INFLUENCE OF ENVIRONMENTAL AUDITING ON ENVIRONMENTAL PERFORMANCE: THE CASE OF COMMERCIAL FACILITIES IN GUCHA DISTRICT

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BY

ELVIN OERI NYAGAKA

A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF ARTS IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI

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DECLARATION

This research project report is my original work and has not been submitted in any other University for a degree or any other award.

Signed:..... Date 12/11/2012

ELVIN OERI NYAGAKA

L50/75844/2009

This research project report has been submitted for examination with my approval as the University Supervisor.

Signed:..... Date 12/11/2012

DR. STEPHEN WANYONYI LUKETERO

LECTURER

SCHOOL OF MATHEMATICS

UNIVERSITY OF NAIROBI

DEDICATION

This research project is dedicated to my family for having sponsored my education, more so this Masters programme. It is also dedicated to my supervisor, fellow classmates and practicing environmental experts. They have been supportive in conceptualising and fine tuning my research ideas.

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ABBREVIATIONS AND ACCRONYMS

CIP : Continuous Improvement Process

DEAT : Department of Environment and Tourism

EA : Environmental Audit

EIA : Environmental Impact Assessment

EIA/EA : Environmental Impact Assessment and Audit

EMCA : Environmental Management and Coordination Act, 1999

EMS : Environmental Management System

EPA : Environmental Protection Act

ICC : International Chamber of Commerce

KENAO : Kenya National Audit Organization

NEMA : National Environment Management Authority

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ABSTRACT

This research study sought to find out how environmental auditing influences environmental performance of commercial facilities in Gucha. In recent times, environmental auditing has been widely adopted in Kenya as a tool foster environmental performance. Specifically, it aims at enhancing environmental compliance, increase environmental compliance and even hold them accountable for various environmental issues. While there has been increased environmental audit practice for commercial facilities in Gucha, it has been noted that some of these entities are still flouting environmental regulations. Thus, further use of environmental audit will be of no significance if the relationship between environmental auditing and environmental performance is not established. Objectives of the study were to establish the influence of environmental audit quality, monitoring frequency, environmental management sufficiency and environmental proactivity on environmental performance of commercial facilities. To effectively do this study a descriptive research design was used and this incorporated both qualitative and quantitative research methods. Target population were managers of commercial facilities engaged in processing/manufacturing, extraction, hospitality, commercial storage and environmental audit consultants. Out of 60 targeted respondents, 52 of them successfully participated in the interviews. Findings from the study indicate that there is a significant influence between various aspects of environmental auditing and environmental performance. Environmental audit quality was established to be fairly significant on compliance. Similarly, it was also determined that environmental monitoring frequency influences environmental performance through raising environmental awareness. Sixty one percent (61%) environmental management plans were also found to be sufficient, well understood and with good implementation of improvement orders. Further, commercial facilities were found to be fairly proactive in environmental management issues. A few commercial facilities approached environmental management on a reactive approach while few were proactive in environmental management issues. To a greater extent environmental auditing was found to be influential environmental performance management of commercial facilities in Gucha District. The study recommended increased use of self-audits and environmental by commercial facilities as a self-regulatory scheme. This will enhance ownership in environmental management issues. In addition it recommended that management of these commercial facilities to adopt a proactive approach in environmental management. This study suggested that in future, related studies to determine the influence of environmental auditing on adaptive environmental management.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, environmental protection concerns are increasingly dominating sustainable development forums. Societies are also becoming more aware of responsibilities of each individual, community and government on environmental issues. With high levels of environmental awareness public scrutiny now focuses on environmental accountability issues (INTOSAI, 2004).In these efforts, most governments as well as local authorities have expanded environmental regulations, standards and policies to hold individuals and institutions responsible. Environmental audit (EA) is one of such instruments relied upon in environmental management and accountability purposes.

The International Chamber of Commerce (ICC, 1991) describes environmental auditing as a systematic, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of contributing to safeguarding the environment. Comprehended as a way of fostering environmental performance, environmental auditing has been widely used in management control of environmental practices. It is designed to enhance environmental management and also promoting sustainable development. The International Organization of Standardization (ISO) through ISO 14001 identifies environmental audit among others as a core element of an Environmental Management System (EMS). With an aim of adjusting the relationship between mankind and environment environmental auditing plays a critical role environmental management and governance works.

Environmental auditing was first used towards the end of 1970s in the United States of America in chemical companies. In later years other regions such as Europe embraced environmental auditing in their management. In Africa, the concept of environmental auditing is relatively new. Environmental management tools of this nature were introduced after the Rio Conference in Brazil. The Kenyan government through the National Environment Management Authority (NEMA) introduced environmental auditing component in 2004 through Environmental (Impact Assessment and Audit) Regulations, 2003.

Environmental auditing is not only a requirement for major industrial activities but for all development actions with significant environmental impacts. Notably, the International Chamber of Commerce (ICC) has been advocating for the integration of environmental auditing in business management practices. This is contained in principle 16 of the business charter for sustainable development. Indeed environmental auditing has become a standard activity in governmental, industrial, commercial, agricultural and other development activities worldwide.

In essence, if well conceived and used appropriately EA does improve environmental performance. It borrows a lot from Kaizen philosophy of continuous improvement process (CIP). In environmental management, a series of small scale or large scale improvements will enhance general environmental conditions, practices and even compliance. Some of the benefits that can be realized from environmental auditing include reduced wastes and discharges, energy saving, increased efficiency, reduced costs, lower risks and liability, better reputation and reduced compliance costs (Sharma and Vredenburg).

However, effectiveness of environmental auditing has had varying success stories. In developed countries it has been significant in environmental management. Berry and Rondinelli (1998) notes that, "... in developed nations, environmental impacts are audited

and accounted for as a *second bottom line*". This is to imply that environmental considerations constitute a significant portion in their decision making processes. In comparison, effectiveness of environmental auditing has been found to be limited in most developing nations (Saddler, 1996). Often this is manifested in substandard audit process, poor environmental monitoring, inadequate or limited management support and low levels of environmental awareness.

For private sectors in Kenya environmental auditing is relatively a new concept and in early stages of development. Environmental audit requirements were first enforced in 2004 under Environmental (Impact Assessment and Audit) Regulations, 2003. In the first year of enforcement, only 20% of listed facilities in this regulation managed to conduct EA and submit their reports to the National Environment Management Authority (Mwangi, 2008). In subsequent years (up to 2008), a decreasing trend in submission of EA reports was registered despite efforts to raise awareness on environmental auditing requirements. Instead of viewing it as environmental management tool some do perceive it as an impediment to development.

In Nyanza the Commerce and Industry has been among the leading sectors in use of environmental audits as an environmental assessment and management tool in Kenya. Other sectors with high number of environmental audits are communication and energy sectors (Figure 1). A good number of commercial facilities in Gucha District have been practicing some forms of environmental auditing since they were enforced. Thus one would expect an improvement in environment management performance of such facilities. One important measure for this is the extent to which they achieve environmental management goals, more so, compliance to environmental requirements and environmental awareness. This study aims

at establishing the influence of environmental auditing on environmental performance of commercial facilities in Gucha District.

1.2 Statement of the Problem

Government agencies had for a long time relied on on-site inspections of environmental media as a tool of regulating environmental activities and practices. Its shortcoming was noted when it failed to involve public on environmental management issues and neglect of spill over effects of various environmental impacts. Environmental audit requirements and enforcement mechanisms was then urgently needed to foster effective environmental management.

The National Environment Management Authority (NEMA), in the year 2003 put in place environmental audit requirements, through Environmental (Impact Assessment and Audit) Regulations, 2003. These efforts led to increased environmental compliance and good environmental management practices across all sectors. However, majority of complying facilities have given environmental auditing inappropriate consideration (Mwangi). In most cases, it has been carried in a mechanistic manner; attention has been paid on the audit process rather than effecting environmental orders and other provisions provided in audit report.

Field visits by the NEMA inspection team to audited facilities in Gucha District revealed that most of them had failed to comply with various environmental requirements and there were no measures to safeguard the environment as indicated in their annual audit reports (Miruka, 2012, p.g 22). Moreover, concerns were raised on quality of environmental audits, environmental monitoring schemes, implementation of environmental provisions and commitment to enhancement of environmental conditions. Further practice of environmental auditing will be of no significance if its influence on environmental performance is not

ascertained. In an attempt to determine this, the study attempted find out the influence of environmental auditing on environmental performance of commercial activities in Gucha District.

1.3 Purpose of the Study

The study examined the influence of environmental auditing on environmental performance of commercial facilities in Gucha District.

1.4 Objectives of the Study

This study was guided by the following objectives:

1. To establish the influence of environmental audit quality on environmental performance of commercial facilities in Gucha District.
2. To determine the influence of monitoring frequency on environmental performance of commercial facilities in Gucha District.
3. To ascertain the influence of environmental management plans sufficiency on environmental performance of commercial facilities in Gucha District.
4. To establish the influence of environmental proactivity on environmental performance of commercial facilities in Gucha District.

1.5 Research Questions

The study sought to answer the following research questions:

1. What is the influence of environmental audit quality on environmental performance of commercial facilities in Gucha District?
2. To what extent does environmental monitoring frequency influence environmental performance of commercial facilities in Gucha District?
3. How does environmental management plans sufficiency influence environmental performance of commercial facilities in Gucha District?

4. To what extent does environmental proactivity influence environmental performance of commercial facilities in Gucha District?

1.6 Justification of the Study

Sector wise, commercial sector has been leading in carrying environmental audits in Gucha District. Thus it was expected that there is improved performance in environmental management in these entities. Contrary to these expectations inspection reports revealed incidence of environmental non-compliance by some commercial facilities. With no substantive research done in this line it would have been hard to establish the extent to which environmental auditing influences environmental performance of commercial facilities in Gucha District. Even at national level, little efforts had been made ascertain this influence across all sectors. Thus, this study reflects more on environmental audit practices in Kenya.

1.7 Significance of the Study

This research project report gives insight on environmental auditing practices and the influence it has on environmental performance of commercial facilities in Gucha. Experts in the field of environmental assessment and auditing learn from effectiveness gaps revealed by this study. Likewise, policy makers, enforcing authority (NEMA) and the public will find it useful in identifying areas of intervention, more so, at this time when a national environmental auditing policy in Kenya is being formulated.

1.8 Delimitation of the Study

The study concentrated on commercial facilities in Gucha District that had undertaken environmental audits between 2009 and 2012. Administrative wise it covered old Gucha District of Kisii County. Commercial facilities studied are those in manufacturing and processing, hospitality and commercial stores. In trying to establish the influence of

environmental auditing on environmental performance the study focussed on aspects such as environmental audit quality, monitoring frequency, environmental management plans sufficiency and environmental proactivity.

1.9 Limitations of the Study

At first some respondents were not free to participate in the interview exercise. Perhaps it was because of the negative perception they have on environmental as an impediment to development. This was overcome by clarifying purpose of the research and assurance that it is purely for academic purposes. A good rapport was also created with participants throughout interview process.

1.10 Assumptions of the Study

Foremost the study was conducted on assumption that the study population is available, unbiased and normally distributed. Secondly, respondents would report their experiences of doing environmental audits freely. Another important assumption was that the sample size chosen was considered adequate to help in drawing valid conclusions with valid data collection instruments that measure the desired constructs. Finally, documents to be reviewed were to be current and in a form useful for this research.

1.11 Definition of Significant Terms

Commercial facilities: activities in areas of processing/manufacturing, extraction, hospitality and storage cited in the Second Schedule of Environmental Management and Coordination Act (EMCA), 1999 as those requiring annual environmental auditing.

Control audits: A type of environmental audit undertaken by NEMA inspectors to inform the Authority on compliance levels and environmental aspects requiring improvement.

Environmental auditing: a rigorous evaluation of an organisation, project, program or any entity to establish its environmental performance. It is aimed at enhancing environmental compliance and improving environmental conditions.

Environmental governance: initiatives, structures and policy instruments to ensure environmental sustainability of development activities.

Environmental monitoring: systematic collection and analysis of information to track the quality of environmental.

Environmental management plan: a tool used to ensure that undue or reasonably avoidable impacts are prevented while the positive ones are enhanced.

Environmental performance: The extent to which activities comply with best environmental management practices, standards and level of environmental awareness.

Environmental proactivity: commitment to environmental management in terms financial and human resources to environmental programs and also environmental investments.

Initial environmental audit: the first annual environmental audit conducted on projects which have never carried out environmental impact assessment studies.

Proponent: An individual or proprietor undertaking or managing a project, program or a commercial activity which is associated with environmental impacts.

Self environmental audit: Those audit activities initiated by proponents/proprietors for purposes of environmental self-policing.

1.12 Organisation of the Study

This research project report has been prepared as per the guidelines provided by the College of Education and External Studies of the University of Nairobi. Chapter one gives background information of the study, statement of the problem, objectives of the study, research questions, significance of the study, delimitation and limitations of the study and assumptions of the research. Chapter two explores and analyzes the literature related to the study area supported by a conceptual framework used in the study. Chapter three of this highlights research methodology while chapter four has focussed on data analysis, presentation and interpretation of research findings. Finally chapter five summarizes and discusses key findings, makes conclusions and recommendations. Moreover, it points out relevant areas requiring further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review is integral in any research process as it exposes the researcher to available body of knowledge, brings focus in area of study and also in improving methodology of study. In this study content of literature review has been drawn from theoretical works and research conducted in the field of environmental management and environmental governance. It is of extreme importance to analyse existing literature for purposes of identifying research gaps and also to reinforce research.

It starts by introducing the concept of environmental auditing, goals of environmental auditing, types and its significance in environmental management. A historical background as well as global, regional and in national perspective of environmental auditing has been addressed in detail. A large section of this chapter discusses thematic areas of the study namely, environmental audit quality, monitoring frequency, environmental management plans sufficiency and environmental proactivity. A conceptual framework guiding this research is illustrated and discussed towards the end of this chapter.

2.2 Environmental Auditing

The need to protect the environment and natural resources through environmental auditing is captured in the recommendations of Stockholm Conference on Human Environment (1972) and Rio Conference on Environment and Development (1992). Agenda 21 of Rio Conference outlines principles for environmental management. Principle11 requires all participating nations to enact and enforce environmental legislations. Many countries have managed to put in place appropriate environmental management legislations and regulations. One of such important regulations is that of environmental auditing.

The US Environmental Protection Agency (EPA) defines Environmental Auditing as "a systematic, documented, periodic and objective review of regulated entities of facility operations and practices related to meeting environmental requirements" (EPA 1986:004). Tolba and El-Kholy (1992) acknowledges environmental impact assessment (EIA) as a forerunner of EA by describing EA as that which compares the measured impacts with pre-project conditions. This is to say that EIA predicts and evaluates environmental impacts before project construction whilst EA mainly identifies realized impacts during operational phase of a project. Other than identifying these impacts EA further involves implementing action plans.

2.2.1 Global Perspective on Environmental Auditing

Environmental Auditing dates back formally after the promulgation of the US National Environment Protection Agency in 1969, and has had a considerable application in environmental management. As DEAT documents, environmental auditing (EA) earned prominence for the first time when it was used in the chemical industries in major United States (US) firms such as US Steel (1977) and Allied Chemicals (1979). This was in response to high wave impact environmental legislations enacted during this decade (Ridgeway, 2009). Securities and Exchange Commission (SEC) also prompted these companies to perform internal environmental audits (Cahill, 1996).

It was also during this decade that the US Congress enacted high-impact environmental legislations to counter environmental crimes committed by some manufacturing industry players. After the Bhopal disaster, the practice of environmental auditing spread further in 1980s. In early 1980s, forward-thinking companies established internal environmental auditing groups as either part of environmental, health and safety programme or independent entity reporting to senior management (Ridgeway, 2009).

As environmental auditing practice evolved, new trends emerged in late 1980s. It was during this epoch that the US and Canada Industry chemical associations pioneered a joint initiative in the name 'Responsible Care Programme' mainly to carry out environmental auditing. Up to this time, environmental audits were voluntary in nature and were embraced as environmental best management practices.

On July 9, 1986, the EPA of US realised that environmental auditing was increasing environmental awareness and compliance to environmental requirements. Consequently it published an environmental auditing policy statement which encouraged all federal agencies and companies subject to environmental laws and regulations to develop environmental auditing programs. The first documentation of environmental auditing started in mid 1980s (Greeno, Hedstrom and Diberto, 1987). It was also at these times that management consulting firms in US and Europe advocated for environmental audits to their clients in as a way of quantifying environmental liabilities.

In the wake of 1990s, environmental audits had gained wide use in the business fraternity and the International Chamber of Commerce, in 1991, created a Business Charter for Sustainable Development. It was formally launched in 1991 at the second World Industry Conference on Environmental Management in Rotterdam. Principle 16 of this Charter promotes the use of environmental audits in business practice (ICC, 1991, b). Further, it has provided guidelines for steps in conducting environmental audits i.e. pre audit activities, site activities and post audit activities. It is also during this period that the British Standard Institute introduced the first standard for management system which included environmental auditing.

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Later on in 1996, the International Organization of Standardisation (ISO) published its ISO 14001 international standards for "Environmental Management System" (EMS). ISO 14001 identified environmental audits (EA), operation control, training/awareness, emergency preparedness, and monitoring and performance measurements some of the core elements of an EMS. Despite playing different functions principles underlying EMS auditing of ISO 14001 and those governing environmental auditing are not different.

2.2.2 Environmental Auditing in Africa

In contrast to developed nations, environmental policies in Africa were not formulated in response to public pressure but were largely initiated by Governments in response towards international pressure regarding global environmental issues. Because of this environmental auditing and reporting in Africa are still at the infancy stage. That notwithstanding, environmental auditing and other environmental assessment tools are still viewed as those that play a significant role in sustainable development.

In South Africa the first environmental audit to be recognised by the public was in 1989. This was done by the South African Electrical Utility and later on adopted by environmental conscious companies. Currently there is no specific legal requirement for environmental audits to be carried out in South Africa. However, companies find it logical to use environmental audits in order to comply with other environmental legislations. The Department for Environmental Affairs and Tourism (DEAT) has been encouraging voluntary environmental auditing and reporting as a way of developing necessary skills and capacity required.

In Nigeria the overall responsibility of protecting the environment is bestowed on the Federal Ministry of Environment (FME). Before then, the Federal Environmental Protection Agency (FEPA) was the sole institution serving this mandate. Prior to 1991, projects were

established without any EIA report. In 1992, environmental audit requirements were integrated under the EIA decree, 1992. FEPA had to make it compulsory for existing industries to carry out comprehensive environmental auditing. The FME requires environmental audits to be conducted every 2 to 3 years. It is enforced by a wing of FME, the National Environment Standards and Regulations Enforcement Agency (NASREA).

In Egypt environmental impact assessment and audit requirements are implemented under the Ministry of Environmental Affairs. The responsibility of enforcing environmental regulations and standards was placed on the Egyptian Environmental Affairs Agency (EEAA) in 1997. This country recognises the important role played by environmental auditing in assessing and enhancing environmental management of development activities.

The institutional requirement for environmental management in the Republic of Sudan is contained under the Environmental Policy Act, 1998. It is enforced by the Higher Council for Environment and Natural Resources. Federal governing system of Sudan underscores the need to carry out EIAs on projects yet to be constructed and EAs on existing establishments. Unlike in most developing nations environmental legislations have been devolved to State levels so as to make them effective.

In Uganda all developers whose activities are subjected to environmental auditing must undertake a self-monitoring, self-record keeping and self-reporting of environmental events. It is required that such information be available during environmental auditing. Just as in Kenya, the Agency charged with overseeing this is referred to as the National Environment Management Authority.

2.2.3 Environmental Auditing in Kenya

In Kenya, the enactment of Environment Management and Coordination Act, 1999 and establishment of the National Environment Management Authority (NEMA) strengthened the institutional and legislative frameworks for managing environmental matters. Environmental (Impact Assessment and Auditing) Regulations, 2003 provide the foundation under which environmental auditing can be conducted.

Environmental (Impact Assessment and Audit) Regulations, 2003 categorises EA either as self-audits or control audits .Self-audits are mainly done by the management in order to provide feedback on environmental performance. The latter (control audits) are usually conducted by a regulatory agency to verify compliance with environmental regulations and best practices in environmental management.

The National Environment Management Authority (NEMA) requires proponents to conduct self-audits regularly and share their findings with the Authority through audit reports. This applies to projects that existed before regulations came into effect and also those which have been subjected to Environmental Impact Assessment. In the case of the former, an initial environmental audit is deemed necessary. This provides baseline information on which subsequent annual environmental audits will be based upon.

Since their enforcement in 2005, there has been increased awareness on the need to carry out EAs. As a province Nyanza has had 750 facilities undergo environmental auditing between 2005 and December 2011. Even though other statistics are not available the number of facilities complying with audit requirements has been increasing over the years.

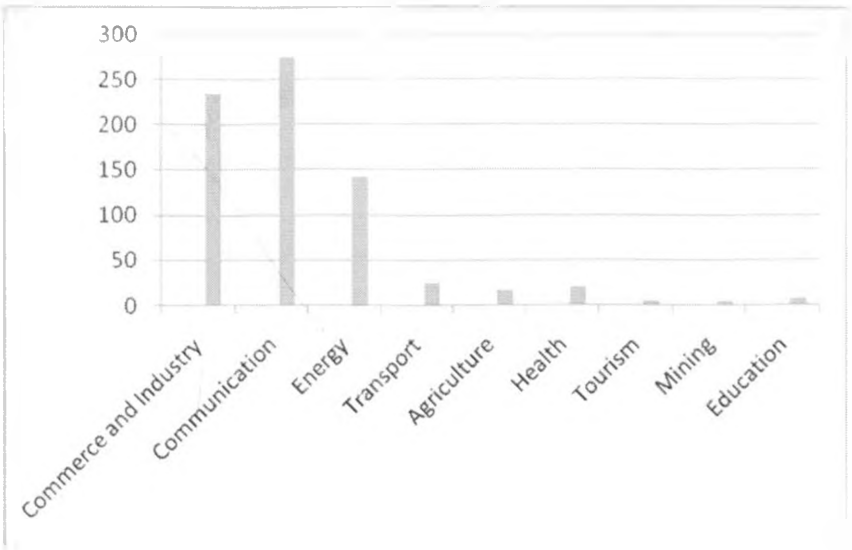

Figure 1: Environmental Audits carried out in Nyanza between 2005 and 2011 based on sector

The Kenya National Audit Organization (KENAO) is also mandated under Section 29 (i) of the Public Audit Act, 2003 to carry out among other things environmental audits in the government, state corporations and local authorities. Generally, it is concerned with economy, efficiency and effectiveness with which resources are utilized. Thus, it is clear that EA has been recognized an indispensable tool in environmental management.

2.3 Environmental Auditing and Environmental performance

Environmental auditing is does provide valuable information which helps an entity to meet agreed standards of performance. It also facilitates management and control of environmental practices. Generally, its value lies in how well it contributes towards improved environmental performance. It enhances compliance and also fosters the culture of continuous environmental improvement.

2.3.1 Environmental Audit Quality and Environmental Performance

What qualifies environmental auditing program adequate? In the view of the Environmental Protection Agency (EPA) of US, an audit program should have explicit

program objectives, scope and resources. The International Chamber of Commerce (ICC) also adds to this by incorporating elements of comprehensiveness in scope, vigorous in methodology and professional conduct. Equally important, there should be adequate auditing activities.

The scope of an environmental audit determines the extent to which an audit is to be carried out in a facility. It involves clarifying audit site/objectives and areas to be audited as well as audit deliverables. According to Mwangi most of the environmental audits conducted in Kenya have been restrictive in terms of scope. Some of environmental audit reports submitted to NEMA lack clarity; they are unclear on environmental issues to be audited. There is also a tendency of some reports being biased on ecological impacts rather than incorporating those of social, cultural and economic nature.

Section 32 (6) of EIA/EA Regulations, 2003 emphasises the need for auditors to "appraise all project activities, including production of goods and services, consideration of environmental regulations, health and safety measures and sustainable use of natural resources". The Occupational Safety and Health Act, 2007 (GOK, 2007) also underscores the need to state whether, (1) whether activities of the organisation are consistent with statutory requirements, (2) the effectiveness of environmental, health and safety management, control systems and, (3) efficiency of checks pollution prevention and waste minimisation checks. This ensures that audit studies are conclusive and vigorous.

Equally important, the methodology adopted for environmental audits must reveal strategies, procedures and measuring instruments. Greeno et al. posit that non-financial auditing (of which EA is one of them) should be regarded as a methodological examination of procedures and practices, and this includes carrying out tests, checks and confirmation.

This is done in order to verify whether internal policies, legal requirements and best practices are complied to or not.

ICC (1991, a) identifies procedures in environmental auditing as pre-audit activities, site activities and post-audit activities. Pre-audit activities include certification of audit scope and meeting with the managements. The same is provided for in EIA/EA Regulations, 2003 and requires terms of reference for EA to be approved by the NEMA. However, this mostly applies to entities operating in highly sensitive environmental settings. Post audit activities on the other hand entail preparing draft and final audit reports, action plans and planning for the next audit. However, these activities may vary depending on the nature of activities to be audited.

Adequate auditor team staffing and training is necessary for environmental audit exercises to be effective. In most countries auditing experts are required to posses certain basic skills and professional requirements for one to be a registered and practicing environmental expert. In Kenya the fourth schedule of Environmental (Impact Assessment and Audit) Regulations, 2003 identifies environmental experts as Lead Experts, Associate Experts or Firm of experts. Neither an EIA study nor EA study can be conducted without involving a lead expert. It is even encouraged that relatively complex audit assignments be done by an interdisciplinary team. This not only ensures that they complement each other's capabilities but also adds more insight during the audit process.

2.4.2 Frequency of Environmental Monitoring and Environmental Performance

Environmental audits aims at identifying need for behavioural change in environmental management (DEAT). This might not be realised immediately especially when EMS and training programmes have to be put in place. This might require iterations of environmental audits reinforced by a monitoring system. Regular monitoring gives a clear

picture not only of the accuracy of environmental assessment techniques used, but also would provide actual post-project environmental conditions. Thus, monitoring of environmental parameters is essential in environmental management.

Monitoring should be perceived as a self-regulatory scheme with an objective of tracking environmental performance, improving performance and increasing efficiency. This is guided by environmental management objectives as defined by an organization. By doing so, activities or practices deviating from best environmental practices can be identified on time and adjustments done.

Environmental monitoring also probes into the effectiveness of management actions in environmental management. As much as possible measurement parameters have to be identified alongside indicators to be monitored. In addition baseline information of that environment has to be ascertained prior to any impacts associated with the project. Monitoring of environmental performance should be ongoing throughout the project life cycle and must be implemented to ensure environmental performance.

In 1996, Cahill did demonstrate how environmental auditing has been crucial in identification of environmental problems and taking corrective action. When supported by an environmental monitoring program, activities or events deviating from best environmental practices can be identified on time and adjustments made. Some of the benefits from environmental audits in corporate organizations as reduced wastes and discharges, energy saving, increased efficiency, reduced costs, lower risks and liability, better corporate reputation and reduced compliance costs (Sharma and Vredenburg, 1998; Hart and Abuja, 1996; Hart 1995).

environmental aspects. This should assist in making audit trails, even later after environmental events have occurred.

2.4.3 Environmental Management Plans and Environmental Performance

An environmental management plan (EMP) ensures that undue or reasonably avoidable impacts of an activity/project are prevented and that positive ones are enhanced. According to Hill (2000) some of the objectives of EMP are to verify environmental performance and also to provide feedback for continual improvement in the environmental performance. Hence, an EMP is important to ensuring environmental quality of an area/activity does not deteriorate due to its operation and it also gives a framework for continuous improvement in environmental performance. In most cases, EMP is prepared after environmental impacts associated with an activity have been predicted or identified. Development of EMP is therefore regarded an important exercise during environmental auditing process.

One of the principles guiding EMP is that of continuous improvement. Project proponents should commit themselves to review and continuous improvement of environmental management, with the objective of improving overall environmental performance (Lochner, 2005). It should be used in the spirit of continual improvement, to assist in best practice in environmental management, in an efficient and cost-effective manner.

To achieve continuous improvement, implementation of EMP it requires ongoing commitment from individuals held responsible. It is also imperative that that it is sufficient and easy to interpret. In ensuring this, the scope and content of detail of EMP are considered as some of the key elements in that qualify an EMP sufficient or not. However, the scope and level of detail need to be adjusted to the level of environmental risk associated with the

proposed activity. The level of risk is considered function of the type of scale of activity and sensitivity of the affected environment.

A good EMP should include features like environmental impacts assessed, mitigation and monitoring, management actions, implementation schedule and performance specifications. It must also specify a programme for implementing the management actions, including who, when and how; as well as resources that should be allocated (Lochner). Management actions aimed at mitigation or enhancement should be clearly outlined in EMPs. Besides, the management has to be at a position of interpreting elements of EMP as well as implement it as prescribed. Information contained within EMP should be in a manner that all stakeholders are able to understand it. Should the EMP be too technical, then there has to be a provision for a non-technical summary.

It has been argued that the level of detail needs to fit into circumstances under which EMP is being developed and requirements that it is designed to meet (CSIR, 2002). It may vary from a few pages for an activity with low levels of environmental risks to substantial document for activities with high level impacts/risks. A well developed EMP should have description of the affected environment, especially those affected by a project activity which should be included in the monitoring programme. The context in this environment includes the biophysical, economic and social components.

Equally important during implementation of EMP is the need to have it reviewed over time. This is so because environmental impacts associated with an activity may vary from time to time. The extent to which EMP should be reviewed will vary depending on the project or activity. Those with major environmental impacts during operation require regular review and subsequent revision.

2.4.4 Environmental Proactivity and Environmental Performance

Vast literature linking environmental performance and various managerial actions exists. The need for management to integrate environmental concerns into decision-making has been widely discussed in literature. This is on an acknowledgement of the important role played by environmental agencies in providing a legal/regulatory framework, and assertions that the ultimate responsibility for sound environmental behaviour lies with management itself (Armah et al 2011).

In the same vein, the value of environmental auditing lies in its ability to help management achieve environmental management objectives. Thus, sort of management commitment should be made towards environmental management strategies (including environmental auditing) .Some of the ways in which this can be done is through instituting environmental management systems, adopting an environmental policy statement, developing a formal system for monitoring, securing a budget for environmental expenditures and commitment by all employees to continuous improvement. This might also require the support and oversight of senior management (Herremans and Allwright ,2000).

Specific managerial actions have been associated with better environmental management. In their research, Wisner et al (2010) obtained data on managerial actions from a cross section of industrial firms explicitly interested in environmental management. It emerged that there is a positive relationship between five managerial control actions and environmental pro-activity. In turn, environmental pro-activity positively associated with success in implementation of most environmental management strategies and better environmental performance in an organization. This and similar research work underscore the need to actively involve management in environmental management issues.

Management control systems are also required for purposes of checking environmental performance. Basically, management control systems as those systems that influence and manage firm behavior. They consist of both formal and informal based routines and procedures that are used by managers to maintain or take corrective actions in an organization (Simon, 1987). In the context of this study, management control systems would include environmental monitoring, audit trails and action plans.

One major requirement for realization of environmental objectives is support to environmental management systems. In this regard, management should endeavor to commit time, financial and human resources for the implementation of EMS. It should seem that top management is concerned with environmental performance just as they would like to have healthy financial returns. Organizations committed to environmental performance insist on integration of environmental awareness in respective departments.

Based on the commitment to environmental management issues, Sharma identified two categories of organizations. There are those which are reactive while others are proactive. The former commit fewer resources and they do so to comply with legal requirements while the latter actively manage their processes to minimize negative environmental impacts and generally exceed regulatory requirements. It is argued that reactive organizations allocate resources only on a need-basis. Further, Berry M.A and Rondinelli D.A (1998) identified an additional category of organization as those that are always unprepared to tackle environmental issues.

Figure 2 illustrates typologies of organisations as per the support accorded to environmental concerns. In terms of environmental proactivity organisation will fall to any of the three categories; unprepared, reactive or proactive. Compliance levels on the right hand side of the figure are one of the measures of environmental performance.

It has been established that companies committed to environmental management strategies register high levels of environmental performance (Berry and Rondinelli,). They also become more efficient and competitive within their industries. With these realizations, progressive firms are shifting from reactive environmental strategies to proactive environmental management. However, approaches used greatly depend on the importance accorded to and prudence on environmental management.

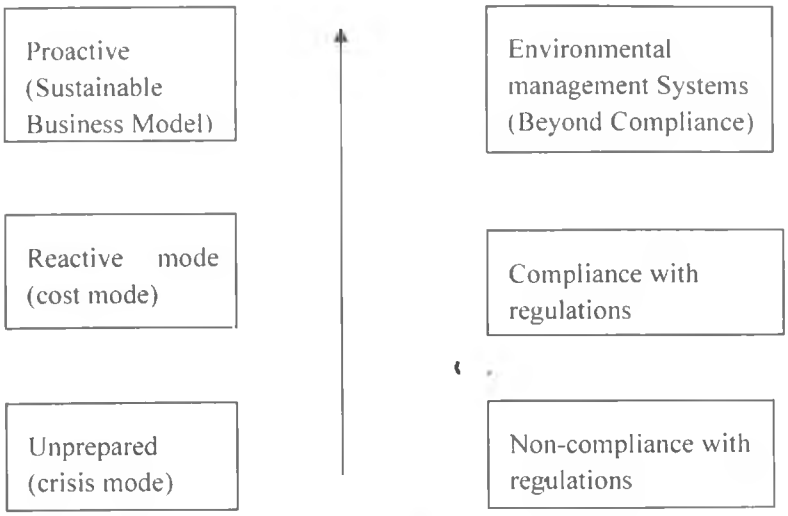

Figure 2: Typologies of Management Support

Commitment to environmental concerns also guarantees goal congruence and calls for shared values, assigning responsibility/authority and arming employees with relevant skills (Herremans et al). To support this, environmental leadership positions, for example, a champion will be instrumental. Also, fixing environmental audits in the current management systems induces a manager to care more about the environment (Desgagene and Gabel, 1996).

In determining effects of incorporating environmental management issues into strategic planning process, Judge and Douglas (1998) reported that the amount of resource allocated to environmental management and functional integration of environmental positively impacted on environmental as well as financial performance outcome.

In most developed countries, environmental values have been integrated into most corporate cultures and management processes. As Berry and Rondinelli (1998) say that, in these countries, environmental impacts are audited and accounted for as a "second bottom line". Thus environmental considerations constitute a significant portion in their decision making processes.

Contrastingly, a greater percentage of companies in developing countries undertake environmental initiatives as a response to demands by stakeholders (UNEP/UNIDO, 1991). Thus it is important for management to be committed in identifying objectives of the audit, trace environmental impacts and develop action plans. Following the audit exercise too, the management should have the responsibility of implementing the new changes from the audit outcome.

2.5 Conceptual Framework

The study will be guided by the conceptual framework presented in Figure 3.

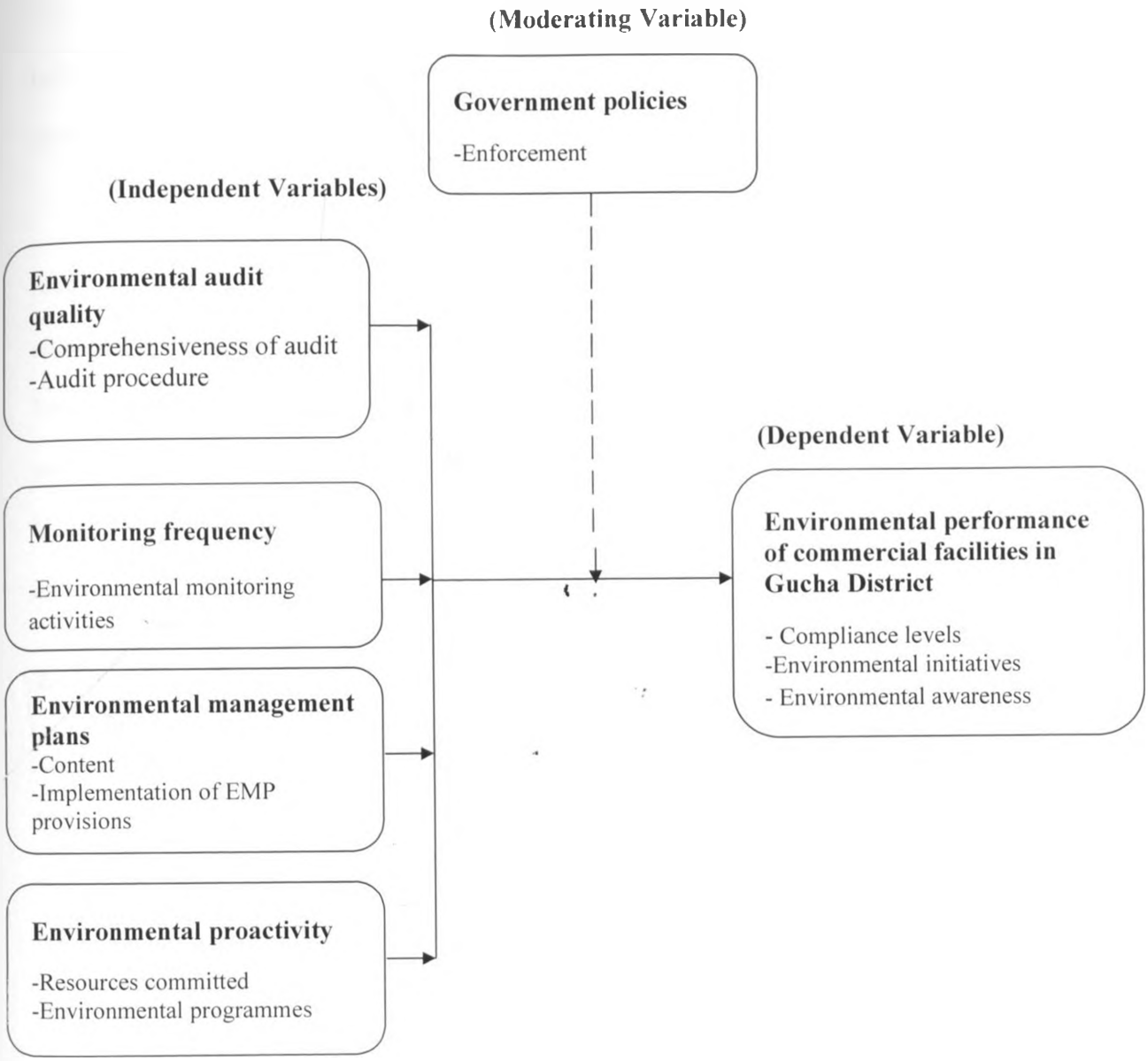

Figure 3: Conceptual Framework

Influence of environmental auditing on environmental performance was studied using four variables, namely, environmental audit quality, monitoring frequency, sufficiency of environmental management plans and environmental proactivity. These constitute independent variables for this research. On the other hand, government policies are the moderating variable.

Environmental audit quality exercises were measured using two indicators. These are scope of audit and number of audit procedures observed. The monitoring frequency is objectively indicated by number of environmental monitoring activities done per year. Similarly, environmental management plan sufficiency is indicated by content of and understanding of EMP provisions. Environmental performance of commercial facilities in Gucha District was measured using indicators such as compliance levels, environmental awareness and environmental initiatives in place.

2.6 Knowledge Gap

There have a number of valuable studies on environmental auditing using cross-sectional data, most of them giving insights into current practices in auditing environmental matters. While there has also been some research on role played by environmental regulations on environmental management, none has singled out environmental auditing and its effectiveness of in environmental management issues in Kenya (Mwangi). It also remains a matter of concern that environmental auditing has been in force with no proper environmental audit policy to guide in its implementation. In this regard this study sought to establish the influence of environmental auditing on environmental performance of commercial facilities in Gucha District.

2.7 Summary of Literature Review

Historically, use of environmental audit has been traced from United States chemical companies in 1970s. Having proved effective in providing solutions to environmental management issues, the US government enacted environmental auditing policy. With this realisation EA has been widely used as one of the environmental management systems. In Kenya, environmental audit regulations were enforced in 2004. It is capable of providing unparalleled services in environmental governance and protection.

The value of EA lies on the extent to which it offers solutions to environmental performance problems. As illustrated in Figure 2, influence of EA on environmental performance has been studied using four variables, viz. environmental audit quality, monitoring frequency, environmental management plans sufficiency and environmental proactivity.

Past research studies associate enforcement of environmental audit regulations to improved environmental performance. Cahill points it that that frequent environmental monitoring identifies deviations in environmental performance thus facilitating corrective actions. It has also been found out that environmental management plan is key in providing feedback for continuous improvement in environmental performance (Hill). Its sufficiency and implementation of EMP previsions plays a big role in ensuring environmental objectives are achieved.

Also, vast literature has associated managerial actions to environmental performance. Proactive management are reported to be committed to implementing environmental management strategies. These include devoting finance and human resources to environmental management. In conclusion EA plays a major role in meeting environmental performance goals and should therefore be treated as an important environmental management tool.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research design, sampling procedure and the data collection instruments used in the study. The chapter also discusses method used in data collection and procedure used in testing for reliability and validity of the research instruments. The chapter closes with a discussion on the methods of data analysis and the justification for choosing those methods.

3.2 Research Design

This research is of a descriptive research design seeking to establish the influence of environmental auditing on environmental performance of commercial facilities in Gucha District. Descriptive research design is credited with the ability to study a phenomenon without obstructions (Kothari, 1993). It also describes conditions as they are and can identify further areas of study.

This research also used a mixed research method, utilising both quantitative and qualitative research methods. According to Green et al. (1989) integrating different research methods produces better results in terms of quality. Quantitative methods will be used in establishing the frequency of frequency of environmental monitoring. Environmental audit quality, EMPs sufficiency and environmental proactivity were mainly of non-numerical data thus required qualitative statistical methods.

3.3 Target Population

The target population comprised proprietors of commercial facilities and lead environmental audit consultants. Proprietors of commercial facilities were in categories of manufacturing and processing, extraction, hospitality and commercial storage. Environmental

audit consultants were those who had taken part in audit process of these facilities. Their breakdown was as illustrated in Table 3.1.

Table 3.1: Breakdown of Respondents

Category of respondents	Number
Proprietors in manufacturing and processing industry	10
Proprietors in extractive industry	10
Proprietors in hospitality sector	15
Proprietors in commercial storage	15
Environmental audit consultants	10
Total	*60*

3.4 Sample Size Selection and Sampling Procedure

According to registry information from NEMA Office in Gucha District, a total of fifty (50) EAs had been done since 2009 and were done by ten (10) different environmental experts. Thus this study sampled 50 proprietors and 10 environmental audit consultants. They were categorised by nature of activities involved in as shown in Table 3.2. Census is ideal when the study population is finite and easily accessible (Kothari). This can be confidently used to generalise research findings for the study population.

Table 3.2: Sample size

No	Category of commercial activity	Population size	Sample size
1	Proprietors in manufacturing and processing	10	10
2	Proprietors in extraction industry	10	10
3	Proprietors in hospitality sector	15	15
4	Proprietors in commercial stores	15	15
5	Environmental audit experts	10	10
Total		**60**	**60**

3.5 Data Collection Procedure

Before the data was collected, the researcher obtained an introductory letter from the Department of Extra-mural Studies of the University of Nairobi and authorization from NEMA Head Office in Nairobi. The researcher also sought consent of NEMA Office in Gucha to access their library and introduction to practicing environmental audit experts. Data collection was done in two phases, the first was piloting which led to revision of research instrument. This was then followed by the actual data collection with help of research assistants.

3.6 Data Collection Methods and Instruments

Survey and observation methods of data collection were the main data collection methods used. Surveys were in the form of personal interviews conducted with proprietors of commercial facilities. On the other hand observation involved document reviews (EA reports).

Instrument used for document review is a checklist (Appendix 4). Reviews were done in order to establish sufficiency of environmental management plans. In doing surveys, the researcher administered two different types of questionnaires. The first questionnaire (Appendix 2) targeted proprietors of commercial facilities, while the second one (Appendix 3) was administered to environmental audit experts. These questionnaires were used to establish environmental audit quality, monitoring frequency, EMP sufficiency and environmental proactivity. Further, the second questionnaire sought views from environmental audit on how it has influenced environmental performance.

3.7 Validity and Reliability

Validity and reliability are important considerations in any research undertaking. Validity ascertains whether the conclusions drawn from the data are valid (Bryman and Bell 2003). Reliability on the other hand tells us the degree to which an instrument measures the same way each time it is used under similar conditions.

3.7.1 Validity

Researcher is of the opinion that data collection instruments meet content validity requirements- the instruments have been prepared based on research objectives and literature review. Internal validity has been enhanced by focussing only commercial facilities that have undertaken environmental auditing. This was also enhanced through a pilot study that involved six commercial facilities in Gucha District. Checklist used for document review is currently being used by NEMA for reviewing reports and is therefore regarded valid.

3.7.2 Reliability

A test-retest method was used to establish internal consistency of closed questions. Six questionnaires were administered to some commercial facilities and a similar exercise redone with same facilities after two weeks. These responses were then analysed used spearman rank order correlation. With r value of 0.8, this was considered reliable.

3.8 Ethical Considerations

Before administering questionnaires and participating in the interviews, the respondents were assured of the confidentiality of collected information. It was also explained that information given will be used only for academic purposes. Respondents were treated in a respectful manner throughout the exercise.

3.8 Operational Definition of Variables

Environmental audit quality: It refers to the degree to which EA are comprehensively conducted based on scope and due audit procedure. NEMA guidelines require audits to cover all ecological, physical, social, health and compliance aspects. The ICC (a) also identifies environmental audit activities under pre-audit, site and post-audit stages.

Monitoring frequency: This is the average number of times environmental monitoring exercises are carried out in audited commercial facilities annually. Section 34 (1) of EIA/EA Regulations, 2003 encourages regular environmental monitoring.

Environmental management plans sufficiency: Refers to content of EMPs, understanding levels and the extent to which their provisions have been implemented by proponents.

Environmental proactivity: This is the level of commitment to environmental management measured in terms resources committed. Measures such as cost of environmental investments, trainings, human and financial resources indicate the level of environmental proactivity.

Environmental performance: The extent to which commercial facilities comply with environmental requirements, levels of environmental awareness and environmental initiatives put in place.

3.9 Methods of Data Analysis

Data collected was cleaned, coded and entered into Microsoft Excel. Thereafter it was imported to Statistical Package for Social Sciences (SPSS) 20th and some parts recoded again. Analysis of various forms, namely, descriptive statistics, frequencies, correlation and cross tabulation were done depending on the appropriateness of these questions. Both qualitative and quantitative aspects were analysed and discussed in Chapter Four.

Table 3.3: Operational table of variables

Objective	Variable	Indicators	Measurement	Scale	Data collection method	Analysis of data
To establish the level of environmental performance in Gucha District	Dependent variable Environmental performance	-Compliance levels -Environmental awareness -Environmental initiatives	- Extent of compliance - Levels of awareness -Number of initiatives	Ordinal Ordinal Ratio	Observation	Descriptive statistics
To find out the influence of environmental audit quality on environmental performance of commercial facilities in Gucha District.	Independent variable Environmental audit quality	Comprehensiveness of audit	Scope Number of audit procedures	Ordinal Ratio	Survey	Descriptive statistics
To determine the influence of monitoring frequency on environmental performance of commercial facilities in Gucha District	Independent variable Monitoring frequency	Environmental monitoring activities	Number of monitoring activities per year	Ratio scale	Survey (personal interviews)	Descriptive statistics (Mode, bar graphs)
To examine the influence of environmental management plans sufficiency on environmental performance of commercial facilities in Gucha District.	Independent variable Environmental management plans sufficiency	Content Implementation of EMP provisions	Coverage extent Level of implementation	Ordinal Ordinal	Observation	Descriptive statistics

To establish the influence of environmental proactivity on environmental performance of commercial facilities in Gucha District.	Independent variable Environmental proactivity	Resources committed towards environmental management	Commitment levels	Ordinal scale	Survey (Personal interviews)	Descriptive statistics

3.10 Summary

This chapter has shown that influence of environmental auditing on environmental performance of commercial facilities in Gucha District is best studied using a descriptive research design. It also used both qualitative and quantitative research methods. It sampled fifty (50) proprietors of commercial facilities and ten (10) environmental audit consultants. Survey and observation were the major methods of data collection used. Data collection techniques included document reviews and personal interviews. To ensure reliability of instruments a test-retest method was done and validity enhanced through piloting.

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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter covers data analysis, presentation and interpretation on the influence of environmental auditing on environmental performance in Gucha District. To put the results of the study in perspective, the findings were organized under the following thematic areas: environmental audit quality, monitoring frequency, environmental management plans sufficiency and environmental proactivity. Data was analyzed using descriptive analysis and presented using tables and percentages.

4.2 Response Rate

Table 4.1, illustrates the rate of response amongst targeted commercial activities in Gucha District.

Table 4.1: Response Rate

Category of respondent	*Sample population*	*Response*	*Percentage (%)*
Proprietors in manufacturing and processing	10	8	80
Proprietors in extraction	10	9	90
Proprietors in hospitality	15	14	93.3
Proprietors in commercial storage	15	15	100
Environmental audit consultants	10	6	60
Total	**60**	**52**	**86.67**

As depicted in Table 4.1, 8 (80 %) proprietors from manufacturing/processing facilities responded out of the expected 10, 9 (90%) for those involved in extraction out of expected 10, 14 (93.3%) of them in hospitality out of expected 15, 15 (100%) in commercial

storage responded and 6 (60%) of environmental audit consultants responded. Cumulatively, 52 (86.7%) respondents were interviewed. This response rate was considered reasonable enough for data analysis.

4.3 Demographic Information of Respondents

The demographic information of interest to the study was gender, physical location of respondents and environmental audit types used. These aspects are presented in Table 4.2, 4.3 and 4.4 respectively.

Table 4.2: Distribution of Respondents by Gender

Gender	Proprietors	%	Environmental audit Consultants	%
Male	36	78.3	4	66.7
Female	10	21.7	2	33.3
Not stated	0	0	0	0
Total	46	100	6	100

Table 4.2 shows that 36 (78.3%) of proprietors were male while 10 (21.7%) were female. It means that most commercial facilities are owned by men. For Environmental audit consultants, 4 (66.7%) were male and 2 (33.3%) were female.

Table 4.3: Distribution of Respondents by Physical Location

Physical Location	Number	Percentage (%)
Ogembo	16	34.8
Kenyenya	9	19.6
Nyamache	10	21.7
Sameta	6	13.1
Gucha South	5	10.8
Total	*46*	*100*

From Table 4.3, majority (34.8%) of audited commercial facilities in Gucha District are located in Ogembo. This is then followed by Nyamache District (21.7%), Kenyenya (19.6%), Sameta (13.1%) and Gucha South (10.8%). This pattern shows that there have been more enforcement efforts in Ogembo as compared to other towns.

The study also sought to find out forms of environmental audit undertaken by various commercial activities in Gucha District. Table 4.5 shows types of environmental audits undertaken.

Table 4.4: Distribution of Respondents by Audit Type

	Audit type	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Control Audit	23	50.0	50.0	50.0
	Self-Audit	8	17.4	17.4	67.4
	Both	7	15.2	15.2	82.6
	None	8	17.4	17.4	100.0
	Total	**46**	**100.0**	**100.0**	

As illustrated in table 4.4, 50 % of respondents used control audit type, 17.4 % used self-audits, 15.2% both self and control audits while 17.4 % of respondents did not undertake any form of audit in their facilities between 2009 and 2012.

4.4 Influence of Environmental Audit Quality on Environmental Performance

This section analyses the influence of environmental audit quality on environmental performance of commercial facilities in Gucha District.

4.4.1 Experts Responsible for Environmental Auditing

Respondents were asked to indicate where they normally get experts to undertake environmental audits. Table 4.5 illustrates where these experts are sourced from.

Table 4.5: Responsibility in Conducting Environmental Audit

Responsibility	Frequency	Percentage (%)
Internally	1	2.2
Hired consultants	28	60.9
Jointly	8	17.4
None	9	19.6
Total	**46**	**100.0**

As revealed in Table 4.5, hired consultants (environmental audit experts) do most of the environmental audits. 8 (17.4%) of respondents indicated that they always carry audits jointly while 1 (2.2) % had an expert within their management to oversee audit process. Nine (19.6%) respondents indicated they did not engage these experts between 2009 and 2012..

Results show that many commercial facilities do engage certified NEMA consultants in conducting environmental audits. Only one facility entirely relies on internal experts to undertake EA. A few other facilities have been doing audits jointly with NEMA consultants. In terms of type of environmental audits conducted, many control audits have been conducted as compared to self audits.

Person/s accorded the responsibility of carrying out audits has a great bearing on the environmental audit quality. By extension, this influences environmental performance of audited facilities. Most of hired environmental consultants are registered with NEMA and are guided by environmental audit regulations which require them to do comprehensive audit studies. This is followed by review and follow up inspections by NEMA to ascertain quality of environmental performance.

4.4.2 Comprehensiveness of Environmental Audits

Foremost, the study established audit scope and number of audit procedures observed by commercial facilities through various audit approaches. Table 4.6 and 4.7 presents these findings.

Table 4.6: Scope of Auditing

		Scope of audit (%)				Total
		0	60	80	100	
Type of environmental audit	Control Audit	0	1	4	18	23
	Self-Audit	0	4	2	2	8
	Both	0	0	2	5	7
	None	8	0	0	0	8
Total		8	5	8	25	46

From table 4.6, 1 control audit had a scope of 60 %, 4 had 80% while 18 had 100% scope of the required audit scope. Self- audits registered 4 facilities with 60%, 2 at 80 % and another 2 at 100%. On the other hand integrated auditing had 2 facilities at 80% and 5 of them at 100%. This means that control audits were rich in scope followed by those that integrated the two approaches and then self-audits.

Table 4.7: Number of audit procedures observed

Type of environmental audit	**Number of audit procedures**				**Total**
	0	***1***	***2***	***3***	
Control audit	0	1	12	10	23
Self audit	0	1	4	5	10
Both	0	0	2	3	5
None	8	0	0	0	8
Total	8	2	18	18	46

From Table 4.7, ten (10) of the control audits observed the three audit procedures, namely, pre audit, on site audit and post audit procedures. Those that observed two (2) procedures were 12 while for 1 observed one procedure. In contrast for self audits, 5, 4 and 1 facilities observed three, two and one audit procedure respectively. When integrated, 3 and 1 facilities observed three and two procedures respectively.

4.4.2 Significance of Environmental Audit Quality on Environmental Performance

This study also sought to establish which form of auditing is significant in enhancing environmental performance. There exist many measures of environmental performance such as levels of environmental awareness, resource use efficiency, compliance level and general environmental conditions. In regard to environmental audit quality, environmental compliance was used as an environmental performance measure.

Foremost, it determined significance of various environmental audit types on environmental compliance as shown in Table 4.8.

Table 4.8: Environmental Audit Approaches and Significance on Environmental Compliance

		Significance on environmental compliance			**Total**
		Insignificant	Significant	Very significant	
Type of environmental audit	Control Audit	5	12	6	23
	Self-Audit	1	5	2	8
	Both	0	2	5	7
	None	8	0	0	8
Total		**14**	**19**	**13**	**46**

Control audits were found to be very significant in enhancing environmental compliance as compared to other forms of audit. The same trend was reflected at significant rating while those that that had not conducted environmental audits had insignificant levels of environmental compliance.

On a general level, respondent's opinion was sought on the extent to which environmental auditing has helped them improve in environmental compliance. Table 4.9 summarizes their responses.

Table 4.9: Significance of Environmental Auditing on Environmental Compliance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Insignificant	14	30.4	30.4	30.4
	Significant	19	41.3	41.3	71.7
	Very significant	13	28.3	28.3	100.0
	Total	46	100.0	100.0	

From Table 4.9, 14 (30.4%) perceived environmental auditing to be insignificant in enhancing environmental compliance in their facilities. On the other hand, 19 (41.3 %) found it significant and 13 (28.3%) had the view that environmental audits are very significant in enhancing environmental compliance.

4.5 Influence of Monitoring Frequency on Environmental Performance

This section analyses the influence of monitoring frequency on environmental performance of commercial facilities in Gucha District.

4.5.1 Responsibility of Environmental Monitoring

The study was also interested in finding out person/s responsible for carrying out environmental monitoring. Table 4.10 shows their response.

Table 4.10: Responsibility of Environmental Monitoring

	Responsibility	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Internal staff alone	17	37.0	37.0	37.0
	External consultants	25	54.3	54.3	91.3
	Jointly	4	8.7	8.7	100.0
	Total	46	100.0	100.0	

Findings show that 17 (37.0%) of environmental monitoring activities are done internally, 25 (54.3%) carried out by external consultants and 4 (8.7%) done jointly. Most environmental monitoring activities are done by external consultants. Independently, internal staff/personnel also conduct a significant number of environmental monitoring activities. On the other hand little monitoring was done jointly. These findings show that internal capacity of these facilities to carry out environmental monitoring is fairly.

4.5.2 Availability of Environmental Monitoring Plan

Respondents were asked if they were in possession of environmental monitoring plan to guide them in environmental management. Table 4.11 illustrates their response.

Table 4.11: Availability of Environmental Monitoring Plan

	Monitoring plan	Frequency	Percentage (%)
Valid	Available	32	69.6
	Not available	14	30.4
	Total	46	100.0

Thirty two respondents (69.6 %) of respondents were in possession of environmental monitoring plan while fourteen (30.4%) didn't have such kind of arrangements. Thus most facilities possess an environmental monitoring plan to guide in environmental management in Gucha District.

4.5.3 Frequency of Environmental Monitoring

To find out frequencies in environmental monitoring this study categorized respondent based on who carries out this activity. Table 4.12 displays these findings.

Table 4.12: Frequency of Environmental Monitoring

Responsibility	Mode
Internal staff alone	2
External consultants	2
Jointly	3

Table 4.12 indicates that the mode for monitoring activities per year done internally and external consultants is two (2). On the other hand joint monitoring activities had a mode of three. This means that environmental monitoring will be done more frequent if done jointly than if done independently either by external consultants or internal personnel.

4.5.4 Existence of System to Track and Document Environmental Incidents

To find out if commercial facilities have a mechanism of tracking environmental incidents respondents were asked to indicate whether such a system exists or not. Table 4.13 illustrates these findings.

Table 4.13: Availability of System to Document Environmental Incidents

	Available	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	13	28.3	28.3	28.3
	No	33	71.7	71.7	100.0
	Total	46	100.0	100.0	

From the findings in Table 4.13, 13 (28.3%) of respondents indicated that there exists a system for documenting incidents and accidents for the EPA, while 33 (71.7%) pointed out that it doesn't exist. It means most commercial facilities do not have a system for tracking and documenting environmental incident. Existence of such systems indicates the extent to which entities are prepared to note and address environmental events.

4.5.5 Significance of Monitoring Frequency in raising Environmental Awareness

In this study, environmental awareness was identified as a very important measure of environmental performance. Thus respondents were asked to state the extent to which environmental monitoring has helped in raising environmental awareness. Table 4.14 shows various levels of significance based on monitoring frequency.

Table 4.14: Significance of Monitoring Frequency in Raising Environmental Awareness

Monitoring Frequency	Significance in raising environmental awareness		
	Insignificant	Fairly Significant	Very Significant
Less than 2	4	8	4
2-4	0	12	10
Above 4	1	2	5
Total	5	22	19

As illustrated in Table 4.14 insignificant environmental awareness was common in commercial facilities that had less than two (2) environmental monitoring frequencies per year. In the case of those that were fairly significant and very significant majority had between two (2) and four (4) environmental monitoring activities. Very few commercial facilities had more than four (4) environmental monitoring activities but still registered significant environmental awareness.

4.6 Influence of Environmental Management Plans Sufficiency on Environmental Performance

This section analyses, presents and interprets the Influence of environmental management plans on environmental performance.

4.6.1 Possession of Environmental Management Plan

This study was also interested in knowing how many respondents had environmental management plans (EMP) in their commercial facilities. Table 4.15 shows the status of these commercial facilities.

Table 4.15: Availability of Environmental Management Plan

	Status	Frequency	Percent	Valid Percent	Cumulative
Valid	Available	38	82.6	82.6	82.6
	Not available	8	17.4	17.4	100.0
	Total	**46**	**100.0**	**100.0**	

Table 4.15 illustrates that 38 (82.6%) of commercial facilities had EMP while 8 (17.4%) didn't have any. A figure of 38, tallies with that of facilities that had undertaken environmental audit. Thus, it means all audited facilities had EMP while none of those with no audits done had EMP.

For those that had EMP, the study sought to find out when they were first developed. This is critical in determining if there has been increased awareness of EA requirements. Table 4.16 illustrates their response.

Table 4.16: Year in Which Environmental Management Plans Were First Developed

Year	Frequency	Percent
2009	3	7.8
2010	5	13.2
2011	13	34.2
2012	17	44.8
Total	**38**	**100.0**

As shown in Table 4.16, over the years there have been an increasing number of environmental management plans being developed. Of all EMPs developed, 2012 had the highest number of audits (44.8 %) developed and this reflects an increased awareness and compliance to EA requirements.

4.6.2 Content of Environmental Management Plans

In order to find out the content of developed EMPs, reports were reviewed and areas addressed were enumerated. The study used NEMA standards of EMP sections to determine this content. Table 4.17 displays these findings.

Table 4.17: Content of Environmental Management Plan (%)

	Content (%)	Frequency	Percent
Valid	0.00	8	17.4
	60.00	7	15.2
	80.00	16	34.8
	100.00	15	32.6
	Total	46	100.0

Fifteen (32.6%) of respondents had all the contents of EMP as per NEMA standards. 34.8 % of respondents had four-fifth of the content, 15.2 % had three-fifth of the content while 17.4 % of respondents had zero content on EMP. Sufficiency of EMPs in terms of content is crucial in determining understanding levels of proponents on environmental management provisions.

4.6.3 Environmental Management Plan Provisions

Environmental management plans are usually designed and used in the spirit of continuous improvement process. Thus, the study sought to establish the extent to which EMP provisions are usually implemented. In doing this, awareness created through EMP was compared with the extent to which provisions had been implemented and this is Table 4.18.

Table 4.18: Implementation of EMP Provisions

Awareness through EMP	**Extent of implementation**		
	Poorly implemented	*Fairly implemented*	*Well implemented*
Little	7	2	1
Moderate	6	9	3
More	2	10	6
Total	*15*	*21*	*10*

Table 4.18 shows that majority (21) of audited commercial facilities have fairly implemented provisions in EMP. A few (15) indicated poor levels of implementation while few had good levels of implementation. On the same note, those that had more awareness created through EMP were the best in terms of implementation i.e. facilities fair and good levels of implementation were 16 (more awareness), 12 (moderate awareness) and 3 (little awareness). This implies that with increased environmental awareness through sufficient EMP, more provisions are likely to be implemented.

4.7 Influence of Environmental Proactivity on Environmental Performance

In line with objective four of this study, respondents were interviewed on various aspects of environmental proactivity and how they influence environmental performance of commercial facilities in Gucha District.

4.7.1 Form in Which Environmental Policy Exists

Given that environmental policies are instrumental in ensuring entities take environmental actions this study sought to find out existence of policies and the form which they take. Table 4.19 outlines responses from owners of commercial facilities.

Table 4.19: Form in Which Environmental Policies Have Been Expressed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No policy	4	8.7	8.7	8.7
	Written	12	26.1	26.1	34.8
	Verbal	30	65.2	65.2	100.0
	Total	46	100.0	100.0	

From the findings in the table 4.19. 42 (91.3%) of respondents affirmed the existence of an environmental policy either in verbal form or written/stated form. Four (8.7 %) of respondents didn't have any form of environmental policy to guide in environmental management. For those that had a policy, 12 facilities (26.1%) had policies in written form while the rest 30 facilities (65.2 %) expressed verbally. Thus majority of commercial facilities in Gucha District have a policy in verbal form.

4.7.2 Approach Used In Environmental Management

In order to find out the approach used by facilities in environmental management, respondents were asked to identify one of the three styles as shown in Table 4.20.

Table 4.20: Style of Environmental Management

		Frequency	Percent	Valid Percent
Valid	Complying to environmental regulations	21	45.7	45.7
	Managing environmental programmes	17	37.0	37.0
	Both approaches	8	17.4	17.4
	Total	46	100.0	100.0

Table 4.20 reveals that 21 (45.7%) use compliance approach, 17 (37.0%) of respondents have put in place environmental management programmes while 8 (17.4%) of respondents blend both approaches.

Generally, entities approaching environmental management purely through compliance to environmental regulations and standards/policies are classified as those operating in reactive mode. On the other hand, those that instituted environmental programmes/systems operate in a proactive mode.

4.7.3 Environmental Trainings Received

The study was also interested in finding out the number of commercial facilities which had incorporated environmental training on various environmental aspects. Table 4.21 identifies areas in which trainings have been done.

Table 4.21: Aspects of Environmental Training

	Areas trained on	**Frequency**	**Percent**	**Cumulative Percent**
Valid	Disaster Management	12	26.1	26.1
	Occupational safety and health	16	34.8	60.9
	Waste handling and management	18	39.1	100.0
	Total	46	100.0	

As illustrated in Table 4.21, 12 (26.1%) of facilities have undergone basic training on disaster management, 16 (34.8%) on occupational safety and health and 18 (39.1%) trained on waste handling and management. More training has been done on waste handling and management than on disaster management and occupational safety and health.

4.7.4 Financial Resources and Environmental Performance

Budgetary provisions to meet environmental expenditures and investments were sought in this study. Table 4.22 illustrates these findings.

Table 4.22: Amount of Financial Resources Committed To Environmental Matters

		Frequency	Percent	Valid Percent
Valid	Little	18	39.1	39.1
	Average	22	47.8	47.8
	Enough	6	13.0	13.0
	Total	**46**	**100.0**	**100.0**

In their own rating 18 (39.1%) were of the view that they had little financial resources allocated for this purpose, 22 (47.8%) had average while 6(13%) enough financial resources for environmental commitments. Further analysis was done to find out if there is any relationship between financial resources allocated and environmental initiatives put in place as shown in Table 4.23.

Table 4.23: Comparing Amount of Financial Resources Committed and Environmental Initiatives Established

Amount of financial resources	**Environmental initiatives**		
	Few	*Fairly Good*	*More*
Little	12	4	2
Average	2	11	8
Enough	0	4	3
	14	19	13

Table 4.23 indicates that fourteen (14) commercial facilities had few environmental initiatives, nineteen were fairly good and thirteen (13) good number of environmental initiatives. Those that allocated little financial resources had a big number (12) having few initiatives. In the category of those with fairly good number of environmental initiatives most of them (11) were those with average financial resource allocation. This shows that with more the financial resources committed towards environmental management the more initiatives will be put in place.

4.8 General Views of Respondents on Influence of Environmental auditing on Various Environmental Performance Aspects

Finally, all respondents (including environmental audit consultants) were requested to give a score on the influence of environmental auditing on environmental performance based on various measures. This was done on Likert scale of 1- 5 as shown in Table 4.24.

Table 4.24: Likert Score on Influence of Environmental Auditing On Environmental Performance Aspects

Environmental auditing helps in	**Strongly agree**	**Agree**	**Not certain**	**Disagree**	**Strongly disagree**
Raising environmental awareness	10	17	8	7	4
	21.7%	37.0%	17.4%	15.2%	8.7%
Creation of environmental initiatives	4	13	12	10	7
	8.7%	28.3%	26.1%	21.7%	15.2%
Improving environmental conditions	4	14	12	8	8
	8.7%	30.4%	26.1%	17.4%	17.4%
Promoting resource use efficiency	1	5	13	20	7
	2.2%	10.9%	28.3%	43.5%	15.2%
Promoting environmental compliance	19	12	8	4	3
	41.3%	26.1%	17.4%	8.7%	6.5%

As illustrated in Table 4.24, 19 (41.3%) of respondents strongly agreed that environmental auditing helps in promoting environmental compliance and another while 17 (37.0%) agreed that it helps in raising environmental awareness. On the other hand, 20 (43.5%) respondents disagreed with the position that environmental auditing helps in promoting resource use efficiency. In the same position 10 (21.7%) respondents also disagreed on its influence in creation of environmental initiatives. It means environmental auditing is finding use in environmental compliance than in any other environmental management objective.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study aimed at finding out the influence of environmental auditing on environmental performance of commercial activities in Gucha District. In this regard, Chapter five (5) presents a summary of the research findings, discussions and conclusion. It then gives conclusions derived from the study, recommendation and finally gives suggestions for further studies.

5.2 Summary of Findings

The study found out that nearly all environmental audits of commercial facilities in Gucha district are of good quality as indicated by type of environmental audit, scope of auditing and due audit procedure. In achieving this most commercial facilities engaged certified NEMA consultants to undertake environmental audits. This also means that majority took form of control audit. Also, facilities which observed all audit procedures were found to be having significant levels of environmental compliance. Worth noting, most proponents confessed that through control environmental audits significant levels of environmental compliance had been achieved. Type of environmental audit, scope of audit and audit procedure – as aspects of environmental audit quality- significantly enhanced environmental compliance.

The influence of monitoring frequency came to fore when proponents revealed that environmental monitoring will be done more frequent if done jointly than if done independently either by external consultants or internal personnel. However, few commercial facilities had a system for tracking and documenting environmental incidents. Even more

important, results established that with few monitoring frequency (less than two per annum) little levels of environmental awareness was registered. Those with fairly good monitoring frequency (2-4) had significant levels of environmental awareness. Very few facilities had more than four (4) monitoring activities but still had very significant levels of environmental awareness.

A greater percentage (61%) of commercial facilities had sufficient EMPs i.e. in terms of content and understanding of their provisions. They also observed NEMA guidelines on development of EMP. Further, it was noted that the number of EMPs being developed has been increasing over the years. This indicates increasing awareness by the public of NEMA requirements. With better understanding of provisions EMPs high level of environmental awareness was established. In extension, increased environmental awareness through EMP was associated with good implementation of EMP provisions.

Findings reveal that there are fairly a good number of environmental policies, environmental trainings and financial resources for commercial facilities in Gucha. However, most of these policies were in verbal rather in statement form. In spite of this, most commercial facilities approached environmental management through compliance instead of putting suitable environmental management programmes. Further, employees were found to have been trained more on disaster management, occupational safety and health and waste management. In terms of resources allocated to environmental management, majority were found to have inadequate financial resources. Based on the mode of environmental proactivity most are operating in reactive mode and a good number of commercial facilities are proactive. None of these respondents is operating in unprepared mode.

5.3 Discussion of Findings

It was earlier acknowledged that environmental audit quality is vital in ensuring environmental performance goals are achieved. Findings of this study reveal that meeting EA quality requirements has significantly improved environmental performance of commercial facilities in Gucha District. In an endeavor to comply with NEMA regulations they have made efforts to conduct control environmental audits which came out to be comprehensive and of good scope. To add value to the process, these audits have observed pre- audit, onsite and post-audit due procedure of environmental auditing (ICC, 1991). This is also as per NEMA guidelines on environmental auditing (G.O.K, 2003). As a result high levels of environmental compliance have been registered in commercial facilities in Gucha district.

The above findings on environmental audit quality are in agreement with the position that methodological and objective audits studies are of utility in making environmental decisions and as a result increase environmental compliance (Morrison, A. and Bailey J., 1999). When certified NEMA consultants are engaged in audit studies proponents do receive NEMA improvement orders which are then followed up through impromptu inspections. This is usually not the case in situations when self-audits are done. Control audits which are always comprehensive greatly influence environmental decisions than self-audits. Complying with environmental and statutory requirements is the immediate decision that can be made by audited entities. This explains why most commercial facilities in Gucha district were observed to have increased environmental compliance, an important aspect of environmental performance.

While appreciating the role of environmental auditing, commercial facilities in Gucha District adopted environmental monitoring as a self-regulatory scheme. However, not so many monitoring activities are done per year; majority of commercial facilities had two (2)

environmental monitoring activities per year. Such a scenario could be explained by the fact that commercial activities are by their nature of low risk. This finding concurs with Ridgeway, (2009), who stated that the higher the risks involved, the more the number of audits and monitoring. In terms of behavioural change, facilities which had good number of monitoring activities demonstrated raised environmental awareness. Those that had less than two monitoring activities per year had low levels of environmental awareness while those that had two to four had significant levels of environmental awareness. These findings are in agreement with works of DEAT that several iterations of monitoring result in raised effective environmental management and increased levels of environmental awareness.

Given that nearly all commercial facilities had an environmental management plan through EA, this shows high compliance to environmental legal requirements. Further, most EMPs showed sufficiency in terms of content and understanding of EMP provisions had high levels of environmental awareness which in turn was associated with high levels of implementation. These findings show that EMPs have been used in the spirit of continual improvement (Lochner, 2005). On the same note revelation of increasing number of EMPs developed over the years also indicates raised environmental awareness in Gucha District. As outlined by Hill (2000), one of the objectives of EMP is to provide feedback for continual improvement in environmental performance. Through EMP reports which allocate responsibilities, many employees were more aware of their environmental management duties. Thus EMPs of commercial activities ensured management and employees are accountable in environmental management issues.

In their work (Armah et al 2011) acknowledges important role played by environmental agencies in providing a legal/regulatory framework, and assert that the ultimate responsibility for sound environmental behaviour lies with management itself.

Commercial facilities in Gucha have to a greater extent reflected this. Foremost, 91.3 % of commercial facilities have environmental policy put in place. Other areas in which environmental proactivity was observed are environmental trainings given to employees, substantial allocation of environmental responsibilities and budgetary allocation to environmental expenditure. Facilities that committed enough financial resources had a significant number of environmental initiatives put in place. This is close to findings of Wisner et al (2010) that established positive relationship between environmental pro-activity and implementation of most environmental management strategies.

However, based on categories established by Sharma (2003), it can be confirmed that most commercial facilities in Gucha District are reactive with a few operating in a proactive mode. 45.7% were approaching environmental management through compliance approach. They committed few financial resources for environmental management issues. Only 37.0% exceeded regulatory requirements and had put in place measures to minimise environmental impacts and to enhance environmental conditions.

5.4 Conclusions

From these study findings it is evident that environmental audit quality is crucial in attaining environmental performance goals. Control audits and involvement of certified NEMA consultants has significantly enhanced environmental compliance of commercial facilities in Gucha District. Thus, control audit approach is more comprehensive than other forms of auditing. With its good quality good environmental performance through compliance is attained.

It's only few respondents who admitted that they conducted over four monitoring activities per year. This confirms that most facilities are not of high risk. This notwithstanding, good numbers of environmental monitoring activities have been seen to

raise environmental awareness-an aspect of environmental performance. Thus with several iterations of environmental monitoring, environmental awareness levels are raised.

In regard to sufficiency of EMPs it was found out that they were prepared as per NEMA guidelines. There was also a good understanding of its provisions and this was associated establishment of more environmental programmes. This confirms that EMP as an environmental management tool is significant in continuous environmental performance improvement.

Finally, it was revealed that a relationship that exists between financial resources allocated and environmental initiatives put in place. With more financial resources a good number of environmental initiatives were established. There were also good number of environmental policies and environmental management trainings. Commercial facilities were found to be fairly proactive in environmental management issues. A few commercial facilities approached environmental management on a reactive approach while few were proactive in environmental management issues.

5.5 Recommendations

Based on the findings, discussions and conclusions of this research, the following recommendations are made:

1. Proponents should be encouraged to carry out more self-audits and monitoring to supplement efforts of NEMA consultants. This would enhance ownership of environmental audit process and increase environmental responsibility. To realise this, NEMA should build their capacity on due environmental audit process.
2. Environmental incidents or events need to be documented as they take place. Such kind of information should be used to inform environmental audit processes which in

most cases are done by NEMA consultants. It can also assist entities to take corrective measures in a timely manner.

3. Environmental auditing and monitoring should be regarded as iterative processes with an aim of continuously improving environmental performance as opposed to a one off activity. As such, commercial facilities need to be consistent in doing annual environmental audits as per NEMA guidelines.

4. In order to properly guide proponents on environmental management, experts should prepare non-technical EMPs which can be understood by non-professionals in the environmental field. At the same time, management of these entities should be involved in review of EMPs and developing environmental action plans.

5. Proponents should give environment performance priority just as they are concerned about financial performance. It should .be known to them that with good environmental performance benefits such as increased efficiency, reduced costs, lower risks and liability, better reputation and reduced compliance costs are likely to be realized.

5.6 Suggestions for Further Study

From these findings the following areas need to be researched further:

1. How environmental auditing influences decision making process of audited facilities.

2. How environmental auditing contributes to adaptive environmental management in other sectors.

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APPENDICES

Appendix 1: Letter of Transmittal

University of Nairobi

P.O Box 30197-00100 GPO

Nairobi, Kenya.

RE: INFLUENCE OF ENVIRONMENTAL AUDITING ON ENVIRONMENTAL MANAGEMENT PERFOMANCE OF COMMMERCIAL FACILITIES IN GUCHA DISTRICT.

I am student of the above named University, School of Continuing and Distance Education. The purpose of this letter is to request you assist me in collecting data on influence of environmental auditing on environmental performance of commercial facilities in Gucha District. This is in partial fulfilment of the requirements of Master of Arts Degree in Project Planning and Management. Therefore, you are kindly requested to fill in the attached questionnaire freely and objectively. Information you provide will be held and treated with confidentiality and used only academic purpose.

Yours Faithfully,

Elvin Oeri Nyagaka.

Appendix 2: Questionnaire to Commercial Facilities Owners in Gucha District

This questionnaire has been developed to assist in data collection for research to determine the influence of environmental auditing on environmental performance of commercial facilities in this District. Its findings will be used exclusively for academic purposes and therefore information provided by you will strictly be used in this regard. Your honest contribution will be highly appreciated.

GENERAL INFORMATION

Details of Respondent:

Respondent Name: .....

Sex: Male ( ) Female ( )

Physical Location ..... Postal Address.....

Details of Commercial Activity:

Sector under which your commercial facility operates

(a)Manufacturing and processing (b) Hospitality

(c)Commercial storage (d) Extraction

Period of existence ..... (yrs)

Environmental audit quality

1. The NEMA requires that organizations or project activities to conduct environmental audits. Control audits are done NEMA officers/inspectors while self audits by your management. Which form of environmental audit has been undertaken for your activities?

(a) Control environmental audits (by NEMA inspectors) ( )

(b) Self-audits (by your management) ( )

(c) Both ( )

(d) None ( )

2. When was the first environmental audit carried out in your establishment?

..... (Year)

3. How often do you undertake self-environmental audits?

(a) Monthly ( )
(b) Quarterly ( )
(c) Bi-annually ( )
(d) Annually ( )
(e) None ( )

4. In most cases who conducts environmental audits for your activities.

(a) Internal personnel/department only ( )
(b) Hired consultants alone ( )
(c) Jointly ( )

5. What issues are usually addressed during environmental auditing? ***Select issues audited***

(a) Ecological impacts ( )
(b) Socio-cultural impacts ( )
(c) Economic impacts ( )
(d) Occupational safety and health ( )
(e) Environmental compliance ( )
(f) Others (state them) ( )

6 (i) Does environmental auditing in your facility involve carrying out various tests and checks on environmental parameters?

YES .....
NO .....

(ii)If YES, state the form/ type of tests that are always carried out.

.....
.....
.....

7.(i) Environmental auditing activities might undergo the following procedures;

(a) Pre-audit activities -setting terms of reference and scope
(b) Site audit activities-involvement in audit process
(c) Post-audit activities-sharing findings and recommendations

Which of these approaches have you been observing in your facility? (*Tick as applicable)*

(a)..... *(b)*..... *(c)*.....

(ii) What has been the significance of above audit approach in enhancing environmental compliance?

Insignificant ( ) Significant ( ) Very significant ( )

8. In your opinion, do you find environmental audit exercise for your activities adequate or not?

(a) Adequate

(b) Inadequate

Frequency of Environmental Monitoring

9. (i) Do you have a monitoring plan for various environmental parameters in your facility?

Yes ( )

No ( )

(ii)If YES, how often do you do environmental monitoring per year?

10. Who does this activity (environmental monitoring)? *Tick as appropriate*

(a) Internal staff alone ( )

(b) External officers ( )

(c) Jointly ( )

11. List parameters in your monitoring plan.

.....

.....

.....

.....

12. Is there a system to document incidents and accidents that result from environmental harm?

Yes ( ) No ( )

13. How has monitoring frequency been significant in raising levels of environmental awareness in your facility?

Insignificant ( ) Significant ( ) Very significant ( )

Sufficiency of Environmental Management Plans

14(i) Do you have an environmental management plan in your facility?

Yes ( ) No ( )

(ii)When it first developed .....

(iii).How many times has it been reviewed since it was developed.....

15. Did any of you staff participate in development and review of environmental management plan?

Yes ( ) No ( )

16. Which of these sections have been identified in your environmental management plan

(a) Environmental impacts assessed/identified ( )

(b) Mitigation and monitoring ( )

(c) Individuals held responsible ( )

(d) Budget for implementation ( )

(e) Implementation schedule ( )

17. How well are the provisions of environmental management plan understood by your team?

(i) Not understood ( )
(ii)Fairly understood ( )
(iii)Well understood ( )

18. (a) State provisions in the environmental management plan which have been implemented in your facility?

.....

.....

.....

.....

(b) In your own opinion to what level has these provisions been implemented?

i. Low
ii. Moderately
iii. Sufficiently

Environmental Proactivity

19. (i) Does your management have any policy to protect, restore, and manage the environment?

Yes ( ) No ( )

(ii) If YES, is stated or verbal? .....

20. (i)Do you have a department or individuals responsible for environmental management?

Yes ( ) No ( )

(ii) What are their responsibilities?

.....
.....
.....

21. How do they achieve their results? *(Tick as applicable)*

(a) Through regulation/policy ( )
(b) Managing and implementing environmental programmes ( )
(c) Both ( )

22. Environmental management programmes can include engaging protecting water resources, tree planting, and improving energy efficiency e.t.c

(i) Are there programmes to protect, restore and manage the environment?

Yes ( ) No ( )

(ii) If yes which are these programmes?

.....
.....
.....

23. Financial resources are critical in implementation of any program. Does your management have a budgetary provision for environmental expenditures and investments?

Yes ( ) No ( )

(ii) If (Yes) how would you rate amount of financial resources allocated for environmental expenditure and investments:

(a)Little
(b)Average
(c) Enough

24. "Training is essential in ensuring employees, departments and organizations are effective and achieve their goals".

(i)Does your organization organize training in environmental aspects?

Yes ( ) No ( )

(ii)If YES, which areas have they been trained on?

.....
.....
.....

25. Environmental monitoring, mitigation and action plans are some of the management control systems that can be put in place by organizations to address environmental concerns. State the kind of environmental control systems put in place by your management.

.....
.....
.....
.....
.....
.....
.....
.....

26. In your own opinion how would you rate number of environmental initiatives based on amount of resources committed by you management?

(a) None
(b) Few
(c) Enough

Other aspects of environmental performance

26. (i)Does your facility have licenses or permits that are required to address environmental, safety and healthy laws?

Yes ( ) No ( )

(ii) If (yes), which current licenses or permits do you have?

.....
.....
.....
.....

(iii) If (no), what are the reasons for this oversight?

.....
.....
.....
.....

Respondent Signature.....

Thanks for your input

Appendix 3: Questionnaire to Environmental Audit Consultants

Please answer the following questions as honestly as you can. Where explanation is required, use the space provided.

SECTION A: BACKGROUND INFORMATION

1. Gender Male ☐ Female ☐

2. Year of registration as NEMA consultant.....

3. Select your category of registration with NEMA.

   a) Associate expert [ ]
   b) Lead Expert [ ]
   c) Firm of experts [ ]

4. How long have you been an employee of the organization?
   a) Less than 5 years [ ]
   b) 6 – 10 years [ ]
   c) 11 – 15 years [ ]
   d) More than 15 years [ ]

SECTION B: INFLUENCE OF ENVIRONMENTAL AUDITING ON ENVIRONMENTAL PERFORMANCE

5. (a) Did you share with proponents of audited commercial facilities scope of audit process before commencing?

   Yes [ ]
   No [ ]

   (b) If yes, what is your opinion on its comprehensiveness?

   .....
   .....
   .....

6. (a)Do you find monitoring frequency of commercial facilities good enough for environmental management?
   Yes [ ]
   No [ ]

(b) What is your opinion on the level of preparedness of audited commercial facilities on environmental monitoring?

.....

.....

.....

7. How would rate the commitment of proprietors in environmental audit activities you have undertaken for commercial facilities in Gucha District?

Not committed [ ]

Fairly committed [ ]

Very committed [ ]

8. Select a position that best represents your view on the influence of environmental auditing in environmental performance of audited commercial facilities in Gucha District.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Environmental auditing raises environmental awareness	1	2	3	4	5
Environmental auditing promotes creation of environmental initiatives	1	2	3	4	5
Environmental auditing promotes resource use efficiency	1	2	3	4	5
Environmental auditing increases environmental compliance	1	2	3	4	5

9. What is your general opinion on the influence of environmental auditing in environmental?

.....

.....

.....

.....

Thanks a lot for participating in this study.

Appendix 4: Checklist for Document Review

Reviewing is an important step in determining whether Environmental management plans are Audit sufficient and relevant for decision making. The table below illustrates the criteria for reviews and respective ratings.

Table of review of criteria ratings:

Rating	Explanation
A	Generally well performed, no important tasks left incomplete
B	Generally satisfactory and complete, only minor omissions and inadequacies
C	Just adequate despite omissions/or inadequacies
D	Parts well attempted but must, on the whole be considered unsatisfactory because of omissions and/or inadequacies
E	Unsatisfactory, significant omissions or inadequacies
F	Very unsatisfactory, important tasks poorly done or not attempted

APPENDIX 5: INTRODUCTION LETTER TO CONDUCT RESEARCH

UNIVERSITY OF NAIROBI

COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION
DEPARTMENT OF EXTRA-MURAL STUDIES
NAIROBI EXTRA-MURAL CENTRE

ur Ref:

ır Ref:

lephone: 318262 Ext. 120

Main Campus
Gandhi Wing, Ground Floor
P.O. Box 30197
NAIROBI

EF: UON/CEES /NEMC/10/916

21st October, 2011

TO WHOM IT MAY CONCERN

E: ELVIN OERI NYAGAKA– REG NO L50/75844/09

his is to confirm that the above named is a student at the University of Nairobi College f Education and External Studies, School of Continuing and Distance Education,)epartment of Extra- Mural Studies pursuing Business Management.

Ie is proceeding for research project entitled **"effectiveness of environmental auditing n environmental performance of commercial activities in Gucha District"**

Any assistance given to him will be appreciated.

UNIVERSITY OF NAIROBI ★ Box NAIROBI ★ EXTRA-MURAL CENTRE

CAREN AWILLY
CENTRE ORGANIZER
NAIROBI EXTRA-MURAL CENTRE

DEO-Gucha

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY ★ 08 MAR 2012 ★ REGISTRY ★ 67839-00200, NAIROBI

Please provide date.

Order.

8/3/2012