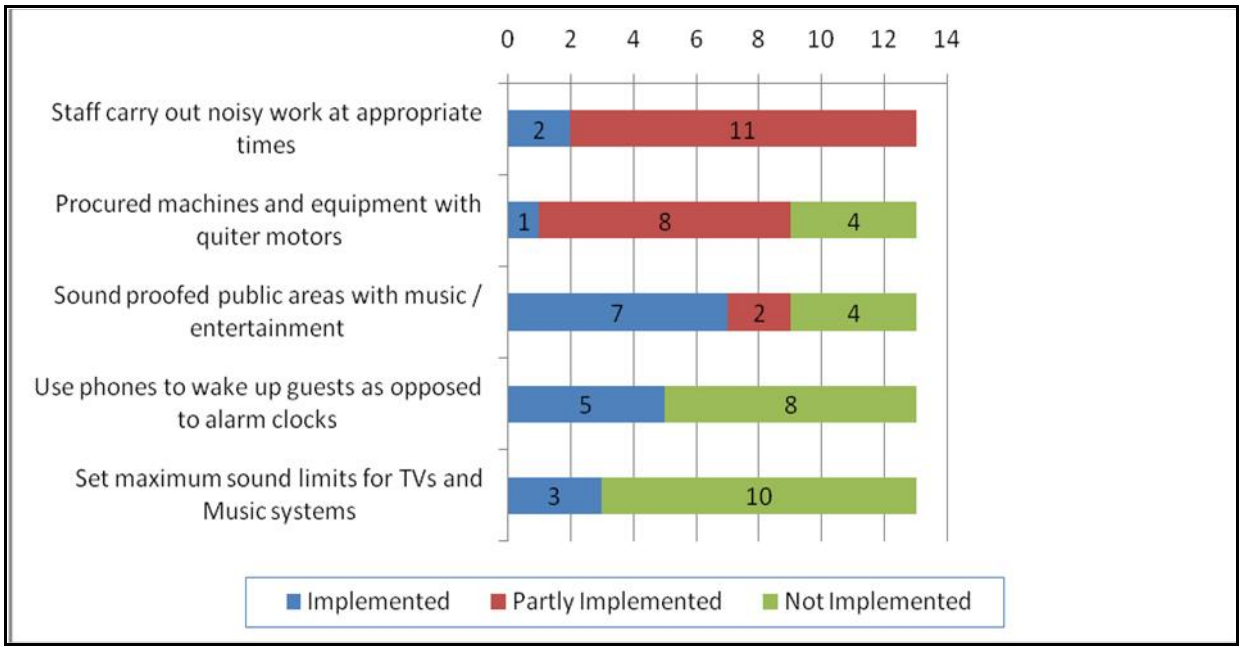


Source: Field data, 2009

4.15 Noise Pollution Management

Soundproofing of public and entertainment areas was the most common noise pollution control measure reportedly practised by 54% of the surveyed hotels. Another fairly common measure was use of wake up calls as opposed to alarm clocks to wake up guests practiced by 38% of hotels –Only 16% of the hotels cared about appropriate timing of any noisy jobs, while procurement of machines that have silencers (quieter motors) was only observed by 8% of the surveyed hotels. Kenya just completed development of regulations for noise pollution in the country. The regulations called 'The Environmental management and coordination (Noise and Excessive Vibration Pollution Control) Regulation, 2008' came into force in November 2009 (NEMA, 2009). The application of these regulations in various sectors, including hotels, is yet to be comprehensively effected.

Figure 21: Noise Pollution Management Measures in Surveyed Hotels



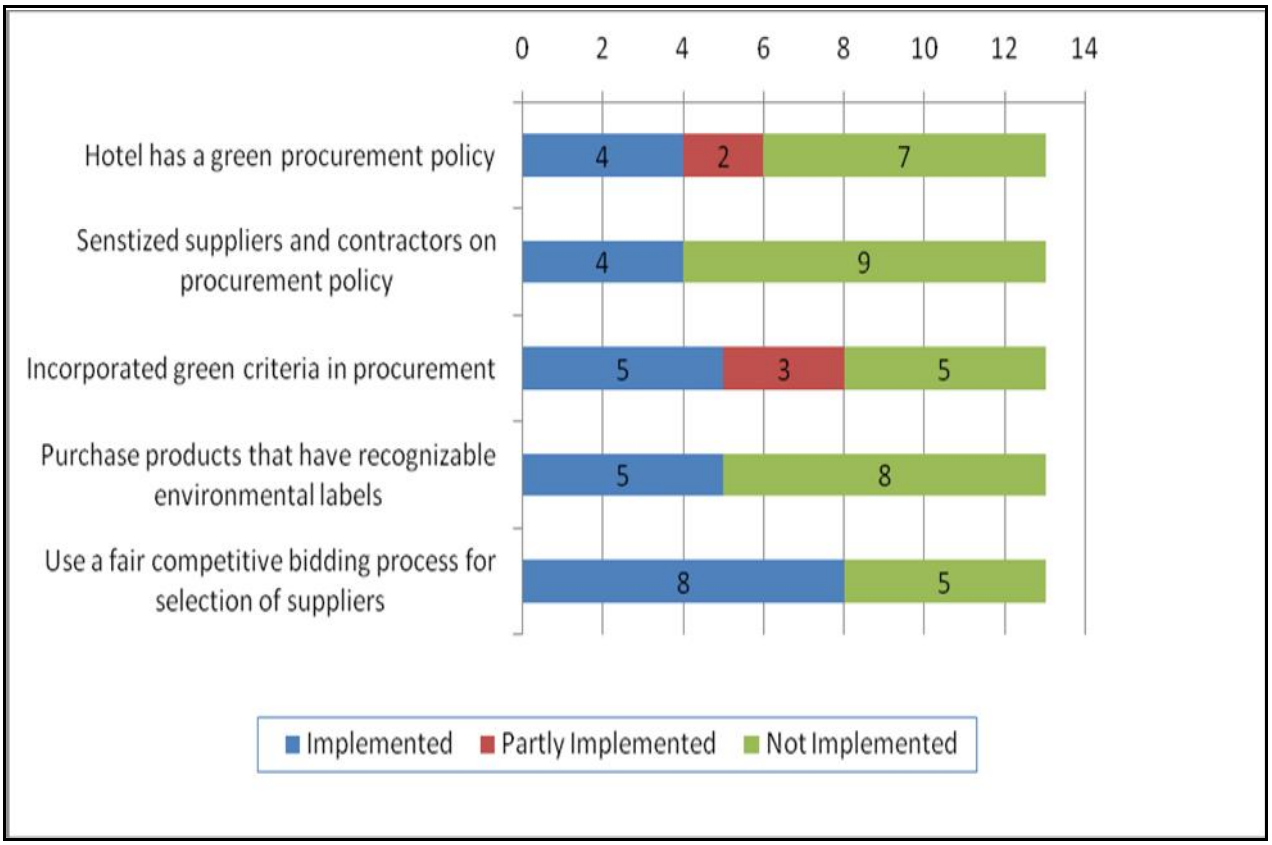
Source: Field data, 2009

4.16 Green Procurement

The practice of green procurement among surveyed hotels was below average. Out of the hotels surveyed, 62% followed a fair and competitive procurement process; 31% had a green procurement policy and sensitized suppliers and contractors about it and 38% incorporated green procurement criteria, while the same number purchased products from recognizable

environmental labels. Clearly, the hotels are only concerned with what they practice internally. Common green procurement policies and practices documented in other studies (Erdogan and Baris, 2007; Bohdanowicz, 2006; Mensah, 2006; and Brown, 1996) include purchasing eco-friendly cleaners and detergent and purchasing locally produced ingredients.

Figure 22: Green Procurement Measures taken by Surveyed Hotels



Source: Field data, 2009

Plates 9: Fruits and Vegetables in Reusable Supply Containers in one of the Surveyed Hotels

Source: Field data, 2009

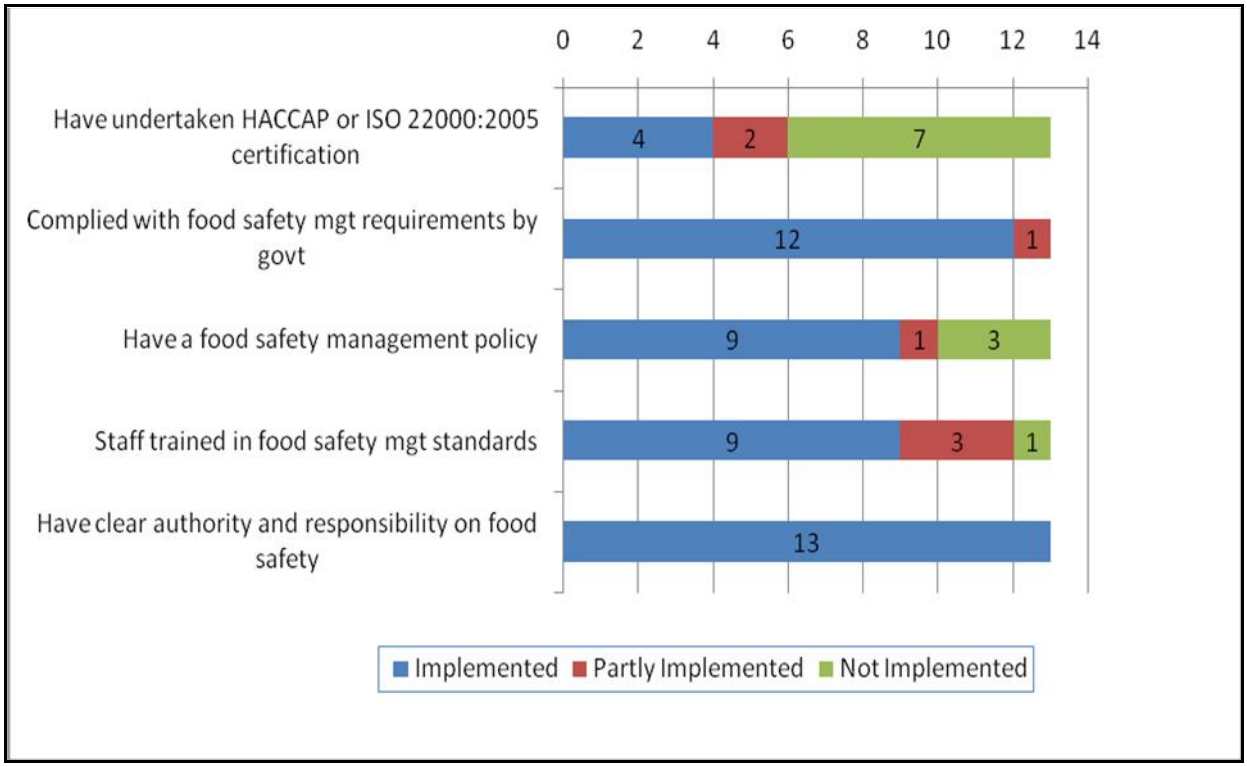
4.17 Food Safety Management

Food safety management was one of the areas of better performance in the surveyed hotels. All the surveyed hotels had clear lines of authority with regard to food safety management and 92% of them fully complied with government regulations on food safety. The study showed that 69% of the hotels had developed food safety policies and had relevant staff trained in food safety standards and procedures. The only area of underperformance in food safety management was on certification, only been undertaken by 31% of the hotels while other 16% were in the process of undertaking Hazard Analysis and Critical Control Points (HACCP) certification. .

Internationally there two food safety and hygiene systems Hazard Analysis Critical Control Point (HACCP) and ISO 22000:2005 Food Safety Certification. HACCP system identifies and monitors critical control points (CCP's) at all stages of the food production and preparation process to ensure that food is safe for human consumption. ISO 22000:2005 standard defines the requirements for food safety management system covering all organizations in the

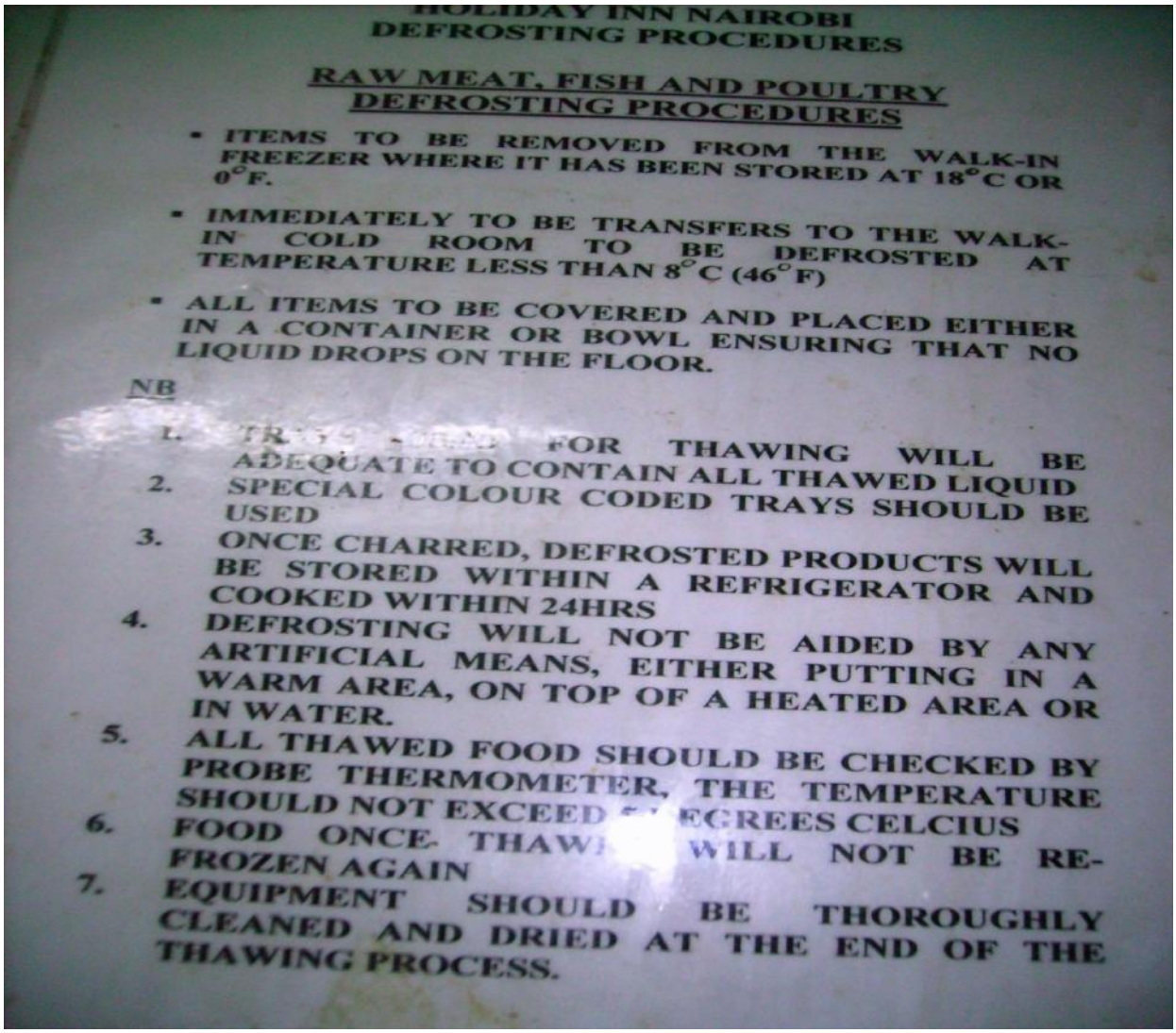
food chain; 'from farm to fork' and covers issues such as communication, management, HACCP plans and improvement. Many countries have adopted the HACCP food safety management system. A study by Yapp and Fairman (2006) found out that government regulation, staff training and effective supervision had the greatest influence on food safety and hygiene among small and medium food enterprises in the UK. Worsfold and Griffith (2003) on the other hand found out that hotels that did not have an effective staff supervision system were poor in food safety and hygiene management.

Figure 23: Food Safety Management Measures in Surveyed Hotels



Source: Field data, 2009

Plates 10: Food Safety Datasheet in One of the Surveyed Hotels



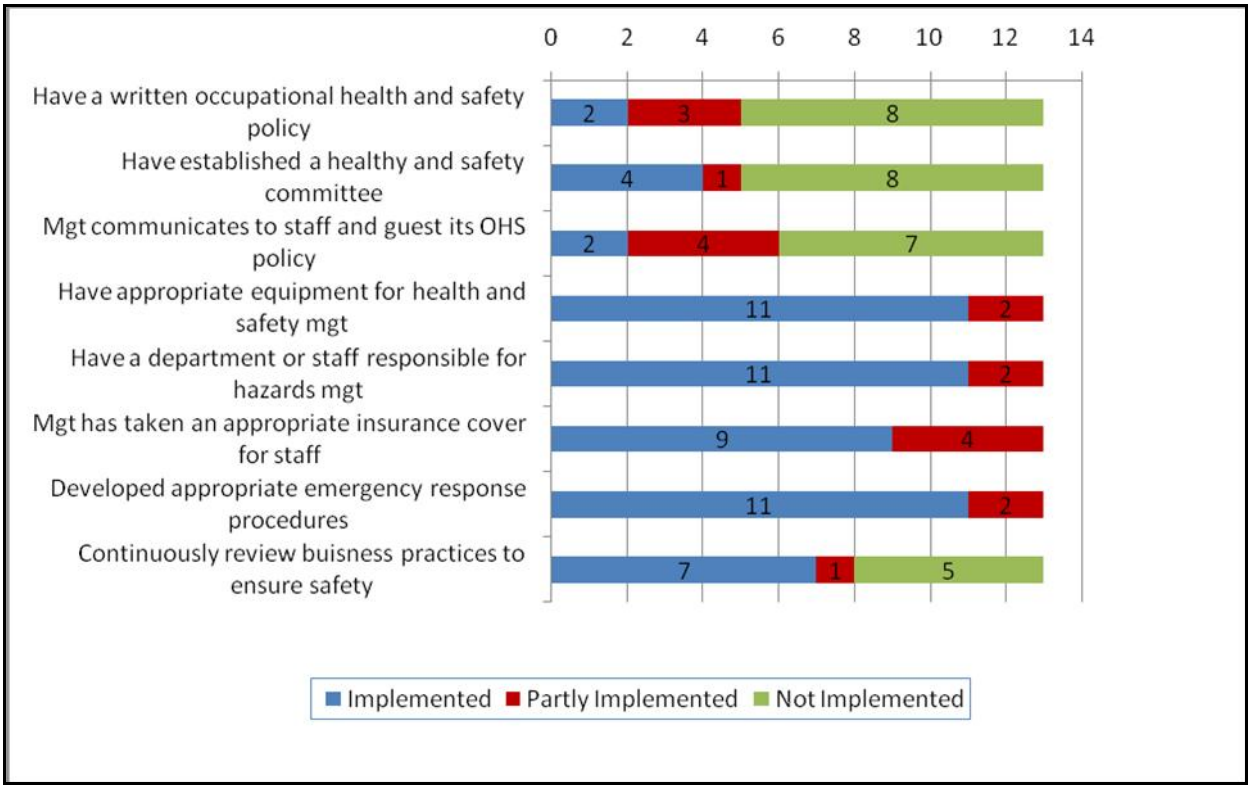
Source: Field data, 2009

4.18 Occupational Health and Safety in Surveyed Hotels

The surveyed hotels had not significantly implemented major OHS practices. Eighty five per cent of the surveyed hotels have a department, committee or staff responsible for OHS, 69% have taken an appropriate insurance cover for staff, 85% have installed appropriate emergency response equipment and 69% have developed appropriate emergency response procedures. Areas of poor performance include written OHS policies and communication of these policies to staff and guests that only (16%) of the hotels observed.

Davidson (2003) found out that there is a casual link between a good work environment and the quality of services in hotels. Health and safety of workers in hotels and restaurants could be perceived to be generally low risk compared to other industries such as health, construction and engineering. The main elements likely to create occupational accidents and diseases in hotels and restaurants may be categorized into four groups (Tutuncu, O. and Kozak, M., 2007): 1) physical factors including temperature, humidity, vibration, noise, enlightment and radiation; 2) chemical factors such a solid, liquid or gas chemicals which are inflammable, explosive, dangerous and harmful; 3) biological factors, mainly exposure to microbes that may cause diseases and 4) psychological factors which comprise mainly human relations and disharmonies. Lack of training has also been identified as a major disincentive (Parent-Thirion, A. et al, 2007).

Figure 24: Occupational Health and Safety (OHS) Practices in Surveyed Hotels

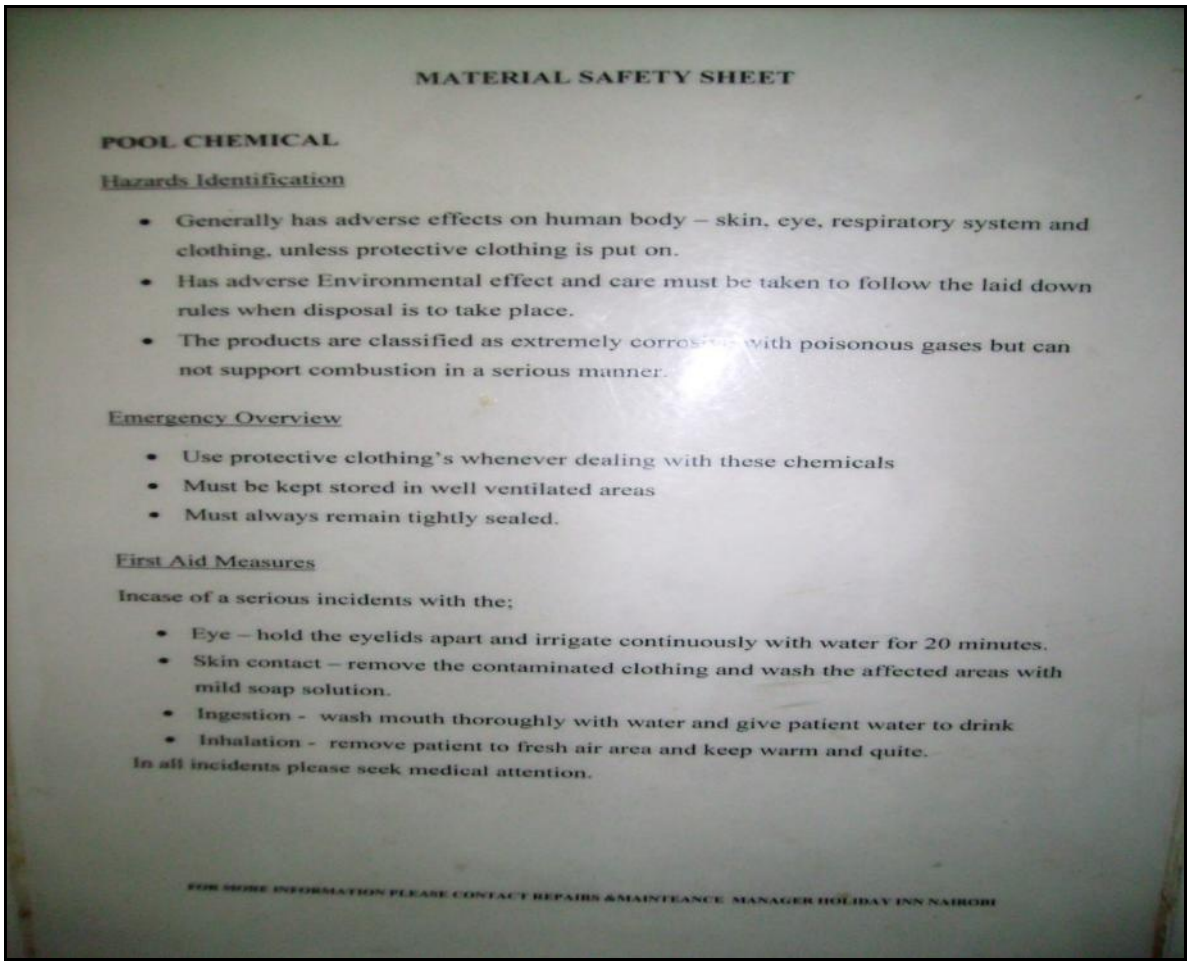


Source: Field data, 2009

Plates 11: Fire Emergency Response Units Stationed at One of the Surveyed Hotels

Source: Field data, 2009.

Plate 12: Pool Chemicals Safety Datasheet Used by One of the Sampled Hotels



MATERIAL SAFETY SHEET

POOL CHEMICAL

Hazards Identification

- Generally has adverse effects on human body – skin, eye, respiratory system and clothing, unless protective clothing is put on.
- Has adverse Environmental effect and care must be taken to follow the laid down rules when disposal is to take place.
- The products are classified as extremely corros[illegible]with poisonous gases but can not support combustion in a serious manner.

Emergency Overview

- Use protective clothing's whenever dealing with these chemicals
- Must be kept stored in well ventilated areas
- Must always remain tightly sealed.

First Aid Measures

Incase of a serious incidents with the;

- Eye – hold the eyelids apart and irrigate continuously with water for 20 minutes.
- Skin contact – remove the contaminated clothing and wash the affected areas with mild soap solution.
- Ingestion - wash mouth thoroughly with water and give patient water to drink
- Inhalation - remove patient to fresh air area and keep warm and quite.

In all incidents please seek medical attention.

FOR MORE INFORMATION PLEASE CONTACT REPAIRS &MAINTEANCE MANAGER HOLIDAY INN NAIROBI

Source: Field data, 2009

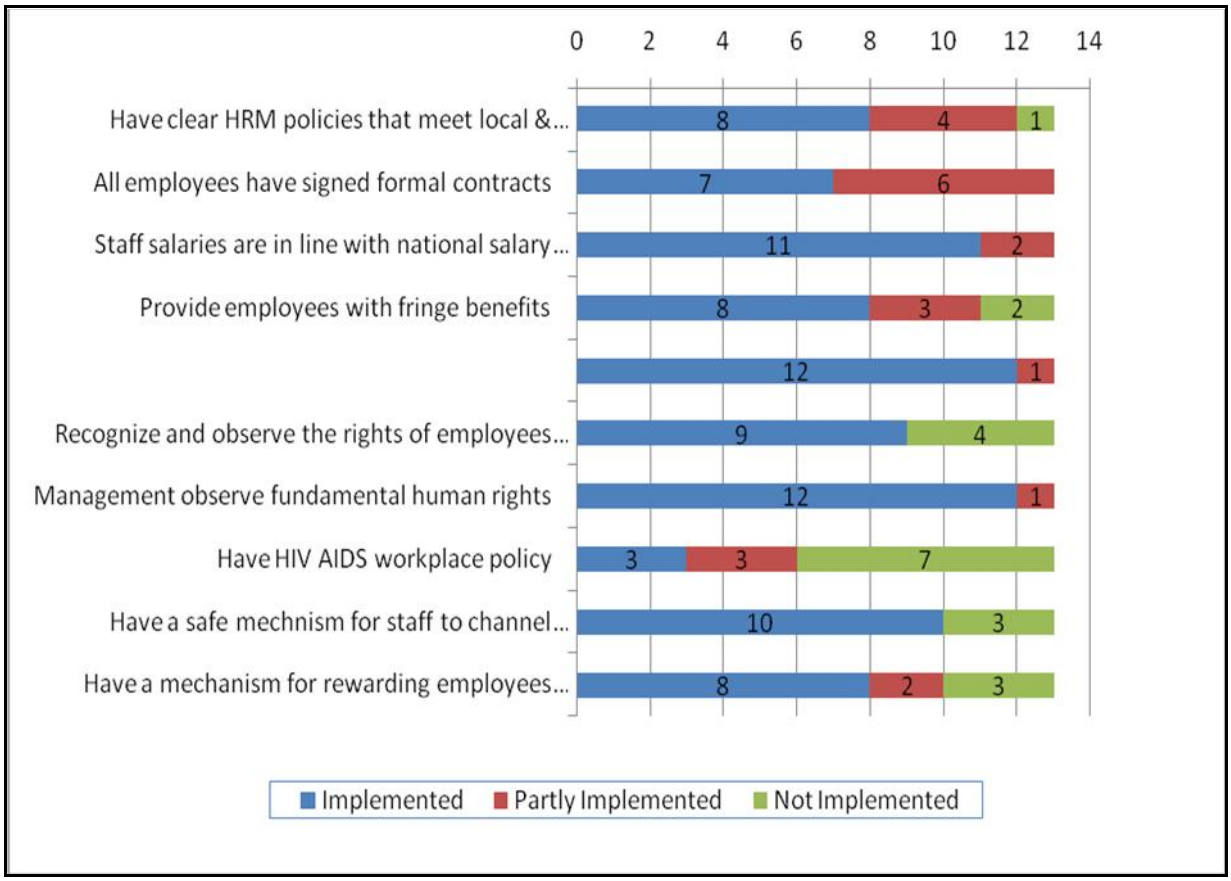
4.19 Staff Welfare

Despite the challenges facing employment in the sector as highlighted above, the study revealed fairly good performance in hotels as far as staff welfare is concerned. For instance, (62%) of the surveyed hotels had clear human resources management policies. In 54%, all employees signed formal contracts, 92% gave opportunities to local staff to rise to management positions, and 85% paid salaries that were in line with national salary guidelines. The study showed that 92% recognized and observed basic human rights and 8 provided employees with fringe benefits and had mechanisms for rewarding exemplary performance among staff. A significant number, 69% of the hotels recognized and observed the rights of employees to be represented by trade unions (worker's unions), thus allowing them to join the existing and recognizable unions. The unions serving employees in the hotel sector were the Kenya Union of

Domestic, Hotel, Educational Institutions, Hospitals, and Allied Workers (KUDHEA), and the Union of Kenya Hotel Keepers and Caterers Association. .

Studies elsewhere have painted a different picture of staff welfare in hotels. In their study of hotels in Hong Kong China, Hemdi and Nasurdin (2006) found out that in order to build trust and reduce staff turnover, hotels needed to continue providing career development programmes, conduct formal and fair appraisal, and provide clear career advancement plans for the employees. DeNisi (2005) notes that many human resource management policies, particularly in international hotel chains, continue to favour expatriate staff as far as compensation is concerned. A majority of employees are hired at minimum wages set by local governments, while managers in higher-paid positions are typically imported from the home countries of the large international hotel chains, allowing them to reap most of the financial benefits (Dodds and Joppe, 2005).

Figure 25: Staff Welfare Measures in Surveyed Hotels



Source: Field data, 2009

4.20 Hypotheses Testing

This section discusses the results of statistical analyses undertaken to the three research hypotheses which were:

i) H_0: There is no significant relationship between star-rating and the level of Cleaner Production implementation in star-rated hotels.

   H_1: There is a significant relationship between star-rating and the level of Cleaner Production implementation in star-rated hotels.

ii) $H_{0:}$ There is no significant relationship between the level of Cleaner Production implementation and compliance of star-rated hotels with government regulations.

   $H_{1:}$ There is a significant relationship between the level of Cleaner Production implementation and compliance of star-rated hotels with government regulations.

iii) $H_{0:}$ There is no significant relationship between Cleaner Production implementation and rate of occupancy in star-rated hotels.

   H_1: There is a significant relationship between Cleaner Production implementation and rate of occupancy in star-rated hotels.

Spearman's rank correlation analysis was used to test the three hypotheses at 0.05 level of significance.

4.20.1 Relationship between Star-rating and Cleaner Production Implementation

A Spearman's rank correlation test gave the result ρ=0.756 ($p<0.05$) (Table 15). This indicates a significant positive relationship between star-rating and Cleaner Production implementation. On the basis of this test the null hypothesis that there is no significant relationship between star-rating and Cleaner Production implementation in star-rated hotels is rejected and the alternative hypothesis accepted.

Tests for the specific elements of Cleaner Production including regulation and compliance, energy management, water management, solid waste management, air pollution management, noise pollution management, management of hazardous and toxic substances, green procurement and food safety, Occupational Health and Safety and Staff Welfare) were also conducted. Results of the tests (Table 15) indicated positive significant relationships between

Star rating and Water (ρ=0.797, p<0.05); Energy (ρ=0.797, p<0.05); Solid waste management (ρ=0.750, p<0.05); Air pollution (ρ=0.657, p<0.05); Noise pollution (ρ=0.763, p<0.05); Management of hazardous substances (ρ=0.725, p<0.05); Green procurement (ρ=0.646, p<0.05); Occupational Health and Safety (ρ=0.747, p<0.05); Staff Welfare (ρ=0.775, p <0.05); and Corporate Social Responsibility (ρ=0.665, p<0.05). On the other hand, Spearman's rank correlation test did not find any significant relationship between star-rating and food safety management (ρ=0.082, p=0.789) (Table 15). This implied that factors other than star-rating might have an influence in food management practices in hotels. Possible drivers may include effective regulation food safety management by government and keenness of hotel management to ensure high quality food due demands from clientele and competition from peers.

Table 15: Correlation test: Star-rating and Cleaner Production Implementation

		Star-rating				Star-rating
Cleaner Production	Spearman's rho	.756*		Noise Pollution Management	Spearman's rho	.763*
	Sig. (2-tailed)	.003			Sig. (2-tailed)	.002
	N	13			N	13
Water Management	Spearman's rho	.797*		Staff Welfare	Spearman's rho	.775*
	Sig. (2-tailed)	.001			Sig. (2-tailed)	.018
	N	13			N	13
Energy Management	Spearman's rho	.797*		Green Procurement	Spearman's rho	.646*
	Sig. (2-tailed)	.001			Sig. (2-tailed)	.017
	N	13			N	13
Solid Waste Management	Spearman's rho	.747*		Food safety Management	Spearman's rho	.082
	Sig. (2-tailed)	.003			Sig. (2-tailed)	.789
	N	13			N	13
Pollution Management	Spearman's rho	.657*		Occupational Health and Safety	Spearman's rho	.747*
	Sig. (2-tailed)	.015			Sig. (2-tailed)	.002
	N	13			N	13
Management Hazardous Substances	Spearman's rho	.643*		CSR	Spearman's rho	.665*
	Sig. (2-tailed)	.018			Sig. (2-tailed)	.018
	N	13			N	13

Generally the results of this test are in agreement with findings of similar studies elsewhere. For instance, El Dief and Font (2012) Priego et al (2011), Bohdanowicz, (2009) and Mensah (2006) have found out that environmental management practices improve with increase in star-rating of a hotel. Judy et al (2007), Cunhill (2006) and Dodds and Joppe (2005) also found strong positive relationships between hotel classification and social responsibility (including staff and host communities).

4.20.2 Relationship between Cleaner Production and Compliance

A Spearman's rank correlation test indicated that there is a significant positive relationship between Cleaner Production and compliance of star-rated hotels (ρ=0.713, $p<0.05$) (Table 12). On the basis of this test the null hypothesis that there is no significant relationship between Cleaner Production implementation and compliance of star-rated hotels with government regulations is rejected and the alternative hypothesis accepted.

Table 16: Correlation Test: Cleaner Production Implementation and Compliance

		Cleaner Production
Compliance and Regulation	Spearman's rho	.713*
	Sig. (2-tailed)	.006
	N	13

**Correlation is significant at the 0.05 level (2-tailed)*

The results of this test concurs with findings from studies undertaken elsewhere (e.g Kasim, 2009; Erdogan and Baris, 2007; Bohdanowic, 2006; Chan and Wong, 2006; Mensah, 2006; Kirk, 1998) that indicated a strong relationship between Cleaner Production implementation and compliance. Mensah (2006) observed that hotels in Ghana became more effective in environment management practices once the government became stricter in its regulation of the industry. Informed by such findings, a number of countries in the European Union have introduced strict environmental laws and codes of conduct to check the environmental impact of hotels (Kassim, 2009)

4.20.3 Relationship between Cleaner Production Implementation and Hotel Occupancy

A Pearson's product-moment correlation test indicated that there is no significant relationship between hotel occupancy and Cleaner Production implementation (ρ=0.357, p>0.05) (Table 13). However, given the fact that the study was undertaken during a time that the tourism sector was just recovering from the effects of 2007-2008 post-election violence, the results of the test could not be used to confirm or reject the hypothesis.

Table 17: Correlation test: Cleaner Production and Hotel Occupancy

		Cleaner Production
Hotel occupancy	Spearman's rank correlation	.357
	Sig. (2-tailed)	.230
	N	13

Studies elsewhere have found out existence of positive correlation between Cleaner Production implementation and the performance of hotel businesses (e.g. in Bohdanowic, 2006; Warnken et al., 2005; Tzchenke et al., 2004 Graedel and Howard-Grenville, 2001).

CHAPTER 5: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

Chapter 5 contains a summary of the study findings and results, the conclusions drawn (based on the study objectives and hypotheses) and recommendations made.

5.2 Summary of Research Findings and Results

The purpose of this study was to assess the adoption and level of implementation of Cleaner Production by star-rated hotels in Nairobi County. Specific objectives of the study were to:

- assess which cleaner production measures were being implemented by the hotels;
- determine what factors that influence the adoption and implementation of Cleaner Production by the hotels;
- assess the relationship between star-rating and Cleaner Production implementation;
- assess the relationship between Cleaner Production implementation and compliance; and
- assess the relationship between Cleaner Production implementation and the performance of the hotels.

The study also sought to test the following three hypotheses:

- There is no significant relationship between the level of Cleaner Production implementation and star-rating in hotels.
- There is no significant relationship between the level of Cleaner Production implementation and compliance of star-rated hotels with government regulations.
- There is no significant relationship between level of Cleaner Production implementation and rate of occupancy in star-rated hotels.

The study found out that the level of awareness about Cleaner Production among the star-rated hotels was generally good at 77 per cent. Key sources of information about Cleaner Production were found to be the Ministry of Tourism and Wildlife (77%) and mother companies

of hotel chains (38%). Perceptions that Cleaner Production would enhance compliance with government laws and regulations, use of corporate social responsibility as the hotels' business strategy, commitment to good environmental and social practices, availability of new technology and expertise and peer competition were found to be the key factors that influenced the adoption and implementation of Cleaner Production. Key barriers to the implementation of Cleaner Production were found to be lack of government-led efforts and incentives, lack financing mechanisms and weak enforcement of relevant laws and regulations by the Government.

The hotels were found to be generally compliant with government regulations: 85% for National Environment Management Authority requirements and 77% for all the laws and regulations applicable to the hotel industry. The most common energy conservation measures included staff sensitization (100%), energy saving reminders for guests (77%) and installation of energy saving appliances (62%). However, these practices were not found to be adequate since 85% of the hotels did not have benchmarks, set targets and put measures in place to attain the targets. The same trend was noted in solid waste management and pollution reduction measures. The hotels were found to be generally good at taking short-term measures but lacked mechanisms for continuous improvement. Only 31% of the hotels had a green procurement policy and only 38% sensitized suppliers on green procurement practices. Seventy per cent (70%) of the hotels had developed food safety policies and trained relevant staff in their implementation. However, only 31% had undertaken relevant certification. On occupation healthy and safety, 85% of the hotels had a department charged with that responsibility and 70% had accomplished all occupational health and safety measures as prescribed by law. Sixty two per cent (62%) had clear and standard human resources management policies, 92% had employed local staff in key management positions, 85% paid competitive salaries and 70% allowed staff to join trade unions.

Spearman's rank correlation analysis was used to test the three study hypotheses. The study found out that there is a significant relationship between star-rating and Cleaner Production implementation (ρ=0.756, $p<0.05$) and between Cleaner Production implementation and compliance of the hotels with government regulation (ρ=0.713, $p<0.05$) as well. The study did, however, not find any significant relationship between Cleaner Production and hotel occupancy (0.357).

5.4 Conclusions

5.4.1 Cleaner Production Implementation Practices by Star-rated Hotels

From the results of this study, it can be concluded that the level of awareness of hotels about Cleaner Production is fairly good. Their Cleaner Production implementation practices are however not comprehensive enough for the realisation of desired results. A key hindrance of the facto that hotels have not set benchmarks in various performance aspects, do not monitor progress towards realising the benchmarks, and they do not take any corrective actions when the their targets are not being met.

5.4.2 Factors Influencing the Adoption and Implementation of Cleaner Production

The study generally reaffirms the findings of similar studies in the past and in other sectors on the key drivers of Cleaner Production adoption and implementation. Reduced costs (and by extension profitability of a business) is a key driver. Others include enhanced compliance with government laws and regulations. The study rated the hotels very low (16%) in self-regulation. This indicates that hoteliers and the Kenya Association Hotel Keepers and Carters have not put enough efforts in encouraging hotels to take up and implementation of the voluntary and self-regulation measures available in the industry including Cleaner Production, ISO standardization, and Ecotourism Kenya Eco-rating Schemes. The government has also not put enough efforts in encouraging implementation of these practices in the hotel industry. Opportunities available for the government include Cleaner Production legislation, revision of the star-rating criteria to strengthen the environmental management component, strengthening collaboration between various industry players on implementation and monitoring, incentivising and rewarding excellence in Cleaner Production implementation in the industry.

5.4.3 The Relationship between Star-rating and Cleaner Production Implementation

From the results of this study it can be concluded that there is a significant positive relationship between star-rating and Cleaner Production implementation. Hotels with higher star rating are better in implementing Cleaner Production and other best practices in the industry.

5.4.4 The Relationship between Cleaner Production Implementation and Compliance

Form the results of the study it can be concluded that there is a significant positive relationship between Cleaner Production implementation and compliance with government regulation. Promotion of Cleaner Production in the hotel industry is therefore likely to result in better compliance of the industry with existing laws and regulations. The reverse may also be true.

5.4.5 The Relationship between Cleaner Production Implementation and Hotel Occupancy

This study did not find any significant relationship between Cleaner Production implementation and hotel occupancy. However, given the fact that the study was undertaken during a time that the tourism sector was just recovering from the effects of 2007-2008 post-election violence, the findings may not be adequate to inform conclusions on the relationship between Cleaner Production implementation and hotel occupancy

5.5 Recommendations

5.5.1 For Hoteliers, Hotel Management and Staff

For hotels, there is need for implementation of more comprehensive Cleaner Production programmes that are guided by policies, set performance standards, benchmarks and targets. The hotels are also encouraged to explore implementation of other voluntary initiatives that are complementary to Cleaner Production. These include ISO certification. The ISO standards applicable to the hotel industry include ISO 14000 for Environmental Management, ISO 9001:2000 for Quality Management, ISO 22000 for Food Safety, ISO/PAS for Supply Chain Security and OHSAS 18001 for Occupational Health and Safety. There is also Green Globe, an environmental management framework designed for organizations within the travel and tourism industry. At the national level, Kenya has an eco-rating scheme designed and implemented by Eco-Tourism Kenya that hotels can voluntarily participate in.

5.5.2 For the Hotels and Restaurants Authority, Ministry of Tourism

The current scheme for star-rating hotels and restaurants is outdated. A revision of the star-rating scheme should consider the criteria for rating hotels against environmentally sound design and operations. Additionally, star rating should be made compulsory for all hotels and restaurants. During this study, it was observed that there were a number of hotels in operation and identified with various star-rating yet they had formally not been subjected to star-rating.

5.5.3 For Policy Makers

Recognizing the role of Cleaner Production in sustainable development, there is need to for the Kenyan Government to develop legislation and policies to guide Cleaner Production implementation in the country. China, for instance, has developed a Cleaner production law that came into effect in January 1, 2003 (People's Republic of China, 2003) and is already showing remarkable results (Ning, et al 2009). If developed, this legislation and regulation can enhance Cleaner Production implementation through appropriate financing and taxation regimes.

5.5.4 For the Kenya National Cleaner Production Centre

The Kenya National Cleaner Production Centre should initiate a program targeting the tourism industry and hotels and accommodation sector in particular. Likely partners in this program will be UNEP, WTO, KAHKC, and Eco-Tourism Kenya whose efforts in in developing a sustainable hotel industry have variously been documented.

5.5.5 For Further Research

Given the fact that Cleaner Production is a new concept in Kenya, not some many studies have been completed on this subject. This particular study was more exploratory and general in nature. More detailed studies and analyses are required on the role of hotels on various aspects of Cleaner Production including resources (water, energy, and raw materials) use, waste and emission management, green procurement and self-regulation of the sector. It will be helpful for such studies to result in development of resource (water, energy, etc), waste, and emissions generation targets for the hotel and accommodation industry so that this informs legislation and regulation. A study on the climate change mitigation and adaptation measures by hotels will particularly be important. The relationship between Cleaner Production and hotel performance should also be investigated further.

REFERENCES AND BIBLIOGRAPHY

Alvarez Gil, M. J., Burgos Jimenez, J. & Cespedes Lorente, J. J. (2001). An analysis of environmental management, organizational context and performance of Spanish hotels. Omega, 29(6), 457-471

Amelung, B. & Viner, D. (2006). Mediterranean tourism: exploring the future with the tourism climatic index. Journal of Sustainable Tourism, 14(4), 349-366.

Andersen, A. (1998). 10th Annual European Hotel Industry Investment Conference: New Capital for a Changing Europe. London.

Ashley, C. (2000). The Impacts of Tourism on Rural Livelihoods: Namibia's Experience. Sustainable Livelihoods Working Paper No.128. London: Overseas Development Institute.

Ashley, C. & Mitchell, J. (2008). Doing the Right Thing Approximately Not the Wrong Thing Precisely: Challenges of Monitoring Impacts of Pro-Poor Interventions in Tourism Value Chains. Working Paper 291 London: Overseas Development Institute.

Ashley, D. V., Walters, C., Dockery-Brown, C., McNab, A. & Ashley, D. E. (2004). Interventions to Prevent and Control Food-Borne Diseases Associated with a Reduction in Travellers' Diarrheal in Tourists to Jamaica. Journal of travel medicine, 11(6), 364-369.

Ashton, P.J. & MacKay, H. M. (1996). The Philosophy and Practice of Integrated Catchment Management: Implications for Water Resource Management in South Africa. A Discussion Document. Water Research Commission and Department of Water Affairs and Forestry, Pretoria. 128 pp.

Bader, E. E. (2005). Sustainable Hotel Business Practices. Journal of Retail and Leisure Property, 5(1), 70-77

Bohdanowicz, P. (2005). European Hoteliers' Environmental Attitudes, Cornell Hotel and Restaurant Administration Quarterly, 46(2), 188-204.

Bohdanowicz, P. (2007). A case study of Hilton Environmental Reporting as a tool of corporate social responsibility. Tourism Review 11, 115-131.

Bohdanowicz, P. & Zientara, P. (2008). Corporate Social Responsibility in Hospitality: Issues and Implications. A Case Study of Scandic. Scandinavian Journal of Hospitality and Tourism 8, 271-293.

Bohdanowicz, P. (2009). Theory and practice of environmental management and monitoring in hotel chains. Sustainable tourism futures: Perspectives on systems, restructuring and innovations, 102-130.

Brady J. (ed) (2006). Environmental Management in Organizations: The IEMA Handbook. Earthscan, London

Brunt, P & Courtney, P. (1999). Host Perceptions of Sociocultural Impacts. Annals of Tourism Research 26(3): 493-515.

Butler, R. W. (1993). "Tourism – An evolutionary perspective", in Tourism and Sustainable Development: Monitoring, Planning, Managing, Department of Geography, University of Waterloo.

Butler, R. W. (1999). Sustainable Tourism: A state-of-the Art Review, Tourism Geographies, 1 (1), pp. 7–25.

Butler, D. (2001). Life after CFCs and HCFCs. In CIBSE National Conference.

Butler, R. & Hinch, T. (2007). Tourism and Indigenous Peoples: Issues and Implications. Oxford: Butterworth-Heinemann.

Campbell, J.L. (2006). Institutional Analysis and the Paradox of Corporate Social Responsibility. American Behavioural Scientist 49(7): 925-938

Cashman, A., Cumberbatch, J., & Moore, W. (2012). The effects of climate change on tourism in small states: evidence from the Barbados case. Tourism Review, 67(3), 17-29.

Chan, E. S. W. (2008). Barriers to EMS in the Hotel Industry, International Journal of Hospitality Management, 27(2), pp. 187-196.

Cheney, G. (2004). The Corporate Conscience and the Triple Bottom Line. Accounting Today. July 12, 2004.

Cohen, E. (1996). Hunter-Gatherer Tourism in Thailand. Tourism and Indigenous Peoples, International Thomson Business Press, London.

Commonwealth of Australia (1997). Best Practice Ecotourism: A Guide to Energy and Waste Minimisation. Commonwealth Department of Tourism, Canberra, Vol. 6-10.

Cooray, N. (1999). Cleaner Production Assessment in Small and Medium Industries of Sri Lanka. Global Competitiveness through Cleaner Production: Proceedings of the 2nd Asia Pacific Cleaner Production Roundtable.

Creswell, J. W. (1994). Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, CA: Sage

Cukier, J. (1996). Tourism Employment in Bali: Trends and Implications. Tourism and Indigenous Peoples. International Thomson Business Press, UK, pp. 49-75.

Cunill, O.M. (2006). The Growth Strategies of Hotel Chains: Best Business Practices by Leading Companies. Haworth Press.

Davidson, M. C. (2003). Does organizational climate add to service quality in hotels? International Journal of contemporary hospitality management, 15(4), 206-213.

De Levie, R. (2004). Advanced Excel for scientific data analysis. Oxford University Press.

Deloitte (2006). Hospitality 2010 – A Five Year Wake Up Call, Deloitte, London.

DeNisi, A. S. (2005). A local perspective to expatriate success. The Academy of Management Executive, 19(1), 132-146.

Diaz, D. (2001). The Sustainability of International Tourism in Developing Countries. OECD Seminar on Tourism Policy and Economic Growth. UNCTAD, Berlin, Geneva.

Dixon, J. Hamilton, K. Pagiola, S. & Segnestan, L. (2001). Tourism and the Environment in the Caribbean: An Economic Framework. Environment Department, World Bank, New York.

Dodds, R. and Joppe, M. (2005). CSR in the Tourism Industry: The Status of and Potential for Certification, Codes of Conduct and Guidelines. CSR Practice Foreign Investment Advisory Service Investment Climate Department.

Ecotourism Kenya (2007). Eco-tourism Kenya News Letter. Issue NO. 18, October-December 2006

Ecotourism Society of Kenya (2003). Ecotourism Society of Kenya Newsletter. Issue No. 7: June-December 2003

Ecotourism Kenya (2005). Ecotourism Kenya Newsletter. Issue No. 10: June-August 2005

Ecotourism Kenya (2009). Ecotourism Society of Kenya Newsletter. Issue No. 22: January–March 2009.

Ecotourism Kenya <www.ecotourism.org>. Accessed on 16th July 2011

Ecotourism Society of Kenya (2002). The Ecotourism Society of Kenya Eco-rating scheme, Ecotourism Society of Kenya

El Dief, M. & Font, X. (2012). Determinants of Environmental Management in the Red Sea Hotels Personal and Organizational Values and Contextual Variables. Journal of Hospitality and Tourism Research, 36(1), 115-137

Elkington, J. (1998). Cannibals with Forks: Triple Bottom Line of 21st Century Business, Capstone Publishing, Oxford, UK.

Epstein, M. & Wisner, P. (2001). Good Neighbours: Implementing social and environmental strategies with the BSC. Balanced Scorecard Report.

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

Ernst and Young (2008). Global Hospitality Insights: Hospitality Going Green. <www.ey.com> Accessed on 16th July 2011

EUHOPA, IH&RA & UNEP (2001). Sowing the Seed of Change, An Environmental Teaching Pack for the Hospitality Industry, UNEP, Paris.

Fairmont Hotels and Resorts (2010). Green Partnership Program. <http://www.fairmont.com/corporate-responsibility/environment> Accessed on February 4, 2010

Fairmont Hotels and Resorts (2008). Corporate Responsibility. http://www.fairmont.com/EN_FA/AboutFairmont/enviroment/Awards/CorporateEnvironmentAwards.htm Accessed on February 4, 2010

Font, X. & Harris, C. (2004). Rethinking Standards: From Green to Sustainable. Annals of Tourism Research 31(1): 139-156.

Forum for the Future (2002). The Five Capitals Model. A framework for Sustainability http://www.forumforthefuture.org/sites/default/files/project/downloads/five-capitals-model.pdf Accessed on July 12, 2011

Foster, S. T., Sampson, S. E. & Dunn, S. C. (2000). The Impact of Customer Contact on Environmental Initiatives for Service Firms. International Journal of Operations and Production

Fraley, A. (2005). Child Sex Tourism Legislation under the Protect Act: does it really protect. John's L. Rev., 79, 445

Goodman, A. (2000). Implementing Sustainability in Service Operations at Scandic Hotels. Interfaces, 30(2), 202-214.

Gore, A. (2006). An Inconvenient Truth. Bloomsbury, London.

Graci, S. (2009). Can Hotels Accommodate Green? Examining What Influences Environmental Commitment in the Hotel Industry, VDM Verlag, Frankfurt.

Graci, S. & Dodds, R. (2009). Why Go Green? The Business Case for Environmental Commitment in the Canadian Hotel Industry. Anatolia: An International Journal of Tourism and Hospitality Research, vol 19, no. 2, pp. 250-270.

Gossling, S. (2003). Market Integration and Ecosystem Degradation: Is Sustainable Tourism Development in Rural Communities a Contradiction in Terms? Environment, Development and Sustainability, vol. 5, pp. 3-4.

Gossling, S. & Peeters, P. (2007). It Does Not Harm the Environment. An analysis of industry discourses on tourism, air travel and the environment. Journal of Sustainable Tourism, 15(4), 402-417.

Government of Kenya (2007). The Kenya Vision 2030. Popular Version. Government of Kenya <http://www.vision2030.go.ke/index.php/vision> Accessed on February 18, 2011.

Government of Kenya (2004). The Kenya Gazette Notice Number 5693. 3rd July 2004. Nairobi. Government Printers

Graedel, T & Howard-Grenville, J. (2001). Manufacture for the Environment, Yale University, New Haven, unpublished.

Green Globe 21 (2001). Green Globe 21 Company Standard for Travel and Tourism, Version V1.2 July 2003

Green Globe 21 (2003). Green Globe 21 Community Standard, CRC for Sustainable Tourism. Version 1.1, March 2003

Green Globe 21 (2004). Green Globe 21 Essentials downloaded from <www.greenglobe21.com> December 2004

Greenhotelier (2008). The know-how section. Hospitality Going Green. International Hotels Environment Initiative Magazine, Published Quarterly, Issue 57.

Greenhotelier (2004). The know-how section: Better waste management. Greenhotelier. International Hotels Environment Initiative Magazine. vol. 32, pp. 1-4

Greenhotelier (2003). International Hotels Environment Initiative Magazine, Published Quarterly, Issue 27.

Green Lodging News <www.greenlodgingnews.com/content> Accessed on April 6, 2011

Ministry of Tourism, Kenya (2009). Kenya Tourism–Facts and Figures <http://www.tourism.go.ke/> Accessed on December 14, 2010

Hall, C.M. (2007). Pro-poor tourism: Do 'Tourism Exchanges Benefit Primarily the Countries of the South'? Current Issues in Tourism, 10: 111-118.

Hall, C.M & Lew, A. (2009). Understanding and Managing Tourism Impacts: An Integrated Approach. London: Routledge.

Hamed, M. & El-Mahgary, Y. (2004). Outline of a National Strategy for Cleaner Production: The Case of Egypt, Journal of Cleaner Production, vol.12, pp. 327-336.

Hamner, B. (1996). The Relationship among Cleaner Production, Pollution Prevention, Waste Minimization and ISO 14000, The 1st Asian Conference on Cleaner Production in the Chemical Industry Taipei, Taiwan.

Hanna, E. (2008). Greening the guestroom. Hotel and Motel Management. 223(9), 28.

Hawkins, R., & Bohdanowicz, P. (2011). Responsible Hospitality: Theory and Practice. Goodfellow London.

Hemdi, M. A. & Nasurdin, A. M. (2006). Predicting turnover intentions of hotel employees: The influence of employee development human resource management practices and trust in organization. Gadjah Mada International Journal of Business, 8(2006)

Honey, M., (1999). Ecotourism and Sustainable Development. Who Owns Paradise? Island Press, Washington, DC

Hospitality Net (2007). Marriot Helps Clean Up the World – Company Expands Green Initiative <www.hospitalitynet.org/news/4030447.html> Accessed on April 6, 2010

Houdre, H. (2007). Sustainable Development of the Hotel Industry, Unpublished Report.

IHA, IHEI and UNEP (1995). Environmental Action Pack for Hotels. IHEI, London.

IHA, IHEI and UNEP (1996). Environmental Management for Hotels: The Industry Guide to Best Practice. Butterworth–Heinemann, Oxford.

IHRA and UNEP (1996). Environmental Good Practice in Hotels: Case Studies. UNEP, Paris

Ikiara, M.M., Karanja, A.M. and Davies, T.C. (2004). Collection, Transportation and Disposal of Urban Solid Waste in Nairobi", in Baud, I., J. Post and C. Furedy (eds.), Solid Waste Management and Recycling: Actors, Partnerships and Policies in Hyderabad, India and Nairobi, Kenya, Chapter 4, , Dordrecht, The Netherlands: Kluwer Academic Publishers, Dordrecht, The Netherlands

ILO (2001). Report on the Tripartite Meeting on Human Resources Development, Employment and Globalization in the Hotel, Catering and Tourism Sector, <http://www.ilo.org/public/english/bureau/inf/magazine/39/tourism.htm> Accessed on May 8, 2009

IHG (2009).Corporate Social Responsibility Report 2009 for InterContinental Group <www.ihgplc.com/index.asp> Accessed on April 19, 2011

ITP (2008). Environmental Management for Hotels: The Industry Guide to Sustainable Operations (3rd ed.). International Tourism Partnership, London.

Irandu, E. M. (2004). The role of tourism in the conservation of cultural heritage in Kenya. Asia Pacific Journal of Tourism Research. Vol. 9. Issue No. 2

Irandu, E. M. (2006). Sustainable Tourism Development on Kenya's Coast: a Hospitality Sector View, An International Journal of Tourism and Hospitality Research. Vol.17, Issues No.2, pp. 189-209.

Isaac, S. & Michael, B. W. (1981). Handbook in Research and Evaluation, 2nd Edition. EdITS Publishers, San Diego.

International Society of Hospitality Consultants (2006). Top 10 Global Issues and Challenges in the Hospitality Industry for 2006, <http://www.ishc.com/library/pubs/top102006.doc> Accessed on June 16, 2009,

IUCN (2006). The Future of Sustainability: Rethinking Environment and Development in the Twenty-first Century. IUCN, Gland Switzerland

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

Kasavana, M. L. (2008). Green hospitality. Hospitality upgrade, summer, 140-148.

Kasim, A. (2009). Managerial attitudes towards environmental management among small and medium hotels in Kuala Lumpur. Journal of Sustainable Tourism, 17(6), 709-725.

Kasim, A. (2007). Corporate environmentalism in the hotel sector: evidence of drivers and barriers in Penang, Malaysia. Journal of Sustainable Tourism 15, 680–699.

Kenya Laws Reports (2011) Hotels and restaurants regulation <www.kenyalaws.org> Accessed on July 3, 2011

Kirk, D. (1995). Environmental Management in Hotels, International Journal of Contemporary Hospitality Management, vol. 7, no. 6, pp. 3–8.

Kirkman, H. (2001). Effects of Tourism on The Coasts Of East Asian Seas. Community Tourism Destination Management: Principles and Practice

KPMG International (2008). KPMG International Survey of Corporate Responsibility Reporting 2008, KPMG

Kenya Association of Manufacturers (2011). Energy Efficiency and Conservation <www.kam.co.ke> Accessed on September 7, 2011

Kenya Bureau of Standards (2009). The Benchmark. KEBS Newsletter. Issue 2 (2010). June 2010.

Kenya Bureau of Standards (2011). Certified Firms <www.kebs.org>. Accessed September 7, 2011

Kenya Law Reports (2009). Hotels and Restaurants Act (Cap 494) <www.kenyalaw.org> Accessed on November 16, 2009.

Kenya Law Reports (2011). Hotels and Restaurants Act (Cap 494) <www.kenyalaw.org> Accessed on September 7, 2011.

KNCPC (2004). A compendium of cleaner production case studies in Kenya: August 2004.

KNCPC (2006). CP News, Newsletter by the KNCPC, October 2006 Issue.

KNCPC (2011). Promoting Resource Efficiency in Small and Medium Enterprises (PRE-SME) <www.cpkenya.org/pre-sme-projects> Accessed on March 17, 2011.

KNBS (2012). Kenya Facts and Figures <*www.knbs.or.ke*> Accessed on February 16, 2012.

KNBS (2009). 2009 Economic Survey <*www.knbs.or.ke*> Accessed on February 16, 2011.

KTF (2011). Kenya Tourism Federation Newsletter. Issue No. 12. April 2011.

Larry, Y. (1999). The International Hospitality Business. Management and Operations. The Haworth Hospitality Press.

Lee, H. T. & Facon, T. G. (2002). From Vision to Action: A Synthesis of National Water Visions in Southeast Asia.

Lee, D., Fahey, D. W., Forster, P. M., Newton, P. J., Wit, R. C. N., Lim, L. L., Owen, B., & Sausen, R. (2009). Aviation and global climate change in the 21st century. Atmosphere Environment, 43, 3520-37

Lee, Jin-Soo, Li-Tzang Hsu, Heesup Han, & Yunhi Kim (2010). Understanding How Consumers View Green Hotels: How a Hotel's Green Image Can Influence Behavioural Intentions. Journal of Sustainable Tourism 18, No. 7: 901-14.

Levesque, R. (2007). SPSS Programming and Data Management: A Guide for SPSS and SAS Users, Fourth Edition SPSS Inc., Chicago III

Lindsey, T. (1998). Diffusion of P_2 Innovations, Pollution Prevention Review (Winter), pp. 1-14. Management, vol. 20(2), pp. 187-203.

Mann, P. S. (1995) Introductory Statistics, 2nd Edition, Wiley.

Manyara, G. & Jones. E. (2007). Community-based Tourism Enterprises Development in Kenya: An Exploration of Their Potential as Avenues of Poverty. Journal of Sustainable Tourism Vol. 15, Issue No. 6.

Masau, P. & Prideaux, B. (2003). Sustainable tourism. A role of Kenya's Hotel Industry. Current Issues in Tourism, 6(3), 197-208

Mbugua & Cornwell (2008). The impact of tourism on the consumption environment: Coping and potential praxis in Malindi, Kenya. African Journal of business management, Vol 2 (6)

McLaren, J. and McLaren, S. (2009). Life Cycle Management. Hatched: The capacity for sustainable development, 109.

McLaren, D. (2003). Rethinking Tourism and Ecotravel: The Paving of Paradise and What You Can Do About It, 2nd edition, Kumarian Press, United States.

McLeish, B. (2007). Pairing green design with energy purchasing strategies. Hospitality Construction. 2(6), 52-54.

McIntyre, L. J. (1999). The Practical Skeptic: Core Concepts in Sociology. Mountain View, CA: Mayfield Publishing

McNamara, K. E. & Gibson, C. (2008). Environmental sustainability in Practice. A Macro-scale Profile of Tourist Accommodation Facilities in Australia's Coastal Zone. Journal of Sustainable Tourism 16 (1), 85-100.

Mensah, I. (2006). Environmental Management Practices Among Hotels in Greater Ghana Region. Hospitality Management (25): 414-431

Meyer, D. (2007). Pro-poor tourism: from leakages to linkages. A conceptual framework for creating linkages between the accommodation sector and 'poor'neighbouring communities. Current issues in tourism, 10(6), 558-583.

Min, Y. & Wall, G. (2002). Economic perspectives on tourism in China. Tourism and Hospitality Research, 3(3), 257-275.

Mitchell, J. & Ashley, C. (2010). Tourism and Poverty Reduction: Pathways to Prosperity. London: Earthscan.

Mogaka, H., S. Gichere, H. S, Davis, R., & Hirji, R. (2006). Climate Variability and Water Resources Degradation in Kenya. World Bank Working Paper No. 69.

Muthini M., Tole M.P. & Otieno D. (2003). Solid Waste Pollution Loads in Beach Hotels on the Kenyan South Coast. In Hoorweg J. and Muthiga N. (ed.), Recent Advances in Coastal Ecology: Studies from Kenya. (pp. 153-167). Leiden: African Studies Centre.

Mycoo, M. (2006). Sustainable tourism using regulations, market mechanisms and green certification: A case study of Barbados. Journal of Sustainable Tourism, 14(5), 489-511.

NCWSC (2010). Draft Strategic Plan for the Period 2010/11 to 2014/15. NCWSC, Nairobi.

NEMA (2004) State of Environment Report 2003, Kenya, National Environmental Management Authority, Nairobi

Neto, F. (2003). A New Approach to Sustainable Tourism Development: Moving Beyond Environmental Protection, Natural Resources Forum, vol. 27, no. 3, pp. 212-222.

Olsen, B. (1997). Environmentally Sustainable Development and Tourism: Lessons from Negril, Jamaica, Human Organization, vol. 56, no. 3, pp. 285-293.

Park, J (2009). The Relationship Between Top Managers' Environmental Attitudes and Environmental Management in Hotel Companies. Unpublished Master of Science Dissertation, Virginia Polytechnic Institute and State University, Virginia.

Page, S. J. & Dowling, R. K. (2002). Ecotourism, Prentice Hall, Harlow.

Peeters, P., van Egmond, T., & Visser, N. (2004). European tourism, transport and environment. Final Version. Breda: NHTV CSTT.

People's Republic of China (2002). Cleaner Production Promotion Law for China <www.chinacp.org.cn/eng/cppub/law/ChinaCPLaw.pdf> Accessed on September 3, 2010

Pezzey, J. (1989). Economic Analysis of Sustainable Growth and Sustainable Development, Environmental Department Working Paper No. 15, World Bank

Pickering, C. M. & Hill, W. (2007). Impacts of recreation and tourism on plant biodiversity and vegetation in protected areas in Australia. Journal of Environmental Management, 85(4), 791-800.

PriceWaterhouseCoopers (2006): Hospitality Directions Europe Edition Issue 13, March 2006

Priego, M. J. B., Najera, J. J., & Font, X. (2011). Environmental management decision-making in certified hotels. Journal of Sustainable Tourism, 19(3), 361-381

Pryce, A. H. (2001). Sustainability In The Hotel Industry. Travel and Tourism Analyst, 201(6), 95-114.

Remmen, A., Jensen, A. A., & Frydendal, J. (2007). Life Cycle Management: A Business Guide To Sustainability. UNEP-DTIE, Paris

Richardson, J. (2004). "Accounting for Sustainability" in Adrian Henriques and Julie Richardson (eds) The Triple Bottom Line: does it all add up. EarthScan: London UK.

Richardson, K. (2006). Commentary: Can Hospitality Get Green? Green Guide HD: Show Guide 2006:3 Exhibition.

Rivera, J. (2004). Institutional Pressures and Voluntary Environmental Behavior in Developing countries: Evidence from the Costa Rican Hotel Industry. Society and Natural Resources 17, 779–797.

Roarty, M. (1997). Greening Business in a Market Economy, European Business Review, vol. 97, no. 5, pp. 244-254.

Robert, K. H. (2002). The Natural Step Story: Seeding a Quiet Revolution, New Society Publishers, Gabriola Island, Canada

Sadi, M. A. & Henderson, J. C. (2005). Local versus Foreign Workers in the Hospitality and Tourism Industry A Saudi Arabian Perspective. Cornell Hotel and Restaurant Administration Quarterly, 46(2), 247-257

Salzman, J. (2008). Informing the green consumer: The debate over the use and abuse of environmental labels. Journal of Industrial Ecology, 1(2), 11-21

Sandbrook, C. G. (2010). Putting leakage in its place: the significance of retained tourism revenue in the local context in rural Uganda. Journal of International Development, 22(1), 124-136.

Saunders. M, Lewis. P, & Thornhill. A. (2009). Research Methods for Business Students. 5th Edition. Prentice Hall

Sausen, R., & Schuman, U. (2000). Estimates of the climate response to aircraft CO2 and NOx emissions scenarios. Climatic Change, 44, 27-58.

Schilizzi, S. (2002). Triple Bottom Line Accounting: How serious is it? Connections. Online publication of Agribusiness Association of Australia, <http://www.agrifood.info/10pub_conn_Win2002.htm>

SECO, SBA, RSS & FHNW (2007). Cleaner Production Excellence Model. Swiss State Secretariat for Economic Affairs <*www.sba-int.ch*> Accessed on September 7, 2010

Serena Hotels (2010). SoS Serena Outreach to Society: The CSR Newsletter for Serena Hotels. Issue Number 2, October 2010.

Sharpley, R. (2000). Tourism and Sustainable Development: Exploring the Theoretical Divide, Journal of Sustainable Tourism, vol. 8, no. 1, pp.1-19.

Sharpley, R. (2009). Tourism Development and the Environment: Beyond Sustainability? London: Earthscan.

Sherman, M. (2008). Green lodging program helps revive Florida hotels. Hospitality Construction. 3(2), 66-70.

Spenceley, A. (2003). Managing Sustainable Nature-based Tourism in Souht Africa – Case studies on the Growing Role of the Private Sector in Natural Resources Management. Institute of Development Studies, Brighton.

Spenceley, A. (2004). Tourism Certification in Africa: Marketing, incentives and monitoring, Report to The International Ecotourism Society, 29 November 2004

Spenceley, A. (2009). Responsible Tourism: Critical Issues for Conservation and Development: Beyond Sustainability. London: Earthscan.

Spreckley, F. (1981). Social audit - A Management Tool for Co-operative Working

Simpson, M. C. (2007). An Integrated Approach to Assess the Impacts of Tourism on Community Development and Sustainable Livelihoods. Community Development Journal 44(2): 186-208.

Simpson, M.C., Gossling, S., Scott, D., Hall, C.M. & Gladin, E. (2008). Climate Change Adaptation and Mitigation in the Tourism Sector: Frameworks, Tools and Practices. UNEP, University of Oxford, UNWTO, WMO: Paris, France.

Smith, M. F. (1983). Sampling Considerations in Evaluating Cooperative Extension Programmes. Florida Cooperative Extension Services, Gainesville, Florida.

Severin Hotels and Lodges (2011). Severin Sea Lodge Brochure <www.severin-kenya.com> Accessed on July 16, 2011

Story, D. and Price, T. (2006). Corporate Social Responsibility and Risk Management? Journal of Corporate Citizenship 22: 39-51

Stronza, A. (2001). Anthropology of Tourism: Forging New Ground for Ecotourism and other alternatives, Annual Reviews, vol.30, pp. 261-283.

Sweetings J. E. N, & Sweetings, A. (2003). A Practical Guide To Good Practice. Managing Environment and Social Issues In The Accommodation Sector. UNEP, Paris

Takata, S., Kirnura, F., Van Houten, F. J. A. M., Westkamper, E., Shpitalni, M., Ceglarek, D. & Lee, J. (2004). Maintenance: changing role in life cycle management. CIRP Annals-Manufacturing Technology, 53(2), 643-655.

The Sustainable Strategist (1998). Toilets in Paradise: Designing Systems for the Pacific Islands, Sustainable Strategies.

TOI & CELB (2003). A Practical Guide to Good Practice: Managing Environmental and Social Issues in the Accommodations Sector, UNEP, Paris.

Ton, M. (1996). Greening Your Property: A Green Seal Guide, Green Seal, Washington, DC.

Tourism Council Australia & CRC Tourism (1998). Being Green Keeps You Out of the Red, Tourism Council Australia, New South Wales

Tourism Concern (2011). What makes tourism unethical? The issues explained <www.tourismconcern.org.uk> Accessed on September 3, 2011

Townsend, A. K . (2007). Green Business: The Five Elements of an Environmentally Responsible Company, Schiffer Books.

Transport For Leisure Ltd. (2000). Transport Tourism and the Environment in Scotland. Scottish Natural Heritage Commissioned Report F00NC17

Trochim, W. M. K. (2006). Descriptive statistics. Research Methods Knowledge Base. Accessed on 14 March 2011

Tutuncu, O. & Kozak, M. (2007). An investigation of Factors Affecting Job Satisfaction, International Journal of Hospitality and Tourism Administration, vol. 8, no. 1, pp. 1-19.

Twist, W. (1993). Environmental Management for Hotels: the Industry Guide to Best Practice, 2nd edition, Butterworth-Heinemann, Oxford.

Tzschentke, N., Kirk, D. & Lynch, P. A. (2004). Reasons for going Green in serviced Accommodation Establishments, International Journal of Contemporary Hospitality Management, vol. 16, no. 2, pp.116-124.

Uebersax, J. S. (2006). Likert Scales: Dispelling the Confusion. Statistical Methods for Rater Agreement <http://ourworld.compuserve.com/homepages/jsuebersax/likert.htm> Accessed on June 16, 2011.

UNICEF (2006). Sexual exploitation of children at the Kenyan Coast, Unpublished Report, UNICEF.

UNEP & WTO (2005). Making Tourism More Sustainable – A Guide for Policy Makers, UNEP-DTIE, Paris.

UNEP (1994). Government Strategies and Policies for Cleaner Production, UNEP Industry and Environment, Paris.

UNEP (2002). Cleaner Production: Global Status 2002, United Nations Development Programme.

UNEP (2003). A Manual for Water and Waste Management: What Can the Tourism Industry Do To Improve Its Performance? UNEP, Nairobi.

UNEP (2004). Summary Report of the Third African Roundtable on Sustainable Consumption and Production (ARSCP-3), Casablanca, Morocco.

UNEP (2006). Integrated Assessment of the Energy Policy with Focus on the Transport and Household Energy Sectors, United Nations Environment Programme, Nairobi.

UNEP (2009). Kenya-Atlas of Our Changing Environment, United Nations Environment Program.

UNEP (2011). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, United Nations Environment Program.

UNIDO & UNEP (2010): Taking Stock and Moving Forward: The UNIDO-UNEP National Cleaner Production Centres. UNIDO, Vienna

Van Der Duim, V. R & Caalders, J. (2008). Tourism Chains and Pro-poor Tourism Development: An Actor-Network Analysis of a Pilot Project in Costa Rica. Current Issues in Tourism. Vol. 11. No. 2.

Van Berkel, R. (1994). Comparative Evaluation of Cleaner Production Working Methods, Journal of Cleaner Production, vol. 2, nos. 3-4, pp. 139-153.

Van Berkel, R. (2000). Cleaner Production in Australia: Revolutionary Strategy or Incremental Tool, Australian Journal of Environmental Management, pp.9-24.

Wackernagel, M. & Rees, W.E. (1996). Our Ecological Foot- print: Reducing Human Impact on the Earth. Gabriola Press New Society Publishing, B.C.

WCED (1987). Our Common Future, Report of the World Commission on Environment and Development. Oxford University Press, Oxford, England, p. 43.

Webster, K. (2000). Environmental Management in the Hospitality Industry, Cassell, London.

Whitelaw, K. (2004). ISO 14001 Environmental Management Systems Handbook. 2nd edition. Butterworth-Heinemann

Willard InterContinental Hotel Washington D.C. (2009). In the news <http://willarddc.com/sd/news/news.htm> Accessed on February 2, 2010

Whitelaw, K. (2004). ISO 14001 Environmental Management Systems Handbook, 2nd ed. Butterworth-Heinemann.

Walter, H. (2003). Preserving and Expanding the Role of Non-Motorised Transport', in Sustainable Transport: A Sourcebook for Policy-makers in Developing Countries, GIZ, <www.sutp.org> Accessed on 23, July 2011

Wellman, B. (1998). Doing It Ourselves: The SPSS Manual as Sociology's Most Influential Recent Book. pp. 71–78 in Required Reading: Sociology's Most Influential Books, edited by Dan Clawson. Amherst: University of Massachusetts Press.

Wood, D. (2010). Measuring Corporate Social Performance: A Review. International Journal of Management Reviews 12, 50-84.

World Bank (2000). Greening Industry: New Roles for Communities, Markets and Governments. Oxford University Press, New York, NY.

World Economic Forum (2009). The Travel and Tourism Competitiveness Report 2009. Managing in a Time of Turbulence. J. Blanke and T. Chiesa, editors. Geneva: World Economic Forum.

WRMA (2010). Preliminary Water Allocation Plan of the Nairobi Aquifer Suite. Water Resources Management Authority, Kenya

World Trade and Tourism Council (2007). Tourism Satellite Account (2007).
WTO (2001). The Concept of Sustainable Tourism, <http://www.worldtourism.org/sustainable/concepts.htm> Accessed July on 26, 2009,

Worsfold, D & Griffith, C. J. (2003). A survey of food hygiene and safety training in the retail and catering industry. Nutrition and Food Science, 33(2), 68-79.

WTO (2002). Tourism and Poverty Alleviation, WTO, Madrid.

WTO (2004). Tourism Highlights 2004 Edition, WTO, Madrid.

WTO (2006). Poverty Alleviation through Tourism. A Compilation of Good Practices. WTO, Madrid.

WTO & UNEP (2008). Climate Change and Tourism – Responding to Global Challenges, WTO, Madrid.

WWF- UK & IBLF (2005). Why Environmental Benchmarking will help your Hotel, a guide produced by the International Business Leaders Forum's travel and tourism program and WWF-UK <http://www.tourismpartnership.org/downloads/WWF%20Benchmarking.pdf> Accessed on July 8, 2011

Yapp, C. and Fairman, R. (2006). Factors affecting food safety compliance within small and medium-sized enterprises: implications for regulatory and enforcement strategies. Food Control, 17(1), 42-51.

ANNEXES

Annex 1: Survey Questionnaire

Name of Hotel: _____

Physical Location/Street: _____

Names of Respondents: _____

Position: _____

CHARACTERISTICS OF THE HOTEL

1. Type of Ownership: *(Please, tick as appropriate)*

   i) Individual ownership [ ]

   ii) Partnership/local company [ ]

   iii) Belongs to a local Chain of Hotels [ ]

   iv) Belongs to International Chain [ ]

   v) Other types *(Please specify):* _____

2. Year of Establishment in Kenya: _____

3. Number of Rooms in Hotel: _____ Number of Beds: _____

4. Hotel Star rating: _____

5. Total Number of Staff: _____ Local: _____ Non-local: _____

6. Hotel occupancy (bed nights) in 2008 *(Please fill table below)*

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec

KNOWLEDGE ABOUT CLEANER PRODUCTION

1. Do you know about Cleaner Production?

   Yes [ ] No [ ]

2. If your answer to Question 1 above is 'Yes', how did you know about Cleaner Production? *(Please tick as appropriate----you can select more than one option)*

   i) From the Ministry of Tourism and Wildlife [ ]
   ii) From the Kenya National Cleaner Production Centre [ ]
   iii) From other hotels/businesses applying Cleaner Production [ ]
   iv) From the Kenya Association of Hotel Keepers and Caterers [ ]
   v) From the National Environment Management Authority (NEMA) [ ]
   vi) From Eco-tourism Kenya (ESOK) [ ]
   vii) From the Internet [ ]
   viii) From our Guest/Clients [ ]
   ix) From Environmental Consultants [ ]
   x) Any other source? (Please *name them in the space below*)

3. Is your business applying the Cleaner Production or any other approach for good social and environmental management practices? *(Please tick as appropriate)*

   Yes [ ] No [ ]

4. If your answer to Question 3 above is 'Yes', which year did you start applying Cleaner Production in or the approaches you have stated above?

   _____

5. What benefits have experienced as a result of the application of Cleaner Production? *(Please tick as appropriate----you can select more than one option)*

   i) Reduced operating costs [ ]
   ii) Reduced costs in waste collection and disposal [ ]

iii) Reduced costs food and beverages production [ ]

iv) Reduced costs on water [ ]

v) Reduced energy costs [ ]

vi) Enhanced compliance with government laws and regulation on environment [ ]

vii) Reduced health and safety risks for staff [ ]

viii) Improved staff morale [ ]

ix) Improved guests/clients satisfaction [ ]

x) Enhanced corporate image [ ]

xi) Any other *(name them in the space below)*

FACTORS INFLUENCING CLEANER PRODUCTION

1) The following table contains factors that encourage hotels to adopt Cleaner Production measures. Please identify which out of these factors apply (or would apply) to your hotel and rate the significance of each one of them on a scale of 1-5 ***(1 being the most significant and 5 being the least significant)***

Factors that Drive Cleaner Production Implementation	**Level of Significance** ***(Please tick as appropriate)***				
Internal Factors					
Cleaner production enhances compliance with government laws and regulations	**1**	**2**	**3**	**4**	**5**
Proven benefits from adopting some Cleaner Production practices e.g. reduced expenditures on energy and water, improved employee morale, improved community relations etc	**1**	**2**	**3**	**4**	**5**
Synergy with other self-regulation mechanisms being applied by the hotel e.g. ISO 14001 certification, Eco-Rating Scheme by Eco-tourism Kenya etc	**1**	**2**	**3**	**4**	**5**
Management commitment to good environmental and social practices	**1**	**2**	**3**	**4**	**5**
High levels of awareness among staff on environmental issues, policies and trends	**1**	**2**	**3**	**4**	**5**
Corporate social responsibility programme that is sensitive to the environment and social issues	**1**	**2**	**3**	**4**	**5**
External Factors	**1**	**2**	**3**	**4**	**5**
Innovative government laws and regulations	**1**	**2**	**3**	**4**	**5**
Incentive programmes by the government on adoption Cleaner production technologies and options	**1**	**2**	**3**	**4**	**5**
High competition within the industry ----peer influence	**1**	**2**	**3**	**4**	**5**
Demand by clients for hotels/restaurants practice high environmental and social standards	**1**	**2**	**3**	**4**	**5**

Support given by the Associate of Hotel Keepers and Caterers	**1**	**2**	**3**	**4**	**5**
Support given by other stakeholders including local and international NGOs	**1**	**2**	**3**	**4**	**5**
Pressure from the community whose levels of awareness have increased	**1**	**2**	**3**	**4**	**5**
Learning from others ----successful Cleaner Production cases locally and internationally.	**1**	**2**	**3**	**4**	**5**
New employees coming with knowledge and skills in good environmental practices	**1**	**2**	**3**	**4**	**5**
Availability of expertise to always consult and contract	**1**	**2**	**3**	**4**	**5**
Good information sharing among the industry players	**1**	**2**	**3**	**4**	**5**

2) The following table contains factors that deter hotels from adopting Cleaner Production measures. Please identify which out of these factors apply to your hotel and rate the significance of each one of them on a scale of 1-5 ***(1 being the most significant and 5 being the least significant)***

Factors that Prevent CP Implementation	**Level of Significance** ***(Please tick as appropriate)***				
Internal Factors					
General resistance to change by the hotel management and staff	**1**	**2**	**3**	**4**	**5**
Negative attitude of staff to environmental conservation and social issues that do not affect them	**1**	**2**	**3**	**4**	**5**
Low level of awareness on environmental social issues that staff should be concerned about	**1**	**2**	**3**	**4**	**5**
Low level of awareness on good environmental and social practices and how important they are for hotels and restaurants	**1**	**2**	**3**	**4**	**5**
Pressure of business to make short-term profits	**1**	**2**	**3**	**4**	**5**
Failure of accounting systems to capture environmental costs and benefits of running a business	**1**	**2**	**3**	**4**	**5**
Inability of hotels/restaurants to hire staff with appropriate skills and knowledge in environmental management	**1**	**2**	**3**	**4**	**5**
The high cost of investing in ways of improving practices and operations	**1**	**2**	**3**	**4**	**5**
The high cost of investing in environmentally friendly technologies	**1**	**2**	**3**	**4**	**5**
Lack of a culture to keep records on water and energy consumption patterns and well as wastes (solid, effluents and air emissions)	**1**	**2**	**3**	**4**	**5**
External Factors	**1**	**2**	**3**	**4**	**5**
Weak enforcement of environmental legislation by the government	**1**	**2**	**3**	**4**	**5**
Lack of awareness about Cleaner Production within the government departments that work with the hospitality sector	**1**	**2**	**3**	**4**	**5**
Lack of government lead mechanisms to promote adoption of Cleaner Production in the hospitality sector	**1**	**2**	**3**	**4**	**5**

Lack of appropriate financing mechanisms for Cleaner Production Investments	**1**	**2**	**3**	**4**	**5**
Inadequate or lack government lead incentives to encourage hotels and restaurants adopt Cleaner Production Options	**1**	**2**	**3**	**4**	**5**
Inadequate or lack of support from other tourism stakeholders such the Association of Hotel Keepers and Caterers , Eco-tourism Kenya, NGOs working tourism etc	**1**	**2**	**3**	**4**	**5**
Uncertainty about what Cleaner Production is, its advantages and disadvantages	**1**	**2**	**3**	**4**	**5**
Lack of a National Cleaner Production Policy in Kenya	**1**	**2**	**3**	**4**	**5**

REGULATION AND COMPLIANCE

1. Which of the following general environmental management practices does your hotel observe? *(Please tick in the appropriate cell)*

	Not Applicable	**Completely Implemented**	**Partly Implemented**	**Not implemented**	**I don't Know**	**Explanation/ Comments**
Compliance with Government Regulations						
Hotel has developed an environment management policy						
Hotel has a committee, department or staff responsible for environment management						
Hotel undertakes regular annual environmental audits as required by NEMA						
Hotel has developed an Environmental Implementation Plan (EMP) following completion of a recent audit						
Implementation of EMP is in progress and on schedule						
Communication with Staff						
The environmental management policy of the hotel is clearly communicated to staff						
Hotel has a programme for continuous staff training in good environmental management practices						
The orientation programme for new staff includes a session on good environmental management practices						
Management rewards staff with good environmental management ideas and/or						

initiatives.						
Communication with Guests						
The hotel environment policy and mission is clearly communicated to guests through the notice board in-room packages and other communication aids						
Encourage guests to respect natural ecosystems						
Encourage guests not to purchase products made from endangered species of wildlife (plants & animals)						
Voluntary Certification						
The hotel has undertaken voluntary certification in good environmental management practices (e.g. ISO 14,000: 2004, ISO 9001:2000 on Quality Management; Eco-Rating Scheme by Eco-Tourism Kenya etc)						

CORPORATE SOCIAL RESPONSIBILITY

Responsibility and Communication to the Community						
The hotel has a corporate social and environment responsibility						
Hotel participates in or sponsors environmental and natural resources management activities						
Management provides information to guests on the local cultures and religions as well as tips on how they own behaviours can ensure limited conflicts with the host community						
Hotel encourages guests to purchase locally produced goods and services						
Management shares with other players in the sector the hotel's good social and environmental management practices						
Hotel complies with all the relevant laws, policies and regulations that apply to the hotel sector in Kenya						

1. If you have a CSR/CER policy or programme, which year did you start?
   _____

2. Which of the CSR/CER aspects listed below does your policy/programme cover? *(Please tick as appropriate)*

   i) Social projects for the local community (schools, clinics, etc) [ ]

ii) School/college fees for needy students [ ]

iii) Disaster and emergencies support [ ]

iv) Sports [ ]

v) Direct support to disadvantaged/vulnerable individuals in society [ ]

vi) Wildlife conservation projects [ ]

vii) Forestry conservation projects [ ]

viii) Environmental clean up projects [ ]

ix) Direct financial support to locally run tourism related projects [ ]

x) Favour buying of locally produced goods [ ]

xi) Give priority to employment of local people [ ]

3. Please specify below the community projects your business supported in 2008 and the amount of support for each?

Name of Project	**Location**	**Amount of Support (in KShs)**	**In-kind support** *(Specify if any)*

4. Please specify below the environment or nature oriented conservation projects your business supported in 2008 and the amount of support for each?

Name of Project	**Location**	**Amount of Support (in KShs)**	**In-kind support** *(Specify if any)*

WATER MANAGEMENT

1. What is the source of water for your hotel? *(Please tick as appropriate----you can select more than one option)*

   i) Piped water supply system for Nairobi Water and Sewerage Company [ ]
   ii) From the Hotel's own borehole [ ]
   iii) Directly pump from nearby river [ ]
   iv) Buy from water vendors [ ]
   v) Rainwater harvesting [ ]
   vi) Any other *(name them in the space below)*

2. What was your monthly water consumption and costs/bills (in Kshs) in 2008? *(Please complete the table below)*

NWSC	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Consumption in Litres												
Cost (Kshs)												

Borehole	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Consumption in Litres												
Cost (Kshs)												

Any other	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Consumption in Litres												
Cost (Kshs)												

3. Following is a list of key water conservation and management measures for hotels. Which of these measures is your hotel implementing? *(Please tick in the cells as appropriate)*

	Not Applicable	**Completely Implemented**	**Partly Implemented**	**Not Implemented**	**I Don't Know**	**Explanation/ Comments**
Engineering and Maintenance						
Have installed water-saving showerheads (<10 litres per minute) in guest rooms, public areas, employee bathrooms, and pool showers						
Installed low-flush toilets with a maximum flush volume of 6 litres or installed toilets with two selectable water flush volumes in guest baths, public baths and employee baths						
Installed flow restrictors on water taps for sinks, self-closing faucets or sensor controlled faucets in guest baths, kitchen sinks, public paths and employees baths						
Have an efficient systems of detecting and reporting leakages and addressing them promptly						
Have a routine and preventive maintenance programme in place.						
Installed sub-meters for key water utility points e.g. guest rooms, kitchen , laundry, swimming pool, garden etc etc						
Regularly (daily – monthly) monitor, record and analyze water consumption						
Prepare periodic water usage reports for management						
Have set benchmarks or goals for water consumption						
Take corrective actions/measures when targets are not met						
Modified the plumping installation so that grey water is recovered recycled for use						
Have a system for recovery of steam condensate and returning it to the boiler						
Routine water quality standards measurements are taken.						
Maintenance staff know the relevant water quality standards and strive to meet them						

Maintenance staff know the relevant waste water quality standards and strive to meet them						
Installed grease traps in kitchen sinks to remove grease and oil from wastewater						
Undertake regular preventive maintenance programme for laundry equipment						
Have a routine maintenance programme for the kitchen wastewater and grease trap systems						
Guest rooms and Other Guest Facilities						
Guests are given an option to determine how often they would want their towels changed						
Guests are given an option to determine how often they would want their bed sheets are changed						
Use other products other than chlorine to sanitize the pools						
Retrofitted personal urinals with motion sensors to minimize water loss						
Housekeeping and Laundry						
Laundry staff are trained in water conservation tips						
Staff weigh laundry before it is washed						
Management has provided staff with information at the laundry on how much laundry each machine can wash						
Staff initiate washers and dryers only in full laundry loads						
Have installed a holding tank to capture the final rinse water from cloth washes for reuse in washing the next cycle.						
Restaurant and Kitchen						
Staff are sensitized on need to reduce the amount of running water when washing						
Use hot water to pre-rinse dishes before cleaning so as to minimize the amount of detergent to be used						
Use removable strainers in washing sinks to trap solid waste and grease						
Use fat digesting enzymes in in septic tanks, drains and pipes						
Landscaping						

Use recycled water for watering plants and general gardening purposes						
Choose native flowers and plants in gardens that are better adapted to local climates than exotic ones that require more in terms of water, pesticides and soil nutrients						
Use organic fertilizers as opposed to commercial fertilizers						
Sought professional advice on the appropriate types of ornamental trees species to plant						
Have a trees risk management plan in place						
Use slow watering techniques such as trickle irrigation and soaker hoses that are more effective in water conservation than sprinklers						
Carry out irrigation in the morning and evening to prevent excess evaporation						
Use moisture sensors located in strategic parts of the garden to trigger irrigation only when the ground needs it.						
Have a system for rainwater collection for use in irrigation and other purposes						

ENERGY MANAGEMENT

1) Which of the following are the sources of energy for your hotel? *(Please tick as appropriate---you can select more than one option)*

   i) Grid Electricity (KPLC System) [ ]
   ii) Solar energy [ ]
   iii) LPG Gas [ ]
   iv) Diesel generators [ ]
   v) Industrial Diesel Oil for Boilers [ ]

2) What was your monthly energy consumption and costs (in Kshs) per energy source in 2008? *(Please complete the table below)*

KPLC	**Jan**	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Consumption (Kwh)												
Cost (Kshs)												

Solar	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Consumption (Kwh)												
Cost (Kshs)												

Industrial Diesel Oil for Boiler	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Consumption (in Litres)												
Cost (Kshs)												

LPG	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Consumption (Kg)												
Cost (Kshs)												

3) Which of the following energy conservation practices does your business observe? *(Please tick in the appropriate cell)*

	Not Applicable	**Completely Implemented**	**Partly Implemented**	**Not Implemented**	**I Don't Know**	**Explanation/ Comments**
Engineering and Maintenance						
Have installed lighting control (timers and occupancy control sensors) to automatically turn off lights in unoccupied rooms such as stores, employee rest rooms etc						
Installed separate meters to monitor use of energy key user points and departments						
Regularly monitor, record and analyze energy use						
Have set benchmarks or goals for energy use						
Take corrective actions/measures when targets are not met						

Prepare periodic energy use reports for management						
Designed building to make maximum use of daylight						
Installed energy efficient appliances (e.g. refrigerators, air conditioners, photocopies etc)						
Replaced air conditioners with fans where appropriate						
Draft-proofed old windows and doors in air conditioned rooms						
Installed solar heating system for hot water in place of electric heaters						
Shaded widows from direct sunlight						
Replaced incandescent bulbs with low energy fluorescent light bulbs						
Installed sensors and timers in areas where light is not required in most occasions						
Installed separate meters to monitor use of energy in different sections/departments of the hotel						
Installed energy efficient kitchen equipment (e.g. freezers, refrigerators, ovens, dishwashers, etc)						
Installed energy efficient heating/cooling equipment (e.g. chillers, air conditioners, water heaters etc)						
Installed energy efficient laundry equipment (e.g. boilers, washers, dryers, extractors etc)						
Guest rooms and Other Guest Facilities						
Posted energy saving reminders in guest rooms						
During periods of low occupancy confined guests to specific areas and shut off unoccupied areas						
Use key cards for room power supply						
House keeping and Laundry						
Sensitize staff on energy conservation tips for housekeeping and laundry						
Established a housekeeping procedure regarding required air conditioning settings in occupied and unoccupied rooms						
Established a procedure that requires						

housekeepers to have guest room window coverings closed or partially opened to cool the room.						
Provide a system in the laundry for the recycle of waste heat						
Ensure water temperatures, amount of water, latter, rinse levels and steam pressures are in accordance with the specifications of the washing machine manufacturers						
Restaurant and Kitchen						
Installed energy efficient kitchen equipment						
Always keep the doors of freezers and cold rooms tightly closed when not in use						
Always assign responsibility for turning off light and equipment to a member of every shift						
Clean refrigerator coils and air conditioner filters regularly to make them operate more efficiently						
Undertake routine inspection and maintenance of freezers and cold rooms						

SOLID WASTE MANAGEMENT (REDUCTION, REUSE AND RECYCLE)

1) What was your monthly expenditure in solid waste management (in Kshs) in 2008?*(Please complete the table below)*

	Jan	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Waste generated (Kgs)												
Mgt Cost (Kshs)												

2) Which of the following measures has your hotel taken o reduce, reuse and recycle solid waste? *(Please tick in the appropriate cell)*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation/ Comments
Administration						
Developed and implemented a waste recycling programme						
Hotel conducts regular audits of the central collection bin to identify the materials that can be avoided, reused, or recycled						
Installed separate bins/receptacles for different types of wastes (e.g. paper, aluminium, plastics, glass, bio-degradables etc)						
Buy good in bulk to avoid excessive purchasing						
Use less disposable utensils and gadgets						
Hotel uses recycled paper in its office and print work						
Machines have been set to photocopy and print on both sides unless required otherwise						
Encourage staff to examine the possibility of repairing items instead of purchasing new ones						
Practice more use of email as opposed to hardcopies for internal communication						
Reuse of envelopes for interoffice communication						
Hotel works with office supplies companies to recycle ink and laser cartridges, computer discs and other ICT wastes						
Preference is given to purchasing recycled cartridges						
Use procurement software to minimize the paperwork and allow better inventory control						
Work with companies/individuals that decompose waste to take for decomposting organic waste from our hotel						

Give support to the Nairobi City Council (or any waste collection companies) in the development of efficient waste separation, collection, recycling, and treatment systems						
Guest rooms and other Guest Facilities						
Place waste reduction reminders in guest rooms						
Encourage guests to reduce the amount of packaging they accept when purchasing from local shops						
Use refillable bottles/containers, rechargeable batteries and other items that can be reused or recycled in guest rooms						
Use dispensers for soap, lotion, shampoos etc in guest rooms and health clubs						
Housekeeping and Laundry						
Have adopted a “first-in-first-out” principle in inventory control to avoid expiry of materials before their consumption						
Use of worn-out sheets as pillow cases and mattress covers						
Use of worn-out table clothes as serviettes or coasters						
Donate old sheets, towels and uniform (that cannot be repaired) to local charity organizations						
Use badly damaged towels and sheets as cleaning dusting rags						
Restaurant and Kitchen						
Eliminated use of disposable cups and dishes (e.g. Styrofoam products) in restaurants and room service						
Avoid using single-serving condiment packages (e.g. sugars, sugar substitutes, slat paper, butter etc) in restaurants or outside catering services						
Use sterilized cloth towels in restaurants and room service instead of paper towels/napkins						

Provide self service rather than standard meal to minimize food wastage						
Donate surplus food to children's homes and other local charities						
Use cold storage rooms for wet waste to prevent decomposition and eliminate odours						

EMISSIONS/POLLUTION REDUCTION

1) Which of the following actions has your business taken to improve indoor air quality (IAQ)? *(Tick in the appropriate cell)*

	Not Applicable	**Completely Implemented**	**Partly Implemented**	**Not Implemented**	**I Don't Know**	**Explanation/ Comments**
Maintenance						
Perform regular cleaning and maintenance of the hotel's Heating, Ventilation, and Air-Conditioning (HVAC)						
Proper pressurization is maintained in order to avoid pollutants entering the hotel						
Cooling coils are steam-cleaned regularly to remove build up of deposits and bacteria particularly in humid climates						
Make sure no rainwater is leaking into the building and into the AC system which can lead to microbial contamination						
Ensure adequate ventilation in underground car parks						
Avoid use of plywood and other materials that have formaldehyde						
Make sure all paints, varnishes and adhesives used are free of solvents or the solvents are at the minimum						
Review cleaning and laundry operations and identify where you can replace chemicals with environmentally preferable options.						

Controlled humidity to control mould growth						
Installed extraction hood and fans in kitchens to ensure that hot air and smells are not drawn into the ventilation system						
Implemented a non-smoking policy at the hotel						
Use selected species of in-door plants for air purification						
Refrigerants						
Hotel has undertaken ISO 14064 on corporate footprint calculation and emissions reporting						
Hotel has developed and is implementing a plan for phasing out equipments and products with Ozone Depleting Substances (ODS)						
Hotel avoids purchasing products that have ODS e.g. aerosol sprays, fire extinguishers, solvents, foams						
Established a system for monitoring emissions from boilers and diesel engines						
Avoided purchasing products that are packaged using Styrofoam						
Appliances such as refrigerators, freezers, ice machines, air conditioners etc that use Ozone Depleting Substances (ODS) are serviced regularly						
The hotel only contracts qualified technicians/companies to services equipment and appliances with						
Replaced appliances with ODS with those that are Ozone friendly						

2) Which of the following actions has your business taken to improve Outdoor Air Quality (OAQ)? *(Tick in the appropriate cell)*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation/ Comments
Improved energy efficiency through better insulation, heat recovery technique, energy-efficient lights, computerised controls, efficient equipment and other technology investments						
All hotel motor vehicle use cleaner fuels such as low sulphur diesel and unleaded petrol						
Hotel purchases electricity generated from renewable energy sources (such as wind power) to cut emissions from power stations						
Have invested in renewable energy systems such wind and solar power generation						
Avoid equipment, materials and processing that contribute to harmful emissions						
Assess the entire premises to determine emission hazards and concentration levels						
Develop and implement action plans to manage emission risks						
Motor vehicles and other fossil fuel engines are serviced as per						
Train staff on how to handle and dispose chemicals and hazardous materials responsibly and safely						
Sensitize staff to check their driving practices to reduce fuel consumption and minimize emissions						
Management encourages guests to transport means with low emission levels						

HAZARDOUS AND TOXIC SUBSTANCES

1) Which of the following practices are you using in the management and hazardous substances and toxic materials? (*Please tick in the appropriate ecell)*

	Not Applicable	**Completely Implemented**	**Partly Implemented**	**Not Implemented**	**I Don't Know**	**Explanation/ Comments**
Kitchen and Housekeeping Department						
Hotel uses cleaners and detergents that are biodegradable and do not contain nitrilotriacetic (NTA), phosphates, or chlorine						
Purchase supplies in bulk to avoid single-use purchases ---In particular use highly concentrated cleaning agents						
Installed ozone washing machines that do not use water for cleaning						
Landscaping and maintenance						
Use alternatives to chlorine in pool and / or Jacuzzi cleaning						
Use organic fertilizers in place of commercial fertilizers for gardening						
Avoided or minimized purchase of paint products with volatile organic compounds (VOC) (that contribute to ground level ozone accumulation)						
Minimize stockpiling and storage of excess paint and paint products by periodically reviewing stocks and getting rid of what is not needed						
Eliminated use of asbestos containing materials and have a phase-out plan in place						
Minimized use of formaldehyde containing materials such as plywood and chipboards						
Conduct regular swaps in cooling systems, swimming pools, Jacuzzi, stores, kitchens and bathrooms to check any form of biological (bacterial, fungal and viral) contamination						

Guest and Staff Rooms						
Use biodegradable liquid soaps, shampoos and hair conditioners in guest rooms and staff changing rooms						
Educate guests and staff on how to avoid any form of contaminations						
Handling of Hazardous Materials						
Minimize use of hazardous materials						
Only trained staff handle hazardous materials						
Ensure hazardous materials are stored, labelled, used, handled, and disposed in accordance with local standards and requirements						
Identify and record where hazardous materials are being used, what they are being used for and the reasons for their use						
Assess the hazardous associated with use of particular hazardous materials						
Where possible use environmentally preferred alternatives						
Complied a hazardous materials manual and availed to staff						
Ensure that any residues and containers are disposed in an environmentally friendly manner						
Storage of Hazardous Materials						
All relevant hotel staff are provided with appropriate training on handling, storage, use and disposal of hazardous materials						
Hazardous materials are properly stored in a cool place to avoid chemical reaction through excessive heat or direct sunlight						
Ensure all appropriate emergency equipment is readily available e.g. fire fighting equipment and First Aid Kit.						
Volatile chemicals and materials e.g. gas cylinders are stored and secured in designated areas according to local requirements						
Containers are properly labelled to avoid confusion that could lead to						

possible misuse						

NOISE POLLUTION

1) Which of the following measures has your hotel taken to control noise pollution at the hotel? *(Please tick in the appropriate cell)*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation/ Comments
Engineering and Maintenance						
Staff carry out noisy work at times with least disturbance to guests						
Installed and use plants and equipment with quieter motors and transmitting low flow velocities						
Installed sound absorbing barriers underneath bath taps						
Replaced toilet flush valve with quiet flush tanks						
Use windows with good insulation						
Sound proofed public areas with music entertainment with acoustic walls, ceiling and carpets.						
Installed sound limiters in the music amplification systems						
Housing keeping and Laundry						
Installed gaskets, drop seals and automatic door closers on entrance doors to guest rooms and conferences rooms						
Favoured the purchase and use of quieter hairdryers						
Staff use phones other than alarm clocks to wake up guests						
Set up maximum sound levels for telephones, TVs, and music systems in guest rooms.						
Set up maximum sound levels for music systems and TVs in public areas.						

FOOD SAFETY MANAGEMENT

1) Which of the following measures has your hotel taken in ensuring high food safety management standards? *(Please tick in the appropriate cell)*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation/ Comments
Have undertaken Hazard Analysis Critical Control Point (HACCP) or ISO 22000: 2005 certification on Food Safety						
Complied with the food safety management requirements by the government						
Have a developed a food safety management policy						
Staff are trained on the food safety and management standards						
Have clear authority and responsibility on food safety standards						
Developed procedures for responding food safety issues and incidents						
Have a mechanism for gathering feedback on food quality from guest						
Regularly conduct food safety management reviews						

OCCUPATIONAL HEALTHY AND SAFETY

2) Which of the following Occupational Healthy and Safety (OHS) practices does your business observe? *(Please tick as appropriate ---- you can select more than one option*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation/ Comments
The business has an written Occupational Healthy and Safety						

Policy						
Have established a healthy and safety committee						
Management has communicated to staff and guests the OHS policy of the hotel						
Work environment such as kitchens, customer are, bars etc are free of hazards and associated risks to the healthy and safety of staff and guest						
Various equipment and tools are supplied and maintained in accordance to standards and regulations						
Management has availed clear instructions and procedures to staff working in risky environment and using risky tools and equipment						
Staff are regularly trained in the risk and hazards management						
There is a department or staff responsible for hazards management						
First aid kits and facilities are available to staff and guest						
Management has taken an appropriate insurance cover for staff						
Fire extinguishers and water hydrants are adequate and in useable conditions						
Conduct regular inspections to identify any faults or risks that may endanger staff working in that area						
Staff are encouraged to identify and report cases of potential hazards						
Faults and risks are promptly addressed once reported/identified						
Has developed emergency response procedures						
Perform root cause analysis						
Management continuously reviews businesses activities and risk management strategies						

GREEN PROCUREMENT

3) Which of the following measures has your hotel taken in ensuring green procurement? *(Please tick in the appropriate cell)*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation/ Comments
Have established a green procurement policy to encourage purchasing of environmentally friendly products						
Sensitized your suppliers and contractors on the Hotel's procurement policy						
Encourage us of electronic procurement means to avoid excessive use of paper in completing transactions						
Encourage hotel shops to deal in products that are environmentally friendly.						
Use recycled paper for all hotels promotional materials						
Support the purchase of products that contains recognisable environmental and eco-labels						
Incorporate green considerations in the procurement criteria						
Screen suppliers to ensure they also observe good environmental and social practices						
Sensitize suppliers in good environmental and social practices						
Sensitize suppliers to use refillable containers						
Use fair competitive bidding practices in the prequalification of suppliers						

STAFF WELFARE

1) Which of the following human resource management practices does your business observe *(Please tick in the appropriate cell)*

	Not Applicable	Completely Implemented	Partly Implemented	Not Implemented	I Don't Know	Explanation / Comments
Have a clear policy and guidelines on labour standards in accordance with local and international laws						
All employees have signed formal contracts						
Provide a fair living wage for all employees that conforms with national salary guidelines						
Provide employees with fringe benefits						
Provided opportunities for staff from the local community to rise to management positions						
Established policies and guidelines to protect the employees' health and safety at work						
Recognized and observed the rights of employees to be represented by trade unions (worker's unions)						
Compliance with ILO convention on child labour and forced labour						
Management ensures that the hotel to observes fundamental human rights						
Have a policy to check on any form of discriminations (gender, race, tribe, religion, political affiliation etc)						
Have a HIV AIDS workplace policy						
Established a feedback mechanism through which staff can channel their appeals and grievances						
Established a mechanism for motivating (rewarding) employees with outstanding performance						
From time to time undertaken awareness trainings with staff on good environment practice and any emerging trends						

Annex 2: Frequency Tables

General Information on the Surveyed Hotels

Name of Hotel	Position of Respondents	Ownership
Nairobi Serena Hotel	• Human Resources Manager • Assistant Food and Beverages Manager • Front Office Manager • Hotel Engineer	International chain
Hotel Ambassador	• Food and Beverages Manager • Marketing Manager	Individual
Blue Hut Hotel	• Maintenance Officer • Personnel Manager • Hotel Manager	Individual
Fig Tree Hotel	• Accountant/Admin Officer • Managing Director	Local Partnership
Southern Blue Hotel	• Hotel Manager • Chef Maintenance Manager	Individual
Laico Regency Hotel	• Human Resources Manager • Hotel Engineer • House Keeper, • Food and Beverages Manager	International Chain
Utalii Hotel	• General Manager • Environmental Planning and Management Officer	Government of Kenya
Fair View Hotel	• Pay-roll Coordinator • Assistant Food and Beverages Manager • Maintenance Coordinator	Individual

Name of Hotel	Position of Respondents	Ownership
	• Executive House Keeper	
InterContinental Hotel Nairobi	• Public Relations Officer • Hotel Engineer • Maintenance Technician • Food Safety Officer • Laundry Manager	International chain
Marble Arch Hotel	• Food and Beverages Manager • Front Office Manager	Individual
Hotel Boulevard	• Manager Trainee	Local chain
Holiday Inn	• Home Keeping Supervisor • Human Resources Manager • Maintenance Assistant Manager • Food and Beverages Manager	International chain
Safari Park Hotel	• Human Resources and Administrative Manager • Hotel Engineer • Food and Beverage Manager	International chain

Number of Rooms Bed Capacity and Staffing

Hotel	No. of Rooms	No. of Beds	Star-rating	Kenyan national	Foreign national	No. of Staff
Nairobi Serena Hotel	183	264	5	456		456
Laico Regency Hotel	196	388	5	450	2	450
InterContinental Hotel	376	590	5	546	4	550
Safari Park Hotel	204	285	5	400	3	403
Fair View Hotel	120	246	4	240		240
Ambassador Hotel	80	190	3	50		50
Utalii Hotel	53	105	3	145		145
Marble Arch Hotel	42	85	3	75		75

Boulevard Hotel	70	140	3	65		65
Holiday Inn	171	349	3	165	1	166
Southern Blue Hotel	50	112	2	32		32
Blue Hut Hotel	56	100	2	26		26
Fig Tree Hotel	35	70	2	16		16
TOTAL	1,636	2,678		2,466	10	2,674

Occupancy Rate (2008)

Hotel	% Occupancy
Nairobi Serena	67
Ambassador	44
Blue Hut	57
Fig Tree	65
Southern Blue	35
Laico Regency	45
Utalii Hotel	48
Fairview Hotel	68
InterContinental	61
Marble Arch	56
Boulevard Hotel	55
Holiday Inn	71
Safari Park	70

Year of Adoption of Cleaner Production

Year of adoption of CP	No. of Hotels
1990	2
1994	1
1998	1
1999	2
2002	3
2004	1

Internal Drivers of CP Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	25.0	38.5	38.5
	0.5	1	5.0	7.7	46.2
	0.8	3	15.0	23.1	69.2
	1	1	5.0	7.7	76.9
	1.2	2	10.0	15.4	92.3
	1.5	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

External Drivers of CP Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3	15.0	23.1	23.1
	0.8	2	10.0	15.4	38.5
	1.3	1	5.0	7.7	46.2
	1.4	1	5.0	7.7	53.8
	1.5	3	15.0	23.1	76.9
	1.8	1	5.0	7.7	84.6
	1.9	1	5.0	7.7	92.3
	2.2	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Internal Barriers of CP Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	5.0	7.7	7.7
	0.4	1	5.0	7.7	15.4
	0.5	1	5.0	7.7	23.1
	0.6	1	5.0	7.7	30.8
	0.8	1	5.0	7.7	38.5
	1	2	10.0	15.4	53.8
	1.1	1	5.0	7.7	61.5
	1.2	1	5.0	7.7	69.2
	1.6	1	5.0	7.7	76.9
	1.7	3	15.0	23.1	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

External Barriers of CP Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	5.0	7.7	7.7
	0.5	1	5.0	7.7	15.4
	0.6	1	5.0	7.7	23.1
	1.1	2	10.0	15.4	38.5
	1.3	2	10.0	15.4	53.8
	1.5	2	10.0	15.4	69.2
	1.6	1	5.0	7.7	76.9
	2	1	5.0	7.7	84.6
	2.1	2	10.0	15.4	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Water Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.5	1	5.0	7.7	7.7
	1.33	1	5.0	7.7	15.4
	1.58	1	5.0	7.7	23.1
	1.6	1	5.0	7.7	30.8
	1.75	1	5.0	7.7	38.5
	2.1	1	5.0	7.7	46.2
	2.33	1	5.0	7.7	53.8
	2.38	1	5.0	7.7	61.5
	2.45	1	5.0	7.7	69.2
	2.5	1	5.0	7.7	76.9
	2.65	1	5.0	7.7	84.6
	2.68	1	5.0	7.7	92.3
	2.83	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Consumption of Grid Electricity (in kWh) by Surveyed Hotels (2008)

Month	Total Consumption	Monthly Average
January	1,365,682	105,052
March	1,391,365	107,028
April	1,433,890	110,299
May	1,523,645	117,203

June	1,522,437	117,111
July	1,563,714	120,286
August	1,522,421	117,109
September	1,542,811	118,678
October	1,555,730	119,672
November	1,548,724	119,133
December	1,540,288	118,484
Total	18,006,702	115,428

Monthly energy consumption (industrial diesel oil for boiler) in 2008

Month	Total	Mean
January	122,455	20,409
February	125,935	20,989
March	125,088	20,848
April	129,306	21,551
May	139,490	23,248
June	138,068	23,011
July	141,484	23,581
August	141,598	23,600
September	146,091	24,349
October	140,351	23,392
November	141,672	23,612
December	135,961	22,660
TOTAL	1,627,499	22,604

Energy Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.5	1	5.0	7.7	7.7
	1.33	1	5.0	7.7	15.4
	1.58	1	5.0	7.7	23.1
	1.6	1	5.0	7.7	30.8
	1.75	1	5.0	7.7	38.5
	2.1	1	5.0	7.7	46.2
	2.33	1	5.0	7.7	53.8
	2.38	1	5.0	7.7	61.5
	2.45	1	5.0	7.7	69.2
	2.5	1	5.0	7.7	76.9
	2.65	1	5.0	7.7	84.6
	2.68	1	5.0	7.7	92.3
	2.83	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Solid Waste Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.55	1	5.0	7.7	7.7
	1.58	1	5.0	7.7	15.4
	1.75	1	5.0	7.7	23.1
	1.8	1	5.0	7.7	30.8
	1.83	1	5.0	7.7	38.5
	1.85	1	5.0	7.7	46.2
	2.05	1	5.0	7.7	53.8
	2.4	1	5.0	7.7	61.5
	2.45	1	5.0	7.7	69.2
	2.5	1	5.0	7.7	76.9
	2.53	1	5.0	7.7	84.6
	2.55	1	5.0	7.7	92.3
	2.63	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Emissions / Pollution Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.35	1	5.0	7.7	7.7
	1.5	1	5.0	7.7	15.4
	1.55	2	10.0	15.4	30.8
	1.6	1	5.0	7.7	38.5
	1.65	1	5.0	7.7	46.2
	1.95	1	5.0	7.7	53.8
	2	1	5.0	7.7	61.5
	2.1	1	5.0	7.7	69.2
	2.25	1	5.0	7.7	76.9
	2.3	1	5.0	7.7	84.6
	2.4	1	5.0	7.7	92.3
	2.45	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Management of Hazardous and Toxic Substances

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.59	1	5.0	7.7	7.7
	1.94	1	5.0	7.7	15.4
	1.97	1	5.0	7.7	23.1
	1.98	1	5.0	7.7	30.8
	1.99	1	5.0	7.7	38.5
	2	1	5.0	7.7	46.2
	2.17	1	5.0	7.7	53.8
	2.27	1	5.0	7.7	61.5
	2.34	1	5.0	7.7	69.2
	2.47	3	15.0	23.1	92.3
	2.83	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Noise Pollution Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.8	2	10.0	15.4	15.4
	0.9	2	10.0	15.4	30.8
	1	1	5.0	7.7	38.5
	1.2	1	5.0	7.7	46.2
	1.5	1	5.0	7.7	53.8
	1.9	1	5.0	7.7	61.5
	2	2	10.0	15.4	76.9
	2.1	1	5.0	7.7	84.6
	2.2	2	10.0	15.4	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Occupational Health and Safety

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.9	1	5.0	7.7	7.7
	2.1	3	15.0	23.1	30.8
	2.3	1	5.0	7.7	38.5
	2.4	2	10.0	15.4	53.8
	2.6	2	10.0	15.4	69.2
	2.7	2	10.0	15.4	84.6
	2.8	2	10.0	15.4	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		
Total		20	100.0		

Food Safety Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0.1	1	5.0	7.7	7.7
	2.1	2	10.0	15.4	23.1
	2.5	1	5.0	7.7	30.8
	2.8	5	25.0	38.5	69.2
	2.9	1	5.0	7.7	76.9
	3	3	15.0	23.1	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Green Procurement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.7	3	15.0	23.1	23.1
	2.1	1	5.0	7.7	30.8
	2.4	1	5.0	7.7	38.5
	2.6	1	5.0	7.7	46.2
	3.1	1	5.0	7.7	53.8
	3.4	1	5.0	7.7	61.5
	3.7	1	5.0	7.7	69.2
	4	1	5.0	7.7	76.9
	4.3	1	5.0	7.7	84.6
	4.6	2	10.0	15.4	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Staff Welfare

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.3	1	5.0	7.7	7.7
	1.5	1	5.0	7.7	15.4
	1.6	3	15.0	23.1	38.5
	1.7	1	5.0	7.7	46.2
	2	1	5.0	7.7	53.8
	2.2	2	10.0	15.4	69.2
	2.3	2	10.0	15.4	84.6
	2.4	1	5.0	7.7	92.3
	2.6	1	5.0	7.7	100.0
	Total	13	65.0	100.0	
Missing	System	7	35.0		
Total		20	100.0		

Corporate Social Responsibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	25.0	41.7	41.7
	2	1	5.0	8.3	50.0
	3	6	30.0	50.0	100.0
	Total	12	60.0	100.0	
Missing	System	8	40.0		
Total		20	100.0		