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Green Procurement Practices and Supply Chain Performance in County Government of Uasin Gishu in Kenya

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ABSTRACT

Green procurement has become a vital strategy for organizations seeking to improve sustainability and minimize environmental impact. The main objective of the study was to examine the effect of green procurement practices on the supply chain performance in the Uasin Gishu county government. Specifically, the study aimed to identify the implementation of green procurement practices in Uasin Gishu County government, to establish the impact of green procurement practices on supply chain performance in Uasin Gishu County government and to establish the challenges facing the implementation of the green procurement practices in Uasin Gishu County government. The study was guided by institutional theory, resource dependency theory and transaction cost economic theory. The green procurement practices were operationalized using product and material sustainability, energy and resource efficiency, supplier engagement and waste reduction and supply chain performance was measured using efficiency, inventory turnover and effectiveness. The study used a case study research design, targeting 24 employees working in the procurement and supply chain management in the 12 departments at the Uasin Gishu county government. The study employed primary data with the use of an interview guide. The study used content analysis as the method to analyze data. With 75% response rate, it was established that The Uasin Gishu county government have implemented product and material sustainability, energy and resource efficiency, supplier engagement, and waste reduction. It was revealed that the adoption of these practices significantly enhances overall supply chain efficiency, moderately increases inventory turnover rates, and improves operational effectiveness. The study recommended that Uasin Gishu County government should integrate sustainable procurement policies into their procurement framework. Policy makers and regulatory bodies to develop and enforce policies that support green procurement at a broader level.

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1. INTRODUCTION

Green procurement practices (GPPs) have emerged as a transformative approach in modern business, promoting environmentally conscious procurement strategies that align with supply chain performance to yield multifaceted benefits (Khan, Yu, & Farooq, 2023). Enterprises and institutions are increasingly adopting green procurement to enhance ecological sustainability and reduce their carbon footprint (Ghiani, Lagana, & Murgia, 2018). Ethical consumerism is rising, and firms that integrate green procurement gain competitive advantages by improving brand reputation and appealing to eco-conscious consumers (Etse, McMurray, & Muenjohn, 2023). Green procurement practices involve adopting strategies that enhance environmental sustainability throughout the procurement cycle (Etse, McMurray, & Muenjohn, 2023). These practices include sourcing eco-friendly products, reducing waste, and promoting energy efficiency (AlBrakat, Al-Hawary, & Muflih, 2023; Bai, Xue, Zhang, & Yang, 2019). Organizations are increasingly focusing on green procurement as a means to achieve sustainability and financial efficiency, as energy-efficient products can reduce operational costs (Kim, Kim, & Kim, 2020). Government policies, such as guidelines established by the Environmental Protection Agency (EPA, 2019), play a crucial role in shaping green procurement initiatives.

The implementation of green procurement also involves assessing suppliers based on their environmental performance and embedding environmental criteria into procurement decisions (Khan, Yu, Umar, & Tanveer, 2022). Common practices include using eco-labels to identify sustainable products and engaging suppliers to reduce waste and emissions (Sahay, Raut, & Yilmaz, 2018; Choi, Seo, & Yu, 2020). This study will focus on four key aspects of green procurement: product and material sustainability, supplier engagement, energy and resource efficiency, and waste reduction. Supply chain performance (SCP) evaluates how effectively a supply chain meets customer demands while balancing efficiency and cost-effectiveness (Lambert, Cooper, & Pagh, 2020). SCP is assessed using key performance indicators such as cost, responsiveness, flexibility, and efficiency (Li, Olornniwo, & Xu, 2019). Organizations must evaluate their supply chain performance to identify improvement areas and maintain a competitive edge (Flynn, Huo, & Zhao, 2010). Innovations such as blockchain, artificial intelligence, and lean practices have been identified as effective strategies for enhancing supply chain performance (Chen & Chen, 2021). Lambert, Cooper, and Pagh (2020) outline four dimensions for measuring SCP: cost, agility, adaptability, and efficiency. This study will assess SCP based on cost, efficiency, and responsiveness.

Uasin Gishu County spans approximately 3,345 square kilometers and is primarily an agricultural economy (GoK, 2023). The county government is working toward becoming an ICT, tourism, and manufacturing hub (Kibiego, Lagat, & Bebe, 2015). Procurement processes in the county adhere to the Public Procurement and Asset Disposal Act of 2015, emphasizing transparency and accountability. However, challenges such as corruption, inadequate procurement capacity, budget constraints, and limited supplier diversity persist (Musau, 2015). To address these issues, the county government is adopting green procurement practices aimed at fostering sustainability. Initiatives include encouraging suppliers to use eco-friendly materials, integrating environmental criteria in procurement,

and promoting waste reduction through recyclable products (Chepkoech, Chenuos, & Kosgei, 2015). These efforts underscore Uasin Gishu County's commitment to sustainable procurement practices and environmental conservation.

Statement of the Problem

Green procurement practices are the epicenter of supply chain performance. Conceptually, Green procurement practices (GPPs) have garnered heightened attention in recent times as a pivotal approach for attaining sustainable objectives within the supply chain (Zekhnini, Cherrafi, Bouhaddou, Chaouni & Bag, 2022). The implementation of green procurement practices has significantly influenced the social, environmental, and economic aspects of supply chain performance (Wong, Lai, Cheng & Lun, 2018). Moreover, the implementation of these practices is linked to cost reduction, heightened competitiveness, and enhanced efficiency within the supply chain (Gopalakrishnan, Ho & Soundararajan, 2017).

The study conducted by Chepkoech, Chenuos, and Kosgei in 2015 investigates the relationship between Green Procurement strategies and Financial Performance in Small and Medium Enterprises (SMEs) located in Uasin Gishu County, Kenya. This research is particularly relevant as it aligns with the procurement guidelines established under the Public Procurement and Asset Disposal Act of 2015 in Uasin Gishu County. In Uasin Gishu County, the procurement department plays a crucial role in ensuring that the procurement process adheres to principles of openness, fairness, and transparency. Moreover, it emphasizes eco-friendly and socially responsible procurement practices, reflecting a commitment to sustainability. Despite these efforts, several challenges hinder the county government from fully reaping the benefits of green procurement strategies. These challenges include insufficient procurement capacity, limited budgetary allocation, a lack of supplier diversity, and inadequate communication. Addressing these issues is essential to maximize the positive impacts of green procurement practices, particularly within the supply chain function.

Numerous studies have investigated how green procurement practices affect the efficiency of supply chains. For instance, Wong and colleagues (2018) analyzed how adopting environmentally responsible procurement methods impacts the sustainability of supply chains in the food industry. The investigation revealed that the adoption of these practices results in heightened ecological performance and an enhanced sense of social responsibility within the food supply chain. The research further highlighted that such practices can also yield cost reductions and amplified industry competitiveness. Drawing from the aforementioned study, it is crucial to recognize the disparities in operational dynamics between the food industry and the context of Uasin Gishu County.

On a global scale, Zhu et al. (2018) examined how green procurement practices affect supplier innovation and performance. The research revealed a strong and positive link between these sustainable procurement practices and improvements in supplier innovation and performance. In light of the aforementioned research, it unveils a conceptual void in relation to the present study, which concentrates on supply chain performance while the cited study centered on supplier innovation and performance. Similarly, Gopalakrishnan et al. (2017) undertook an examination into the interplay between green procurement

practices and SCP within the Indian automotive industry. The inquiry revealed that green procurement practices wield a constructive impact on supplier performance. However, this study gives rise to a contextual gap, as it was expedited in the context of the automotive industry, whose operational dynamics diverge from those of the Uasin Gishu County Government.

Locally, Nasiche and Ngugi (2014) expedited an investigation assessing the impact of green procurement practices on operational sustainability within the Kenya Pipeline Company. Their research revealed a noteworthy and affirmative correlation between GPPs and sustainability. This study introduces both conceptual and contextual gaps, given its emphasis on operational sustainability, whereas the present study centers on supply chain performance. Moreover, the contextual gap arises from the study's concentration on the Kenya Pipeline Company, while the current investigation focuses on the Uasin Gishu County government. Mugabe (2013) investigated how green supply chain practices influence supply chain performance in Kenya's pharmaceutical industry. The outcomes underscored the extensive integration of GSCPs by pharmaceutical firms, alongside a strong and noteworthy correlation between these practices and enhanced SCP. Consequently, this prompts inquiry into whether a comparable association prevails within the Uasin Gishu County government's context, thereby underscoring the imperative for the ongoing investigation.

In the midst of an expanding literature investigating the interaction between green procurement practices and supply chain performance, it has become evident that conceptual, contextual, and methodological gaps persist due to different concepts, context and methods respectively. These gaps beckon for deeper exploration to enrich the understanding of the intricate interplay between GPPs and supply chain performance, especially in the realm of governmental functions. Consequently, this study is positioned to offer a substantial contribution to the prevailing knowledge landscape by illuminating the intricacies surrounding green procurement practices and their repercussions on the performance of supply chain management. This endeavor is undertaken through the pursuit of specific research questions, aimed at not only addressing these gaps but also fostering a more comprehensive understanding of the subject matter on: what is the role of green procurement practices on the supply chain performance in the Uasin Gishu County government?

Objectives of the Study

The study was guided by the general as well as specific objectives;

General Objective

To determine the effect of green procurement practices on the supply chain performance in the Uasin Gishu County government, Kenya.

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Specific Objectives

i. To identify the implementation of green procurement practices in Uasin Gishu County government
ii. To establish the impact of green procurement practices on supply chain performance in Uasin Gishu County government
iii. To establish the challenges facing the implementation of the green procurement practices in Uasin Gishu County government

2. LITERATURE REVIEW

Theoretical Review

The research was anchored towards institutional theory (DiMaggio & Powell, 1983) and resource dependency theory (Pfeffer & Salancik, 1978).

Institutional Theory

The origins of this theory can be attributed to Lazarsfeld and Morgenstern (1963), and its essence lies in showcasing that organizational structures devised by businesses dictate their day-to-day operations, encompassing procurement endeavors. DiMaggio & Powell (1983) further elaborated on this notion, illustrating how shifts in societal norms and technological advancements can influence decisions regarding the integration of green procurement initiatives. Market dynamics and societal pressures can drive firms to embrace green procurement practices, driven by the imperative to preserve the environment for the well-being of future generations (Farrukh, Mathranin & Sajjad, 2022). This theory acts as a lens under which the alignment between organizational structures and the adoption of environmentally conscious practices is explored.

Critics of this theory contend that its deterministic approach oversimplifies organizational behavior by attributing actions solely to structural designs, neglecting individual agency and strategic considerations. This theory argues that firms are designed with the sole aim of attaining social preferences and expectations (Kipkorir & Wanyoike, 2015). The theory's static nature fails to accommodate organizational adaptability to dynamic environments, disregarding the influence of leadership, culture, and human interactions. Additionally, the theory's applicability across diverse industries, cultures, and contexts might be limited, as it overlooks industry-specific nuances and external factors. Despite its insights, critics argue that the theory's limitations call for a more comprehensive understanding of organizational decision-making processes. The internal operations of enterprises are conducted in environments with limited visibility to outside parties and thus adoption of relevant structures can make it hard for outside parties to scrutinize internal activities in the firm (Zhang, Zhang, Wang & Ma, 2020).

The relevance of the institutional hypothesis in green procurement practices and supply chain performance is clear, as it highlights how organizations adapt to external influences, regulations, and societal demands concerning sustainability. The theory emphasizes that organizations adhere to prevailing norms and values. In the realm of green procurement, this suggests that companies might implement eco-friendly strategies to meet both societal

expectations and regulatory requirements (Silva and Nunes, 2022). This concept is supported by Ayimba and Awuor (2020) and Kauppi (2013), who emphasize that institutions encompass structures of governance, where legitimacy is bestowed upon entities and groups that adhere to established rules, while inertia stands as a notable trait among institutions.

Resource Dependency Theory

This hypothesis conceptualized systematically by Pfeffer and Salancik (1978), centers on the dynamics of organizational relationships as a pivotal strategy for securing necessary resources, while simultaneously enhancing control and influence over resource supply. This theory provides insights into how enterprises' behaviors and decisions are shaped by the external resources they rely upon (Drees & Heugens, 2013). Hypothesis proposes that organizations strategically adjust and engage with their external surroundings to secure the necessary resources vital for their continued existence (Wang, Guo & Zeng, 2021). In this regard, resource dependence theory underscores the reciprocal nature of organizational-resource interactions, wherein organizations actively seek to mitigate vulnerabilities by establishing symbiotic relationships that ensure resource availability, thereby influencing their overall functioning and performance.

Critics of the resource dependence theory have voiced concerns regarding its deterministic perspective and the potential oversimplification it brings to organizational decision-making, primarily by fixating on the pursuit of resources. Amjad, Abbes, Hussain, Khan, and Sadiq (2022) highlight that the theory may overlook the intricate interplay of internal elements, including leadership, culture, and innovation, which also significantly imp act organizational behavior. Furthermore, Kim and Fortado (2021) argue that the theory's strong emphasis on tangible resources could fail to recognize the increasing significance of intangible assets like knowledge and expertise within contemporary organizations. Moreover, critics emphasize that the theory might not fully address the evolving landscape of present-day enterprises, particularly in the digital era where intricate networks and partnerships play a central role in shaping resource interactions.

This hypothesis was applicable and suitable to the green procurement and supply chain performance due to its crucial framework heightening apprehension on how organizations, including entities like Uasin Gishu County, navigate their external environment to secure necessary resources. In the realm of GPPs and SCP, the theory clarifies how resource dependencies shape decisions. Consequently, recognizing the need for strategic resource management, it explains why the county and similar entities adopt eco-conscious procurement. Understanding these influences can inform policy, allocation, and collaborations for sustainable supply chains. This theory's value lies in shedding light on complex resource dynamics, aiding informed decision-making in procurement for the county government.

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Conceptual Framework

The conceptual framework of the study is shown in Figure 1

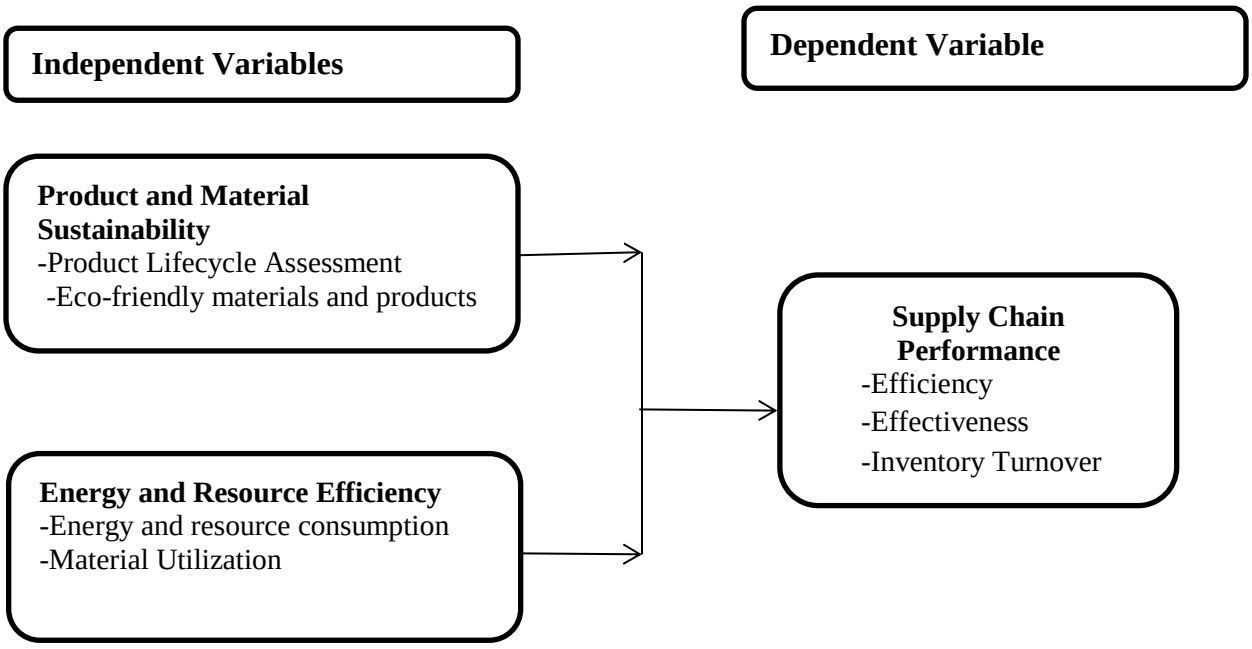

Figure 1: Conceptual Framework

Empirical Literature Review

In Thailand, an investigation into the green supply chain and firm performance was expedited by Candrasa, Cen, Cahyadi, Cahyadi, and Pratama (2020), with a specific focus on pharmacies. The study encompassed various facets of green procurement, including green purchasing, manufacturing, packaging, and distribution. Primary data was gathered from 429 participants and subjected to analysis using SEM. The findings from the analyzed data revealed noteworthy outcomes: direct and substantial associations existed between green purchasing, manufacturing, packaging, and distribution, and firm performance.

In a study focused on manufacturing firms in Portugal, Pinto (2020) explored how green supply chain practices influence corporate performance. The research used semi-structured interviews with 22 participants and employed content analysis to interpret the data. The results revealed that adopting green supply chain practices helps organizations enhance their performance and gain a competitive edge. Furthermore, the study emphasized that both external and internal green supply chain practices play a crucial role in improving the environmental performance of businesses.

In a study conducted by Yildiz, Çankaya, and Sezen (2019) in Turkey, the researchers examined how green supply chain management practices affect performance with an emphasis on sustainability. Their investigation covered various elements of green supply chain management, including environmentally friendly purchasing, production, distribution, packaging, and marketing. The evaluation of performance was conducted

through economic, social, and environmental lenses. Hypotheses were developed, empirically tested, and the analysis revealed that all dimensions of green procurement had a noteworthy and favorable influence on sustainability performance.

Locally in Kenya, Obiso, Maendo, Musau and Waribu (2023) focused on private gas and oil firms and determined how green procurement influence performance. Resource based view provided anchorage to the study and philosophy adopted was positivist. The design was descriptive and information in its primary form was obtained through questionnaire. Upon reviewing the processed data, a clear pattern emerged pinpointing that green procurement is directly and substantially influence on the financial performance of the firm.

In the pursuit of understanding the ramifications of green procurement practices on performance, particularly in parastatals, Mutangili (2019) embarked on an investigation. Employing a systematic literature review as a guiding framework, the study unearthed a noteworthy revelation: the execution of green procurement practices contributes positively to the overall performance of enterprises. Within this realm, specific key practices were pinpointed, including but not limited to reverse logistics, green distribution, purchasing, and marketing, all of which demonstrated a direct capacity to elevate performance standards.

In their study, Gachau and Moronge (2018) embarked on investigating the interplay between green procurement practices and SCP within humanitarian entities. Employing a survey design, the researchers targeted 70 participants and collected data through questionnaires. Following data processing, a clear connection emerged: green procurement practices exhibited a robust and direct correlation with supply chain performance. This relationship was underscored by a substantial R value of 0.821, indicating a notably strong linkage.

Kiswili and Ismail (2016) undertook an exploration into the impact of sustainable procurement practices on SCP, concentrating on manufacturing entities. Their study centered on the East African Portland cement company, utilizing its staff as participants and collecting primary information through questionnaires. Upon analyzing the gathered data, the study findings underscored a substantial and noteworthy connection between sustainable procurement practices and supply chain performance within the context of the company.

Challenges in the Implementation of Green Procurement Practices

Several challenges affecting adoption of GPPs have been identified in different contexts. In Nigeria, Oyewobi and Jimoh (2022) noted such challenges to include poor fiscal incentives and attitudes, financial restriction, inadequate knowledge and leadership as well as regulatory constrain. In Kenya, Musila (2021) identified affecting implementation of green procurement practices as limited support from senior managers, low ICT infrastructures and limited training. Evidence from Malaysia by Alqadami, Zawawi, Rahmawat and Alaloul (2020) indicated that high upfront expenses linked with eco-production of goods and services and limited legislation.

Other evidence in Malaysia by Rais, Bidin, Bohari and Saferi (2018) identified included limited knowledge on green policy, low availability of suppliers with green products as

well as limited collaboration with suppliers to advocate for eco-design. In Kenya, Gatari and Were (2014) inability to identify supply chain opportunities, inability to strike a balance between long term procurement and short costs to be incurred and the difficulties in complying with sustainable procurement standards. Qiao and Wang (2011) established these challenges to include limited knowledge and high costs involved in implementation of green procurement

3. RESEARCH METHODOLOGY

Research Design

A research design serves as a systematic plan that integrates various research methods and techniques, guiding a researcher in conducting an evaluation. In the words of Choi, Liu, Mari and Garber (2023), it embodies the arrangement and blueprint of investigations designed to address research questions and control variables. This design outlines the methodology and approach utilized by the researcher for data collection and analysis, thereby lending support to the study's objectives. The research utilized a case study aimed at achieving the stated objectives. The rationale for this choice stems from the research's emphasis on the organizational context of Uasin Gishu. As highlighted by Işıkoğlu, Erol, Atan and Aytekin (2023), a case study involves a comprehensive scrutiny of a single entity, aiming to reveal broader class attributes of a comparable phenomenon. By employing the case study research design, examination endeavors to uncover and elucidate the strategies pivotal to organizational management.

Target Population

The study was intentionally crafted to focus on a group of 24 employees within the organization, specifically concentrating on those working in the procurement and supply chain departments. The sampling approach involved selecting 2 individuals from each of the 12 subsections under these departments. This meticulous selection process aimed to capture a diverse range of perspectives and areas of expertise, providing a comprehensive understanding of the organization's Green Public Procurement (GPP) practices. By involving representatives from various subsections, the research endeavored to gather insights that reflect the nuanced dynamics within the organization's procurement and supply chain functions.

Sample Size and Sampling Technique

Kothari (2008) define a sample size as part of the target population that has been procedural selected to represent it. The researcher obtained 136 employees sample size using Yamane formulae (1967). Sampling involves the systematic selection of representative elements from a larger population. The sampling procedure entails choosing a subset of the population for research purposes, allowing the findings to be extrapolated to the entire population. This study employed both random and purposive sampling techniques. Random sampling was utilized to select contractors and key contractor staff members. Random sampling operates on the principle that individuals, locations, or items are selected in an unbiased manner (Kombo & Tromp, 2006).

Data Collection Instruments

The study was based on original data collected from the senior management team at Uasin Gishu County. The interview guide was used to serve as the guiding roadmap for the study, playing a crucial role in facilitating a comprehensive and in-depth collection of information. Specifically, the study recognizes that officers within the top management team possess substantial insights into the domain of Green Public Procurement (GPPs). These participants bear significant responsibility for crafting, creating, or developing, as well as the evaluation and execution of corrective measures in cases of deviations from sustainability goals. Consequently, the study will direct its primary focus toward these key personnel due to their pivotal roles in shaping and influencing organizational strategic matters. To gain valuable insights from these important individuals and departments, the researcher used an interview guide with open-ended questions aimed at capturing qualitative data. This interview guide was carefully designed to explore different facets of green procurement practices (GPPs), addressing both the difficulties and advantages encountered by the organization. By employing this guide, the researcher was able to systematically gather and analyze qualitative data, offering a thorough and detailed insight into the organization's efforts in green procurement and the viewpoints of senior management.

Data Analysis and Presentation

The qualitative data gathered was analyzed using content analysis and presented in a narrative style. Content analysis is a systematic method utilized in research to thoroughly investigate and interpret the material conveyed through various communication channels, such as text, speech, images, and multimedia. This method involves identifying patterns, themes, and trends within the data by applying predefined categories or developing new ones based on emerging themes (Fazeli, Sabetti & Ferrari, 2023). The primary objective during content analysis was to explore significant themes emerging from the respondents' shared information.

4. DATA ANALYSIS AND PRESENTATION

Presentation and Discussion

Implementation of Green Procurement Practices.

Product and Material Sustainability

Respondents were asked to describe the process in which Uasin Gishu County government uses to assess the lifecycle impacts of products before procurement and how do these assessments influence your purchasing decisions. From the findings, it was established that Uasin Gishu County government employs a comprehensive process to assess the lifecycle impacts of products before procurement, ensuring that sustainability is integral to their purchasing decisions. As most of the respondents established that "*The procurement process begins with the identification and evaluation of potential suppliers who are required to provide detailed environmental impact assessments for their products*". It was established that these assessments consider factors such as resource extraction,

manufacturing processes, transportation, usage, and disposal. By examining the entire lifecycle of a product, the county aims to identify any negative environmental impacts and choose products that minimize harm.

The respondents agreed that products with lower environmental impacts across their lifecycle stages are mostly preferred, even if they come at a slightly higher initial cost. It was established that this prioritization is based on the long-term benefits, such as reduced waste management costs, lower energy consumption, and lesser environmental degradation. Additionally, products that demonstrate innovative sustainable practices, such as recyclable packaging or energy-efficient operation, are highly favored, as it was established that this approach ensured that the county's procurement practices align with broader environmental and sustainability goals. It was established that through the rigorous procurement assessment process, Uasin Gishu County has been able to implement green procurement practices effectively. By setting strict criteria for lifecycle impacts, the county ensures that only environmentally friendly products are considered for purchase. This not only promotes sustainability but also encourages suppliers to adopt greener practices to meet the county's standards. As a result, the county's supply chain performance is enhanced, reflecting a commitment to reducing environmental footprints and fostering a culture of sustainability in procurement processes.

The researcher sought to determine the criteria in which Uasin Gishu County government use to determine whether a product or material is eco-friendly, they have been prioritized in recent procurement decisions. The findings revealed that Uasin Gishu County government prioritizes sustainability by evaluating several key factors: the environmental impact of the production process, the lifecycle of the product, its recyclability, and the presence of eco-certifications. As it was stated by one of the respondent that "*The county government of Uasin Gishu looks for products that minimize resource use, reduce greenhouse gas emissions, and have a lesser overall ecological footprint*". The findings also revealed that the county government have also employed specific benchmarks such as the use of renewable resources, minimal packaging, and non-toxic materials. Products are often required to meet certain standards, such as being biodegradable or made from recycled content. Additionally, it was established that the procurement processes give preference to suppliers who demonstrate sustainable practices in their operations, ensuring that the commitment to green procurement extends beyond just the products themselves but also to the practices of the businesses that provide them.

The findings revealed that in recent procurement decisions, Uasin Gishu County has prioritized several eco-friendly materials and products. For instance, the county has shifted to using electronic storage for official documentation rather than using papers. In the construction sector, it was established that the county has started to favor materials like bamboo and recycled steel, which have lower environmental impacts compared to traditional materials. Moreover, the study finding found a notable emphasis on procuring energy-efficient appliances and solar-powered equipment for public buildings, which aligns with the county's broader goals of reducing energy consumption and promoting renewable energy use. As it was stated by one of the respondent that "*The energy efficient choices are part of a broader strategy to enhance the sustainability of the county's supply*

chain and improve overall supply chain performance". The study established that by integrating eco-friendly criteria into procurement decisions, Uasin Gishu County not only reduces its environmental footprint but also sets a precedent for other regions. This proactive approach ensures that the county's procurement practices support long-term environmental health, economic efficiency, and social responsibility, ultimately contributing to a more sustainable future.

The researcher sought to find out challenges the Uasin Gishu county government faces in ensuring that procured materials and products meet sustainability standards. The findings revealed that one of the primary challenge encountered, is the difficulty in establishing and verifying sustainability standards for procured materials and products. Given the diverse range of suppliers and the variability in their adherence to green procurement guidelines, ensuring that all materials meet the requisite sustainability criteria becomes a complex task. This complexity is compounded by the often-limited transparency in suppliers' operations, making it challenging to accurately assess their environmental impact and sustainability practices.

Another significant challenge as established by the respondents lies in the lack of standardized sustainability metrics and certifications. As it was stated by majority of the respondents that, while there are various eco-labels and certifications available, they often differ in their criteria and rigor, leading to inconsistencies in what is considered sustainable. As one of the respondent stated that, "*This lack of standardization can result in confusion and misinterpretation, making it difficult for procurement officials to make informed decisions"*. It was also established that, smaller suppliers, who might not have the resources to obtain multiple certifications, could be inadvertently excluded from the procurement process, potentially limiting the diversity and competitiveness of the supply chain.

Lastly, it was established that the challenge of balancing cost with sustainability cannot be overlooked. Green procurement often involves higher initial costs due to the premium prices of eco-friendly materials and products. As it was stated by the majority of the respondents, that in a budget-constrained environment like Uasin Gishu County government, justifying these additional expenses can be problematic. It was confined that there is a need to convincingly demonstrate the long-term cost benefits and performance advantages of sustainable procurement to stakeholders who might prioritize immediate cost savings over environmental considerations, and this would require comprehensive data collection and analysis to build a robust business case for green procurement practices, which can be resource-intensive and time-consuming.

Energy and Resource Efficiency

The study sought to find out the strategies currently employed by Uasin Gishu County government to monitor and reduce energy and resource consumption within procurement processes and how effective do these strategies are in promoting green procurement initiatives. It was found that a key approach involves enforcing rigorous procurement policies that focus on obtaining energy-efficient and eco-friendly products. These policies mandate that suppliers meet sustainability criteria, thereby guaranteeing that the purchased

goods and services have a minimal environmental footprint. By integrating these criteria into their procurement policies, the county government aimed to reduce its overall carbon footprint and encourage suppliers to adopt greener practices.

It was also established by most of the respondents that, the Uasin Gishu County have invested in capacity-building programs for its procurement staff. These programs are designed to enhance the understanding and application of green procurement principles among employees. Training sessions and workshops are regularly conducted to keep staff updated on the latest sustainable procurement practices and technologies. Additionally, the county collaborates with various stakeholders, including suppliers and local communities, to promote awareness and adoption of green procurement. This collaborative approach ensures that all parties involved in the procurement process are aligned with the county's sustainability goals, thereby creating a more cohesive and effective green procurement framework.

The findings established the county has reported significant reductions in energy and resource consumption, reflecting the positive impact of their green procurement policies. Moreover, the emphasis on training and stakeholder collaboration has led to a broader acceptance and integration of sustainable practices within the supply chain. However, most of the respondents agreed that there is room for improvement, particularly in the areas of monitoring and enforcement. While the guidelines and training programs are robust, consistent monitoring and stringent enforcement of green procurement standards are essential to maintain and enhance the efficacy of these initiatives. Overall, the strategies employed by Uasin Gishu County demonstrate a strong commitment to sustainability, with tangible benefits for both the environment and the supply chain performance.

The researcher also sought to find out how Uasin Gishu County government ensure optimal material utilization in its procurement practices and how it has impacted both the efficiency of resource use and the overall environmental footprint of procurement activities. It was established that Uasin Gishu County has adopted several green procurement strategies to enhance resource efficiency and minimize environmental impact. These strategies include prioritizing the procurement of environmentally friendly materials, implementing stringent waste reduction protocols, and encouraging suppliers to adopt sustainable practices. The county's procurement guidelines focus on prioritizing recycled and recyclable materials, aiming to minimize dependence on finite resources and support the principles of a circular economy.

A prime illustration of how green procurement practices enhance resource efficiency can be seen in the county's construction projects. Uasin Gishu County has effectively cut down on construction waste by mandating the use of environmentally friendly materials, such as low-emission concrete and timber from sustainable sources. Additionally, the county has invested in training programs for procurement officers and suppliers, fostering a culture of sustainability and ensuring that all stakeholders are well versed in the principles of green procurement. These initiatives have led to a reduction in material waste, lower energy consumption during production and transportation, and ultimately, cost savings for the county. According to the majority of respondents, opting for suppliers who follow

sustainable practices allows the county to lessen the environmental effects linked to the whole supply chain, from the extraction of raw materials to the final disposal of products. Moreover, the county's commitment to green procurement has inspired other sub-local governments and private entities to adopt similar practices, amplifying the positive environmental impact beyond the county's borders. Through these concerted efforts, Uasin Gishu County demonstrates that optimal material utilization in procurement is not only feasible but also beneficial for both the environment and supply chain performance.

The research aimed to identify the key obstacles and difficulties the county encounters in applying energy and resource efficiency strategies. It was found that a major issue is the insufficient awareness and comprehension of green procurement practices among stakeholders. According to one respondent, "*Many county officials and suppliers lack knowledge about sustainable practices, which leads to hesitation in embracing new methods*." Additionally, the study revealed a shortage of training and educational programs designed to improve the understanding and skills of individuals involved in the supply chain. This has hindered the effective implementation of energy-efficient and resource-efficient measures, as stakeholders are more inclined to stick to traditional procurement methods.

The study also established that there is financial constraints and budgetary limitations faced by the county. Implementing green procurement practices often requires initial investments in sustainable technologies and resources, which can be costly. Uasin Gishu County, like many other government agencies, operates under tight budget constraints, making it challenging to allocate funds for these initiatives. Moreover, there is often a perception that green products and services are more expensive than conventional ones, deterring procurement officials from choosing sustainable options. This financial challenge is compounded by the absence of strong policy frameworks and incentives that could support and encourage the adoption of green practices. Consequently, without adequate funding and supportive policies, the county struggles to overcome the financial hurdles associated with transitioning to energy and resource-efficient procurement practices.

Supply Chain Performance

The research aimed to assess the effect of adopting green procurement practices on the supply chain performance in Uasin Gishu County. The findings revealed that embracing green procurement practices has notably improved the supply chain's overall performance. This enhancement is attributed to the focus on environmentally sustainable products and services, the county has managed to reduce waste and lower operational costs. Suppliers are now more conscious of sustainable practices, which has led to better quality and longer-lasting materials. This shift has minimized the frequency of supply chain disruptions caused by poor-quality or non-compliant products. Additionally, the emphasis on green procurement has fostered stronger relationships with suppliers who share a commitment to sustainability, creating a more reliable and resilient supply chain network.

Moreover, the adoption of green procurement practices has improved compliance with environmental regulations and standards, reducing the risk of legal and regulatory

penalties. This proactive approach not only enhances the county's reputation but also attracts businesses and investors who value sustainability. The integration of green procurement has also encouraged innovation within the supply chain, as suppliers and service providers strive to meet the higher standards set by the county. Overall, these practices have led to a more streamlined, cost-effective, and robust supply chain that supports the county's long-term sustainability goals.

The study's findings indicated that there has been medium improvement in inventory turnover within Uasin Gishu County. This improvement indicated that while green procurement practices have positively impacted the supply chain, there is still room for further enhancement. Medium improvement signifies that the county has successfully integrated several sustainable practices leading to more efficient inventory management and reduced stock levels without sacrificing service quality. However, it also implied that the full potential of these practices has yet to be realized, suggesting opportunities for further optimization and training to enhance the supply chain's responsiveness and adaptability to green procurement principles.

The study sought to find out how the implementation of green procurement practices impacted the effectiveness of the supply chain in Uasin Gishu County. It was established that the implementation of green procurement practices in Uasin Gishu County has significantly enhanced the effectiveness of the supply chain. By prioritizing environmentally sustainable products and services, the county has seen a reduction in waste and improved resource efficiency. This shift has led to cost savings in the long term, as sustainable practices often result in lower energy consumption and reduced disposal costs. Additionally, the focus on green procurement has encouraged local suppliers to adopt more sustainable practices, leading to a more resilient and adaptable supply chain that is better equipped to handle environmental regulations and market shifts.

Furthermore, green procurement has bolstered the county's reputation and public trust, demonstrating a commitment to environmental stewardship and sustainable development. This positive perception has attracted environmentally conscious businesses and investors, further strengthening the local economy. The integration of green criteria in procurement processes has also driven innovation among suppliers, fostering the development of new, eco-friendly products and technologies. Overall, the adoption of green procurement practices has not only improved supply chain performance in terms of efficiency and cost-effectiveness but also contributed to broader economic and environmental benefits for Uasin Gishu County.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

In conclusion, Uasin Gishu County government revealed a robust framework encompassing product and material sustainability and energy and resource efficiency. These practices ensured responsible sourcing, reduced consumption through renewable resources, and emphasized collaboration with suppliers to meet environmental standards.

The focus on waste reduction through efficient resource use and recycling methods highlighted a comprehensive approach to sustainability, aligning procurement processes with environmental objectives. This multi-faceted strategy demonstrates the county's commitment to minimizing environmental impact and promoting sustainable procurement practices.

However, the study also uncovered several challenges impeding the effective implementation of green procurement practices in the county. Notable obstacles include a lack of awareness and understanding of green procurement principles among staff and suppliers, limited financial resources, and the absence of clear policies and guidelines. Additionally, resistance to changing traditional procurement methods, insufficient training, and inadequate monitoring and evaluation mechanisms further hinder progress. Despite these challenges, the study established the potential benefits of green procurement, such as enhanced supply chain efficiency, increased inventory turnover rates, and improved operational effectiveness, advocating for continued efforts to overcome these barriers and achieve a more sustainable procurement system.

Recommendations of the Study

The study recommends that the Uasin Gishu County management to embed sustainable procurement policies into their procurement strategy. This integration should feature criteria for choosing eco-friendly products and services, assessing suppliers on their sustainability efforts, and establishing specific sustainability objectives. Embracing these approaches will enable the county to lessen its environmental footprint and foster innovation and efficiency within its supply chain.

The study recommends to Policy makers and regulatory bodies to develop and enforce policies that support green procurement at a broader level. This could involve creating incentives for organizations that adopt sustainable practices, establishing benchmarks for green procurement performance, and facilitating training programs for procurement professionals. Such measures would promote a standardized approach to green procurement, ensuring that all entities within the country to adhere to best practices and contribute to overall sustainability goals.

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