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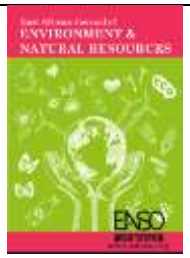

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Original Article

The Role of Environmental Audits in Enhancing Sustainability in Industrial Property Management. Insights From Nairobi County

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ABSTRACT

Nairobi, the capital city of Kenya, is experiencing significant environmental challenges, with pollution levels reaching unprecedented heights. This issue is particularly evident in the Nairobi River Basin, which comprises the Nairobi, Ngong, and Mathare Rivers. The basin is a focal point of concern due to the widespread discharge of untreated industrial waste into its waters. The city's high population density, coupled with the concentration of industries, exacerbates the environmental impact, making Nairobi the most affected region in the country in terms of pollution. Among the various sources, industrial pollution emerges as a major contributor, prompting the National Environmental Management Authority (NEMA) to intervene and hold accountable the industries responsible for these environmental violations. This study set out to analyze the role of environmental audits in the management of industrial properties, focusing on a case study of industrial properties in Nairobi. The research targeted three key industrial areas: Nairobi Industrial Area, Baba Ndogo, and the industries along Nairobi-Mombasa Road. The study's target population consisted of 487 respondents, comprising 440 property managers and 47 NEMA County directors. Using Yamane's 1967 formula, the sample size was determined to be 211 respondents. The study employed a simple random sampling method for data collection, utilizing questionnaires and interviews to gather information. Data analysis was conducted using descriptive statistics with SPSS version 24, and interpretation was guided by a theoretical framework and previous research. The study found that environmental audits significantly enhance industrial performance by improving organizational effectiveness, ensuring regulatory compliance, and boosting competitive advantage. They also raise awareness of environmental impacts, enhance corporate reputation, and provide valuable data for investors. However, challenges such as corruption, regulatory bias, and high audit costs persist. The research underscores the importance of environmental management and recommends that property

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managers strategically implement audit systems to support sustainable industrial growth and regulatory compliance.

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INTRODUCTION

Since the 18th century, industrialization has been recognized as a key strategy for addressing economic challenges. This process involves converting raw materials into finished goods through value addition, significantly contributing to a country's Gross Domestic Product (GDP) (Kiama, 1995). A critical aspect of facilitating industrialization is investment in industrial real estate, which, as noted by Dunlap (2018), requires a robust property management framework.

Effective property management not only aims to optimize income from industrial investments but also emphasizes environmental protection through adherence to environmental policies. At the core of these compliance efforts are environmental audits (Jayne, 2000). The rapid pace of industrial evolution has led to widespread calls to protect the planet from environmental degradation. In response, countries have enacted laws, treaties, and regulations to prevent and address environmental violations.

While the term auditing is widely used in the field of finance, where auditors examine financial accounts and records, similarly, an Ecological Assessment as operational strategy is adopted by organizations to evaluate and monitor environmental measures and compliance. It entails a methodical, recorded, recurring, and impartial assessment of the organization's performance, its administrative structures, and the processes formulated to safeguard the environment. The aim is to streamline management oversight of activities that could influence the environment and gauge adherence to the institution's ecological directives. (Paribas Real Estate, 2021). Without Environmental Auditing, it is difficult to know whether impacts identified at the planning stage are being effectively mitigated, and also whether there are new environmental impacts that are generated by the industrial property investment. The practice of carrying out Environmental Audits (EAs) is to assess how environmental accounting of the environmental issues within a company is integrated in the internal review processes. As a result, provides a platform to evaluate and monitor the past performance and offer solutions to present and future challenges that may limit proliferation of the company goals. (Waswa, Ouma, &Mireri, 2007).

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In Kenya, the Environmental Management and Coordination Act of 1999 marked a significant step in regulating environmental audits. This was further reinforced by the 2010 Kenyan Constitution, which established ecological issues as constitutional principles. Environmental audits and related regulations are governed by the Environmental Impact Assessment and Audit Regulations of 2003 and the Occupational Safety and Health Act of 2007. These provisions require that environmental audits be conducted by inspectors registered with the National Environmental Management Authority (NEMA). These audits are designed to monitor and evaluate environmental issues, ensuring compliance and assessing organizational processes to safeguard the environment (Waswa, et al, 2007).

According to a report by the Ministry of Environment and Mineral Resources (2011), Kenya's industries are largely concentrated in major metropolitan areas, including Nairobi, Mombasa, Kisumu, Nakuru, Thika, and Eldoret, with the highest density in Nairobi. Without effective environmental management, these industries can significantly harm the environment, which may lead to the collapse of industrial real estate investments due to non-compliance with environmental guidelines. NEMA provides the framework for ecological inspection and monitoring in industrial zones where the risk of environmental violations is high. However, no study has yet examined the application of environmental audits in industrial property management in Kenya.

Environmental audits are being applied in industrial property management in Kenya using various regulations and legal framework. This is done through compliance monitoring, risk assessment, sustainability initiatives, stakeholder engagement, continuous improvement, capacity building and reporting. Environmental audits help industrial property managers to ensure compliance with both local and environmental regulations (Olonde, 2022). Further through comprehensive evaluations, the audits help in identification of risks associated with industrial activities and this encompasses assessment of methods of waste disposal, chemical storage and patterns of energy consumptions. Proper documentation and reporting from the environmental audits is also significant for accountability as it serves as an evidence of compliance with legal environmental obligations and management of environmental responsibilities.

Problem Statement

Growing concerns about the environmental impact of industries have made environmental audits essential (Crowther & Aras, 2014). These concerns have also led to the development of management standards that organizations are expected to adhere to voluntarily. However, certification for meeting these standards is inconsistently pursued by some owners. According to a report by the National Environmental Management Authority (NEMA), the illegal discharge of toxic effluents into rivers by industries remains a significant issue, leading to the closure of companies like Synresins Company, Coating East Africa, Kamongo Waste Recycling, Modern Lithography, and Thorlite Kenya. These actions result in reputational damage, financial losses due to frequent litigation, inefficient resource use (such as energy and water), increased operational costs, and higher greenhouse gas emissions, which pose a climate change risk in real estate investments.

Property managers are therefore required to ensure that properties under their care comply with environmental quality standards and other relevant regulations. This involves embracing self-monitoring through regular environmental audits. Environmental accounting practices help property managers of industrial properties understand, evaluate, and monitor their operations against established environmental standards (Kelly, 2002). This process enables companies to identify and address issues proactively, reduce insurance premiums, improve overall property performance, and build confidence among stakeholders.

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Previous studies done on environmental audits have been done within the context of minimizing the risks of climate change and few studies have focused on environmental audits in light of the industrial property management. Therefore past studies have conceptual gaps. Additionally past studies have mainly been done within the context of advanced economies in terms of industrialization yet little have focused on emerging industrial cities like Nairobi. It is on this basis that this study focused on Environmental Audits (EAs) in industrial property management in Kenya; insights from Nairobi.

Objectives of the study

The main objective of this study is to examine the application of Environmental Audits (EAs) in industrial property management in Kenya.

Specific Objectives

- To assess the awareness, understanding, and adoption of environmental audits among property managers in Kenya's industrial sector.
- To evaluate the effectiveness of environmental audits in identifying environmental risks and ensuring regulatory compliance in industrial properties.
- To examine the challenges hindering the effective implementation of environmental audits by property managers in the industrial real estate sector.

Research Questions

- To what extent are Environmental Audits (EAs) applied in industrial property management in Kenya?
- What procedures, practices, and standards are property managers using in conducting Environmental Audits (EAs) for industrial real estate?
- How do Environmental Audits (EAs) impact the optimal operation of industrial real estate?

FOUNDATIONS OF ENVIRONMENTAL AUDITING IN INDUSTRIAL PROPERTY MANAGEMENT

This section explores the theoretical and empirical foundation of environmental audits in industrial property management.

Concept of Environmental Auditing

The concept of environmental auditing originates from financial auditing, which involves the examination and evaluation of financial statements, such as profit and loss accounts, to ensure accuracy and honesty in reporting (Yashin, et al, 2019). Kelly (2002) supports this, noting that environmental auditing closely follows the principles of financial auditing. It is an organized process used to investigate, examine, and report on the environmental implications of an activity.

In Kenya, the enactment of the Environmental Management Act of 2015 enabled organizations to undertake environmental audits, aligning with the constitutional requirement to promote sustainable development for the well-being of future generations (Waswa et al, 2007). This regulatory framework mandates that organizations remain environmentally sound, fostering effective management of limited environmental resources crucial for sustaining economic activities, particularly in the industrial sector.

The Act led to the establishment of the National Environmental Management Authority (NEMA), responsible for overseeing environmental management and upholding every Kenyan's right to a clean and safe environment. It also requires organizations to conduct ecological assessments as outlined in NEMA's June 2003 regulations for Environmental Impact Assessment and Audit, specifically Regulation 31 (Ministry of Environment and Natural Resources, 2003). Additionally, the Act introduces various regulations and guidelines to ensure environmental stewardship, covering standards for pollution, air

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and water quality, noise levels, sewerage discharge, and radiation (Okul, 2019).

Industrial Property Management

Property management encompasses the supervision, and regulation of real estate, personal property, machinery, tools, and other physical assets crucial for the construction, repair, and maintenance of deliverable products (Dunlap et al., 2018). Essentially, the role of a property administrator is to oversee the performance of these assets in a manner that meets the owner's objectives, especially for absentee owners. Property management involves various specialists, each with expertise in different areas. As an art of maintaining and improving property assets, it aims to enhance the property's utility, optimize its serviceability and functionality, maximize profits, and minimize losses (Ryan, 2017).

Ryan (2017) identifies three primary functions of a property manager: achieving the owner's objectives, generating income, and preserving or increasing the property's value. These goals are attainable only by a property manager who is skilled in multiple roles, capable of managing various types of real properties, and certified by meeting the licensing requirements of the relevant professional body. Dunlap et al. (2018) categorizes the duties of a real estate manager into four areas: physical site management, leadership of on-site and off-site workers, financial management, and oversight of leasing activities and tenant services.

In the context of industrial property management, compliance with state statutes and guidelines is crucial. Real estate managers must ensure adherence to evolving laws and regulations, as well as monitor and report financial transactions related to the property (Dunlap et al., 2018). According to Ryan (2017), property managers should be well-versed in state laws and regulations governing the properties they manage. In Kenya, these include the Constitution of Kenya 2010, the Estate Agents Act (Cap 533), and the Distress for Rent Act (Cap 293), the Rent Restriction Act (Cap 296), the Occupational Health and Safety Act 2007, and the Environmental Management and Coordination Act 1999, among others. To uphold accountability and transparency, as required by professional ethics, property managers must maintain up-to-date records on rent collection, inventories, arrears, maintenance needs, financial records, environmental audits, and more, and communicate these findings to owners and potential investors (Kiama, 1995).

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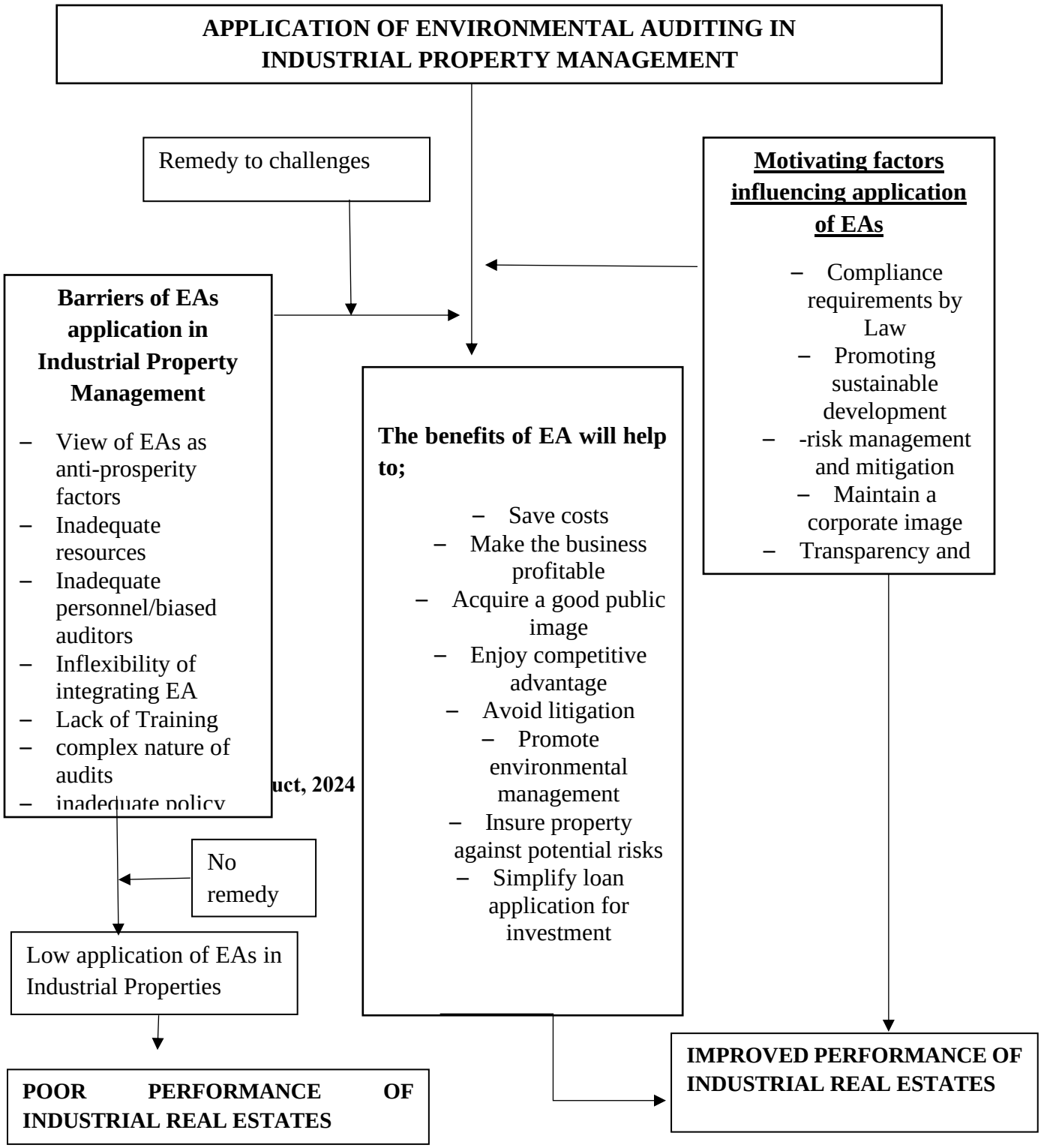
Conceptual Framework



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MATERIALS AND METHODS

Study Location

The study was conducted in Nairobi, Kenya, focusing on three major industrial areas: the Nairobi Industrial Area, Baba Ndogo, and the industries along the Nairobi-Mombasa Road. These locations were selected due to the intensity and nature of industrial activities conducted there. Approximately 4.6% of Nairobi's land is allocated for industrial, commercial, and service activities, with some industries relocating to nearby metropolitan areas such as Machakos (Athi River Export Processing Zone), Kajiado, Ruiru, and Thika.

The Nairobi River Basin, which comprises the Nairobi, Ngong, and Mathare Rivers, lies within the study area and is a significant focus of concern due to the widespread discharge of untreated industrial effluents into these rivers. This pollution has prompted the National Environmental Management Authority (NEMA) to take action against non-compliant industries. The predominant industries in these areas include chemical manufacturing, food processing, and consumer goods production, making them the largest contributors to pollution through waste generation, air emissions, and chemical use.

According to the 2019 Population and Housing Census, Nairobi County has a population of 4,397,073, comprising 2,192,452 males and 2,204,376 females living in 1,506,885 households. This high population density, coupled with the concentration of industries, results in elevated levels of environmental pollution compared to other regions in the country, with industrial pollution being a major source.

Target Population and Sample Size

The study targeted property managers and NEMA County Directors across three industrial areas in Nairobi, with a total target population of 487 respondents, consisting of 440 property managers and 47 NEMA County Directors. The selection of NEMA County Directors was based on their responsibility for overseeing environmental management in the county and ensuring compliance with environmental regulations. Property managers were included due to their role in enforcing compliance with environmental policies and implementing recommendations from environmental audits. These two groups were considered the most relevant for the study because of their direct involvement in environmental regulation compliance.

To determine a representative sample, the study employed simple random sampling, which helps minimize bias and ensures that every member of the population has an equal chance of being selected. The sample size was calculated using Yamane's 1967 formula, resulting in a sample of 211 respondents. This approach was guided by the acceptable margin of error for the study variables.

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

Where;

n is sample size;

N is population size;

e is the level of precision (confidence level, usually set at 0.05).

$$n = \frac{487}{1 + 487(0.05)^2}$$

The sample size n = 211

Data Analysis and Presentation

The study utilized a structured questionnaire divided into four sections to collect data: personal information, industrial real estate management, benefits of environmental auditing, and challenges in applying environmental audits, along with potential solutions. The questionnaire was designed based on the study's objectives, which included assessing the current level of awareness, understanding, and adoption of environmental

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audits among property managers in the industrial sector; evaluating the effectiveness of environmental audits in identifying environmental risks and ensuring compliance with regulations in industrial properties; identifying challenges that hinder the effective application of environmental audits; and recommending strategies to enhance the use of environmental audits in industrial property management.

Data collection took place from May to June 2022 in the three selected industrial areas of Nairobi, with the assistance of three research assistants. Responses were measured using a 5-point Likert scale ranging from "disagree" to "strongly agree." The collected data was analyzed using descriptive statistics, including frequency distribution, mean, standard deviation, and percentages, to derive insights and document the findings. Richmond (2006) defines data analysis as the process of transforming collected data into understandable information through coding and categorization, supporting interpretation and reporting.

Before data analysis, a pilot study was conducted to test the reliability and validity of the questionnaire. Reliability was assessed using Cronbach's alpha coefficient, with a threshold of 0.70. All the constructs in the study exceeded this threshold, indicating that the questionnaire was reliable. Validity was evaluated using content and construct validity, where the variables were reviewed to ensure they adequately addressed the research questions. Expert input, including from the research supervisor, was used to validate the content. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) version 24, and the results were presented in tables and charts.

Ethical considerations were observed throughout the research process. Participation was voluntary, and respondents were informed about the purpose, scope, and significance of the study during the consent process. The right to privacy and anonymity was respected, with respondents' names kept confidential, and assurances were given that the information collected was solely for academic purposes.

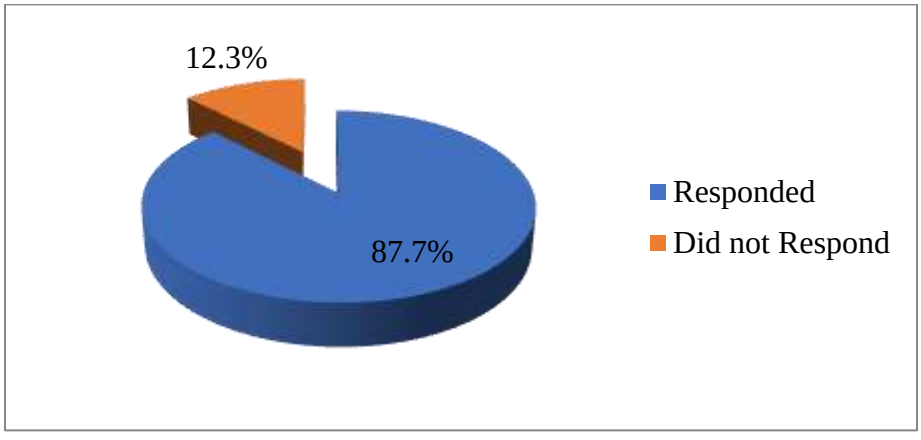
RESEARCH FINDINGS AND DISCUSSION

The fieldwork aimed to assess the Environmental Audit (EA) procedures, practices, and standards used by property managers in managing industrial real estate. It also sought to evaluate the impact of these audits on the optimal operation of industrial properties and to identify the challenges hindering the effective implementation of Environmental Audits in this sector.

Response Rate

A total of 211 questionnaires were distributed, with 185 respondents participating, resulting in a response rate of 87.7%.

Figure 1: Response Rate



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According to Mugenda & Mugenda (2003), a response rate above 50% is considered adequate for analysis, making the 87.7% response rate in this study more than sufficient for robust analysis.

Demographic Characteristics of Respondents

Participants Qualification

The distribution of the participants by their qualifications is presented on table 1.

Table1: Participants Qualifications

Qualification	Frequency	Percent
Property management	103	55.7
Architect	4	2.2
Quantity surveyor	8	4.3
Engineering	17	9.2
Other	53	28.6
Total	**185**	**100.0**

Source: Field Survey, 2024

As shown in Table 1, 55.7% of participants were property managers, 9.2% were engineers, and 4.3% were quantity surveyors. Additionally, 28.6% were professionals from other sectors, such as accounting, valuation, and project management. The majority of respondents came from the real estate and built environment sectors, ensuring that the study's findings are reliable and valid for drawing inferences. The 28.6% categorized as "others" reflects the multidisciplinary nature of real estate professionals, where individuals, like valuers, may also specialize in property management. When selecting a property manager, owners typically prioritize expertise, competence, and the ability to implement effective management strategies, leading to the involvement of diverse professionals from the built environment.

Distribution by Environmental Licensing

Findings on the licensing of property managers to undertake environmental auditing is as presented in the cross tabulation below.

Table 2: Licensing of Property Managers

Environmental Auditor * Sector Cross tabulation				
		Sector		Total
		Public	Private	
Environmental Auditor	Yes	14	7	21
	No	2	162	164
Total		16	169	185

Source: Field Survey, 2024

The table indicates that only 7 property managers, or 3.7%, are licensed by the National Environmental Management Authority (NEMA) to conduct environmental audits. This highlights a significant gap in compliance with legal requirements. To address this issue, there is a pressing need for increased training and licensing of property managers.

Findings on the Study Objectives

This section presents the findings of the study for each of the three objectives of this study.

Environmental Audits (EA) Procedures, Practices and Standards Employed in Management of Industrial Real Estate

In answering the question on environmental audits, procedures, practices and standards employed in management of real estate, the study sought to

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examine the applications and level of audit applications.

Application of Specific Types of Environmental Audits

Participants were further required to indicate the extent to which they applied the specific types of environmental audits on a scale of 1 to 4 (1-No extent, 2-Low extent, 3-Moderate Extent, 4-High Extent). The summary of findings is presented on table 1.

Table 3: Descriptive Statistics on application of Environmental Audits

Application of Environmental Audits	NE	LE	ME	HE	Mean	Std. Dev
Compliance/ Control Audit	2	6	65	112	3.55	0.616
Self or System Audit	1	16	95	73	3.30	0.645
Material Audit	6	20	80	79	3.25	0.777
Energy Audit	4	20	101	60	3.17	0.701
OSHA Audit	0	1	80	104	3.56	0.509
Waste Audit	4	19	98	64	3.20	0.706
Product Audit	15	13	42	115	3.39	0.932
Activity Audit	22	16	33	114	3.29	1.048
Management Audit	2	8	44	131	3.64	0.619
Property Transfer/Due diligence Audit	7	11	48	119	3.51	0.774
Water Audit	5	10	119	51	3.17	0.642
Engineering Audit	19	20	110	36	2.88	0.839
Associate Audit	35	24	57	69	2.86	1.117
Liability Audit	36	25	55	69	2.85	1.127

Source: Field Survey, 2024

As shown in Table 3, participants indicated a high application of management audits, occupational health and safety audits, control audits, and property transfer/due diligence audits, with mean scores of 3.64, 3.56, 3.55, and 3.51, respectively. This suggests that risk management and mitigation are key drivers for these audits. However, it is essential for property managers to also focus on other types of audits, such as water and energy audits, which can help firms reduce costs associated with power and water usage. As pointed out by Kelly (2002), the field of environmental auditing has expanded as the commitments to mitigate environmental impacts continue to increase. Waswa et al, (2007) states that environmental audits should be classified based on why, when and to whom auditing is done. Furthermore, development of environmental audits should be guided by standards applicable to environmental pollution controls, regulatory compliance, product safety, waste disposal, storage and warehousing, premises and workplace safety, capacity building, health assessments, energy and water conservation, repairs and maintenance, effluents discharge and assets design, transfer and procurement

To further assess the application level of environmental audits, the scale was divided into three levels. With 14 types of audits, the highest possible score was 56 (14x4), and the lowest was 14 (14x1). Scores between 14 and 28 indicated low application levels, scores between 29 and 42 indicated moderate application, and scores between 43 and 56 indicated high application. The findings are presented in Table 4.

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Table 4: Levels of Audit Applications

Levels of Audit Applications	Frequency	Percent	Min	Max	Mean	Std. Dev
Low level of Application	1	0.5	28	56	45.63	5.780
Moderate level of Application	47	25.4				
High level of Application	137	74.1				
Total	**185**	**100.0**				

Source: Field Survey, 2024

Table 4 reveals that the majority of participants (74.1%) reported a high level of environmental audit application, 25.4% indicated a moderate level, and only 0.5% reported a low level of application. The mean score for environmental audit application was 45.63 (SD = 5.780), suggesting that, on average, participants engaged in a high level of environmental audits, particularly in management, occupational health and safety, and property transfer audits. This high level of application is primarily motivated by the need to manage and mitigate risks in industrial properties.

Perceived Benefits of Environmental Audits

Participants were asked to rate the benefits of using environmental audits in property management on a 5-point scale (1 = Disagree, 2 = Slightly Disagree, 3 = Agree, 4 = Fairly Agree, 5 = Strongly Agree). The summary of these findings is presented in Table 5.

Table 5: Perceived Benefits of Environmental Audits

Benefits	D	SLD	A	FA	STA	Mean	Std. Dev
Enhances compliance with the environmental regulatory framework	0	0	3	1	181	4.96	0.263
Minimization of operational costs	0	0	3	1	181	4.96	0.263
Competitive advantage	0	0	12	1	172	4.86	0.498
Creates awareness of the environmental impacts	0	0	5	2	178	4.94	0.340
Improves company profile and reputation	0	0	8	1	176	4.91	0.413
Provides data to relevant lead agencies	0	0	8	1	176	4.91	0.413
Provides information during transfer of transactions	0	0	8	1	176	4.91	0.413

Source: Field Survey, 2024

Table 5 shows that participants strongly agreed that environmental audits enhance compliance with environmental regulations, minimize operational costs, and raise awareness of environmental impacts, with mean scores of 4.96, 4.96, and 4.94, respectively. The primary motivation for property managers to conduct environmental audits is to ensure compliance, which helps reduce conflicts with authorities and mitigate risks and losses associated with non-compliance. Additionally, increased awareness through these audits benefits industries by boosting investor confidence and improving performance against ethical and business standards. The findings are congruent with past studies. Kelly (2002) found that environmental audits help in enhancing compliance with environmental regulations, minimize operation costs, improves an organization's profile and also create awareness of the environmental impacts among property managers.

Impacts of Environmental Audits (EA) on the Optimal Operation of the Industrial Real Estate

The second objective aimed to evaluate the impact of environmental audits on the optimal operation of industrial real estate. To address this, participants were asked to indicate their level of agreement with statements related to the operation of industrial real

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estate using a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree). The summary of the descriptive findings is presented in Table 6.

Table 6: Descriptive Statistics on Operation of Industrial Real Estate

Operations	SD	D	N	A	SA	Mean	Std. Dev
Industrial property is located in an area permitted or zoned to entail industrial use	5	2	6	19	153	4.69	0.819
Industrial property management follows a predetermined management system.	0	2	1	10	172	4.90	0.405
An industrial property manager must be attentive enough to ensure physical, functional and economic performance of the property	0	2	1	10	172	4.98	0.146
The size of an industrial estate influences the management plan and methods to be employed that the property manager has to consider in either a large or a small industrial estate	0	0	0	4	181	4.93	0.404
Property manager should ensure that an industrial estate maintains compliance to state regulatory requirements	0	0	0	1	184	4.99	0.074

Source: Field Survey, 2024

Table 6 reveals that participants strongly agreed that property managers should ensure industrial properties comply with state regulatory requirements, with a mean score of 4.99. Additionally, they agreed that an industrial property manager must be vigilant in maintaining the physical, functional, and economic performance of the property, as indicated by a mean score of 4.98. The participants also agreed that the size of an industrial estate significantly influences the management plans and methods employed, with a mean score of 4.93, highlighting the need for property managers to tailor their approaches based on the property's size. As pointed out by Yashin et al, (2019) environmental audits involve a systematic assessment and its impact is manifested in improved compliance to environmental standards and regulations. Kelly (2002) found that environmental audits influence good practice, promote worker well-being and security, as well as identify potential areas of improvements to avoid litigation, closure of premises among other penalties.

Challenges Hampering the Effective Application of Environmental Audits (EA) by Property Managers in Industrial Real Estate

Objective three sought to examine the challenges hindering the effective application of environmental audits by property managers in industrial real estate. To identify these challenges, participants were asked to rate various statements on a scale of 1 to 5 (Disagree-1, Slightly Disagree-2, Agree-3, Fairly Agree-4, Strongly Agree-5). The summary of the descriptive findings is presented in Table 7.

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Table 7: Challenges Hampering Applications of Environmental Audits

Challenges	D	SLD	A	FA	STA	Mean	Std. Dev
Resistance by corporates to voluntary disclose environmental aspects	44	11	64	18	48	3.08	1.467
Unclear understanding of roles in environmental auditing	15	14	103	16	37	3.25	1.110
Site complexity	30	21	76	16	42	3.10	1.325
High costs of environmental audit/ limited resources	6	4	36	49	90	4.15	1.021
Limited resources- experienced auditors	42	18	46	34	45	3.12	1.470
The Increased Demand and Complex Subject Matter	4	1	76	50	54	3.81	0.941
Complexity of Integrating Auditing in Management Tools	9	5	55	45	71	3.89	1.105
Deficiencies and lack of Consistency in the Audits	5	0	48	48	84	4.11	0.974
Difficulties in finding a reliable consultant in environmental related topics are also a challenge affecting environmental auditing	5	1	51	56	72	4.02	0.974
Existence of information gap in previous environmental audits with poorly kept data poses a limitation to subsequent audits where one can track changes over time	0	6	55	41	83	4.09	0.934
Biases of the government towards multinational corporate in the sector thus failing to enforce laws. This affects the managing authorities to fully undertake its mandate	0	2	38	42	103	4.33	0.837
Corruption by auditors and other relevant stakeholders in the field. This leads to not charging the non-compliant firms or having them pay very low fines	1	3	35	50	96	4.28	0.864
Conflict of interests	1	0	38	50	96	4.30	0.830

Source: Field Survey, 2024

Table 7 shows that participants fairly agreed that the challenges hampering the application of environmental audits included biases of the government towards multinational corporations in the sector, resulting in the failure to enforce laws (mean score of 4.33), conflicts of interest (mean score of 4.30), corruption among auditors and other relevant stakeholders (mean score of 4.28), and the high costs of environmental audits (mean score of 4.15). These challenges clearly explain the low implementation of environmental auditing in the country. Consequently, there are increased cases of environmental impacts due to industrial activities, such as the illegal discharge of poisonous effluents, increased dumping of solid wastes, poor working conditions, and generally low processing system efficiency. This is why the National Environment Management Authority (NEMA) is forced to close down non-compliant industries.

Previous studies have found that environmental audits in industrial property management have several challenges. According to Stanwick & Stanwick, (2001) the structure and the different types of audits presents several challenges associated with the formulation of auditing policy guidelines by the regulators, as well as the

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organizations' management in developing appropriate strategies to implement in their industries. As such there are two primary challenges that is difficulty in integration of environmental audits, its standards and extent in the management of the industrial estates and secondly the aftermath of the self-audits which creates tension between interested parties for example could present areas liable to prosecution and maintaining accountability when clarion calls on sustainability are made.

To further address the objective, the researcher sought to identify remedies for enhancing the application of environmental audits in industrial property management. Participants were asked to rate their level of agreement on the proposed remedies on a scale of 1 to 5 (Disagree-1, Slightly Disagree-2, Agree-3, Fairly Agree-4, Strongly Agree-5). The summary of the descriptive findings is presented in Table 8.

Table 8: Remedies for Enhancing Application of Environmental Audits

Remedies	D	SLD	A	FA	STA	Mean	Std. Dev
All the stakeholders need to clearly understand the process and how it contributes to environmental management	0	0	6	1	178	4.93	0.362
The regulator should also consider offering incentives to industrial enterprises who voluntarily carry out self- audits	0	0	6	4	175	4.91	0.380
Awareness creation and capacity building of all relevant stakeholders	0	0	6	1	178	4.93	0.362
Property managers should understand how important and relevant environmental auditing to their career is	0	0	1	1	183	4.98	0.164
Owners and property managers of industrial enterprises should cease perceiving environmental audits as meaningless expense and a limiting factor to development	0	0	4	0	181	4.96	0.292
Property manager should form part of the team of professionals to work in collaboration with the regulators and other lead agencies	2	0	3	6	174	4.89	0.510

Source: Field Survey, 2024

As shown in Table 8, participants strongly agreed that property managers should understand the importance and relevance of environmental auditing to their careers, with a mean score of 4.98. They also strongly agreed that owners and property managers of industrial enterprises should cease perceiving environmental audits as a meaningless expense or a limiting factor to development, as reflected by a mean score of 4.96. Additionally, all stakeholders need to clearly understand the process and how it contributes to environmental management, with a mean score of 4.93. By doing so, property managers can develop environmental management strategies and systems that clearly define all environmental responsibilities and impacts of their properties, develop an environmental policy outlining the roles and responsibilities of actors, ensure the consideration of environmental issues during decision-making processes, offer sound management of all risks and liabilities, and establish mechanisms for monitoring and evaluation.

Previous studies also identified similar remedies for enhancing the application of environmental audits. For instance, Xiao (2013) proposed that regulator must also consider offering incentives to industrial enterprises who voluntarily carry out self- audits for

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example they should roll out non-prosecution agreements. Waswa et al, (2007) found that industrial property managers should emphasize on monitoring and auditing of their properties thus allocate essential resources to successfully implement it.

CONCLUSION

In conclusion, the study emphasizes the crucial role of environmental audits in the management of industrial properties within Nairobi County. The findings reveal that the implementation of these audits not only enhances compliance with environmental regulations but also contributes significantly to the operational efficiency and sustainability of industrial properties. Property managers have increasingly applied environmental audits, including risk mitigation, cost reduction, and the improvement of corporate reputation. The findings reveal that the majority of participants (74.1%) reported a high level of environmental audit application, 25.4% indicated a moderate level, and only 0.5% reported a low level of application. The mean score for environmental audit application was 45.63 (SD = 5.780), suggesting that, on average, participants engaged in a high level of environmental audits, particularly in management, occupational health and safety, and property transfer audits. This high level of application is primarily motivated by the need to manage and mitigate risks in industrial properties. These findings align with historical trends dating back to the 1960s and 1970s, when environmental audits began to play a pivotal role in improving compliance and operational efficiency. However, the study also highlights challenges such as corruption, regulatory bias, and the high costs associated with conducting audits, which hinder their effective implementation. Additional challenges such as inadequate training and licensing of auditors, complex audit sites, and resistance to transparency, inconsistent audit practices, and information gaps also contribute to low implementation rates.

To support the ongoing upward trend in industrial performance and ensure the quality of environmental audits, the study recommends that property managers adopt a proactive approach by integrating environmental management practices into their overall property management strategies. This includes ongoing training and capacity building to ensure that property managers are equipped with the necessary skills to conduct comprehensive audits. Additionally, there is a need for regulatory bodies like NEMA to enforce stricter compliance measures and provide support to property managers in overcoming the barriers to effective audit implementation.

Ultimately, for industrial properties in Nairobi and beyond to achieve sustainable growth, environmental audits must be viewed not merely as a regulatory requirement but as a strategic tool for enhancing the long-term value and performance of industrial real estate. By fostering a culture of environmental stewardship, industrial property managers can contribute to climate change mitigation, biodiversity conservation, pollution reduction, waste management and recycling while ensuring the continued viability and profitability of their properties.

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