



IMPACT OF GREEN PROCUREMENT PRACTICES ON SUSTAINABLE PRODUCTION AND CONSUMPTION OUTCOMES: EVIDENCE FROM LOCAL GOVERNMENTS IN GREATER ACCRA

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ABSTRACT: *The concept of sustainable development has gained global attention due to rising environmental concerns and climate change. Green Public Procurement (GPP) is crucial for promoting sustainable production and consumption (SPC), particularly in developing countries like Ghana. This research examines the impact of GPP on SPC in Metropolitan, Municipal, and District Assemblies (MMDAs) in the Greater Accra Region, focusing on supplier selection, green purchasing, and supplier development. A quantitative approach was used, collecting data from 171 procurement officers across 17 MMDAs, analysed through descriptive and inferential statistics, including regression analysis. The main findings indicate a moderate level of GPP practice adoption, with supplier selection (mean = 3.35) and green purchasing (mean = 3.64) exhibiting higher scores than supplier development (mean = 3.26). The regression analysis shows that institutional factors ($\beta = 0.532, p < 0.01$) and GPP practices ($\beta = 0.311, p < 0.01$) together account for 55.4% ($R^2 = 0.554$) of the variance in SPC outcomes. Strong policy guidance ($r = 0.619$) and sustainability training ($r = 0.609$) were key enablers, while budgetary constraints had a minimal effect ($r = -0.003$). Notably, 75% of the respondents reported reduced waste and energy expenses from GPP implementation, aligning with global findings on its economic and environmental benefits. The study concludes that while GPP practices are gaining traction, their success relies on solid institutional frameworks, and recommends improving policy clarity, investing in training, and fostering supplier partnerships to enhance sustainable procurement, which supports SDG 12 in local governance.*

KEYWORDS: Green Public Procurement, Sustainable Production, Sustainable Consumption, Institutional Factors, Ghana MMDAs, SDG 12.



INTRODUCTION

The idea of sustainable development has gained significant global attention, fuelled by a growing recognition of environmental harm, resource exhaustion, and climate change. Therefore, sustainable production and consumption (SPC) have become essential elements of worldwide sustainability initiatives, especially after the establishment of the United Nations Sustainable Development Goals (SDGs). Specifically, SDG 12 aims to promote responsible patterns of consumption and production as a strategy for mitigating environmental harm (United Nations, 2019). Arora and Mishra (2019) indicate that without prioritizing environmental issues, achieving United Nations Sustainable Development Goal (SDG) 12 will be difficult. To avert this ecological crisis and fulfill the SDGs, it is necessary to modify the consumption habits of consumers, governments, and businesses to lower resource use (Li et al., 2020). Much emphasis has been placed on encouraging these modifications by influencing consumer behavior (Amiraslani et al., 2022).

In response to the growing urgency of environmental challenges in society, governments have heightened their awareness of the consequences of their purchasing choices. Green Public Procurement (GPP) has emerged as a key concept at both national and international levels, steering markets towards environmental sustainability and creating positive environmental outcomes (Walker & Phillips, 2020). Green Public Procurement (GPP) is described as the method through which public authorities acquire goods and services that have a minimal environmental footprint throughout their life cycle (Amanda, 2023; Karnabos et al., 2022). According to Sulistiani et al. (2024), GPP implies that the raw materials and processes are eco-friendly, energy efficient during use, and can be recycled after disposal. Chersan et al. (2020) further explain that GPP encompasses not only a specific procedure but the entire supply chain and types of services involved. The World Bank (2020) reports that developed countries have made notable advancements in institutionalizing Green Procurement practices within public sector functions, resulting in quantifiable reductions in carbon emissions and waste production. The European Union has taken a leading role in advocating for Green Public Procurement (GPP) through its directives and policies. Member states are urged to incorporate environmental criteria into their public procurement processes. Nations such as Austria and Japan have achieved particular success in establishing platforms and help desks to facilitate GPP implementation.

In the African landscape, the adoption of sustainable procurement practices has advanced at varying rates across different regions and countries. While nations like South Africa and Kenya have established green procurement policies within their public sectors, creating systems for environmentally conscious purchasing (Adjei-Bamfo et al., 2020), numerous African countries still face significant challenges in implementation. These challenges include inadequate supplier capacity to meet environmental standards, weak enforcement mechanisms, and financial limitations that hinder access to sustainable products (Mensah & Asamoah, 2022). The African Union's Agenda 2063 aims to tackle these disparities by highlighting sustainable procurement as a vital aspect of continental development objectives, although progress is inconsistent among member states because of differing levels of institutional capacity and political will.

Public procurement in Ghana constitutes a considerable percentage of government spending, making it a key area for advancing green practices. According to the World Bank, public procurement in Ghana constitutes a significant portion of the nation's economy, accounting for



50-70% of the national budget (excluding personal emoluments), 14% of GDP, and 24% of imports. This underscores the considerable influence of public procurement on Ghana's social, environmental, and economic landscape (Adusei & Awunyo-Vitor, 2020). As noted by Kyeremeh and Com (2024), the Ghanaian government has the responsibility to provide public goods and services. To fulfill this mandate, the government undertakes various projects, including improving roads, constructing lorry stations and airports, developing utility networks, as well as building hospitals, schools, and housing. Consequently, the government can significantly contribute to sustainable development by purchasing goods and services that have undergone assessment of economic, environmental, and social risks (PPA, 2020).

Ghana is confronted with serious environmental issues, such as deforestation, pollution, and challenges in waste management, amidst excessive procurement practices. The government of Ghana has shown a dedication to sustainable development through the introduction of various policies, laws, and regulations that pertain to environmental issues and engagement in international accords. One of these initiatives is the enactment of the Public Procurement Act, 2003 (Act 663). As noted by Ameyaw et al. (2022), the shortcomings identified in the Public Procurement Act 663 led to the creation of the Public Procurement (Amendment) Act 2016, Act 914. The Public Procurement Act includes requirements for sustainability, addressing environmental, social, and economic aspects connected to sustainability in public procurement. Ocansey (2021) suggests that the Public Procurement (Amendment) Act 2016, Act 914 was established to resolve administrative challenges and introduce supportive measures for policy initiatives such as Electronic Procurement, Framework Contracting, and Sustainable Public Procurement (SPP).

Nonetheless, Amanda (2023) points out that there is no specific policy or law that clearly defines green procurement within Ghana's public procurement legislation, although there are numerous laws and policies concerning land degradation, water resources, and wildlife, among others, that are conceptually and practically related to green procurement. Adjei-Bamfo and Maloreh-Nyamekye (2019) further argue that sustainable procurement, which encompasses social, economic, and environmental welfare, is a relatively recent concept in the Ghanaian context. This might explain Ghana's struggle to implement a definitive policy or law on green procurement.

Despite the existence of various legal frameworks and commitments to sustainability, the practical application of green procurement practices within Ghana's MMDAs is still limited due to the novelty of sustainable procurement in the country and numerous systemic challenges that hinder MMDAs from effectively promoting sustainable production and consumption results. A significant concern lies in the disparity between the formulation of policy and its actual application, evidenced by weak monitoring systems that lead to inconsistent adherence to current green procurement guidelines (Danso et al., 2021; Dauda et al., 2023). This lack of effective implementation is intensified by financial limitations, as the higher initial expenses associated with environmentally friendly products often surpass the budgetary capabilities of local government entities (Nyarku & Oduro, 2024). In addition, the supply chain infrastructure faces substantial constraints, with a significant lack of local suppliers able to meet the specified green procurement standards (Agyemang et al., 2023). These interconnected issues create a complex scenario where the theoretical advantages of green procurement do not manifest in reality.



Moreover, at the other end, there is a scarcity of empirical evidence regarding how these practices are maintained at the local level and whether they yield the desired sustainability outcomes. This gap calls for a targeted examination of the current status of green public procurement and its measurable impacts on achieving local sustainability objectives within MMDAs.

Consequently, this paper explored the following research questions:

1. What green procurement practices are currently adopted by MMDAs?
2. What institutional factors enable or hinder their implementation?
3. What measurable effects have these practices had on SPC outcomes?

LITERATURE REVIEW

This literature review examines the existing research on green procurement practices, with a specific focus on their potential impact on sustainable production and consumption outcomes. It explores the theoretical underpinnings of green procurement, its evolution and implementation challenges, and empirical support.

Theoretical Underpinnings

The analytical framework of the study is grounded in two interrelated theoretical perspectives that offer strong lenses for investigating the implementation of green procurement. Institutional theory, as articulated by DiMaggio and Powell (1983), offers significant insights into how regulatory influences and normative expectations shape organisational behaviour. This theoretical perspective helps clarify how external elements, such as national policies and international agreements, interact with internal organisational cultures, potentially facilitating or hindering the adoption of green procurement. The theory especially sheds light on the mechanisms through which isomorphic pressures, including coercive, mimetic, and normative forces, affect the spread of green procurement practices across local government entities.

In addition to this perspective, Freeman's (1984) stakeholder theory offers a framework for comprehending the intricate network of interests and power relationships that define the implementation of green procurement. This theoretical viewpoint highlights the necessity of reconciling environmental goals with the economic and social interests of various stakeholders, which include government bodies, private sector suppliers, civil society organizations, and local communities. Stakeholder theory is particularly useful for examining how different participants shape procurement choices and how their conflicting interests may present both opportunities and obstacles for sustainable procurement efforts. Collectively, these theoretical frameworks facilitate a comprehensive analysis of green procurement implementation that considers both structural limitations and dynamics of agency.

Evolution of Green Public Procurement

Green procurement has undergone considerable transformation over the last several decades. What began as an effort primarily aimed at minimizing pollution and waste has since broadened to address various environmental challenges, such as climate change, depletion of resources,



and loss of biodiversity. This evolution has been shaped by the establishment of international standards and guidelines, including ISO 20400, which provides direction for sustainable procurement (International Organisation for Standardisation, 2017).

In its early development, green public procurement (GPP) was mainly reactive, concentrating on adherence to environmental regulations and legislative frameworks (Zhang et al., 2021). Initial initiatives were often restricted to particular sectors and products, with a focus on compliance instead of strategically integrating into wider procurement policies. The first adopters of GPP targeted waste management and energy efficiency, responding to growing pressure from environmental advocacy groups and international agreements like the Kyoto Protocol (Fozzard et al., 2020).

As the recognition of climate change and environmental deterioration grew, the scope of GPP expanded greatly. By the end of the 2010s, numerous governments began to see the potential of GPP as a means to fulfill broader sustainability objectives. Research by Kumar et al. (2022) indicated that this era marked a transition from mere compliance to proactive strategies designed to promote sustainable consumption and production patterns. Governments started integrating sustainability criteria within their procurement processes, highlighting life-cycle considerations and the social ramifications of procurement decisions.

The development of green public procurement practices has shifted from compliance-focused approaches to inclusive strategies aimed at promoting sustainable development. This progression is defined by enhanced collaboration, quantifiable results, and a commitment to incorporating sustainability throughout all facets of public procurement.

Implementation Challenges and Barriers

The execution of Green Public Procurement (GPP) practices is vital for achieving sustainability objectives and encouraging eco-friendly purchasing choices. Nevertheless, several challenges and obstacles obstruct the efficient implementation of GPP across diverse sectors. Recognising these barriers is key to formulating strategies that improve GPP practices and increase their effectiveness in promoting sustainable production and consumption.

Insufficient Awareness and Training

A major hindrance to GPP execution is the lack of awareness and understanding among procurement officials and relevant stakeholders. Many procurement professionals do not receive adequate training on how to incorporate sustainability criteria into their purchasing processes (Abubakari et al., 2024). This gap in knowledge can lead to procurement practices that overlook environmental considerations. Research by Agyekum et al. (2022) found that 65% of procurement managers surveyed identified insufficient training as a major barrier to effectively adopting GPP. It is crucial to tackle this issue with targeted training and capacity-building programs to foster awareness and comprehension of GPP.

Budgetary Limitations

Financial constraints represent a significant obstacle to GPP implementation. Numerous public sector entities function under strict budgetary limitations, making it challenging to dedicate resources to green procurement efforts (Onifade et al., 2024). The initial expenses associated with shifting to sustainable products and services can discourage organisations from pursuing



GPP, particularly when short-term financial challenges take priority over long-term sustainability aims. Findings from Kumar et al. (2022) indicate that organisations often hesitate to invest in green procurement due to perceived high costs, which can stifle the development of sustainable practices in public procurement.

Unclear Policy Frameworks

Inconsistencies in regulatory frameworks and policies can lead to confusion and hinder the adoption of GPP. The lack of clear guidelines and standards for green procurement results in different interpretations and implementations across various public agencies (Hasanbeigi & Shi, 2021). A study by Hasanbeigi et al. (2021) revealed that the absence of cohesive policies often leads to fragmented approaches to GPP, where some agencies may implement robust green procurement strategies while others fall behind. Establishing consistent and supportive policy frameworks is crucial for promoting uniformity and efficacy in GPP practices.

Reluctance to Change

Resistance to change within organisations can be a significant obstacle to GPP implementation. Many procurement officials and decision-makers might be accustomed to conventional procurement practices and could regard GPP as an added burden rather than an opportunity for enhancement (Zhang et al., 2021). This resistance may arise from a lack of understanding regarding the benefits of GPP, as well as concerns about the complexity and time necessary to integrate green criteria into procurement processes. To overcome this resistance, it is essential to communicate effectively about the advantages of GPP and showcase successful case studies that illustrate its positive impact.

Limitations in the Supply Chain

The availability of sustainable suppliers and products can also obstruct GPP implementation. In many areas, the market for green products is still evolving, resulting in limited options for procurement officials (Adjei et al., 2019). Additionally, suppliers may lack the requisite certifications or may not have the capability to fulfil the sustainability requirements set by public agencies. Research by Frimpong (2016) highlights that procurement officials frequently encounter difficulties in sourcing sustainable products, which can deter their pursuit of GPP. Enhancing the supply chain for green products through collaborations and partnerships can help alleviate this challenge.

Challenges in Measurement and Evaluation

Finally, the difficulty of measuring and evaluating the environmental effects of GPP can be a substantial challenge. Without clear metrics and performance indicators, organisations struggle to assess the success of their green procurement initiatives (Kumar et al., 2022). The absence of standardised evaluation frameworks can lead to uncertainty about the actual benefits and outcomes of GPP, making it difficult for decision-makers to justify their investments in sustainable practices. Creating robust measurement tools and methodologies is essential for improving accountability and transparency in GPP.



Green Public Procurement and Sustainable Production and Consumption

Research has increasingly concentrated on comprehending the effectiveness and ramifications of green procurement practices (GPP) in various industries. A study by Amoah et al. (2024) investigated the connection between green procurement practices and the overall performance of public sector organizations in Ghana. Employing a mixed-methods approach, the researchers gathered quantitative data from 150 procurement officials and conducted detailed interviews with stakeholders. The results indicated that organizations embracing GPP experienced noteworthy enhancements in operational efficiency, cost savings, and public perception. Specifically, 75% of the respondents reported that GPP led to decreased waste and lowered energy expenses, emphasizing the economic advantages of incorporating sustainability into procurement methods. In a quantitative study by Kumar et al. (2022), the link between consumer perceptions of brands utilizing GPP and their purchasing habits was examined. The study polled 500 consumers from different demographics and discovered that 68% were willing to pay extra for products from companies committed to sustainability. The findings concluded that GPP positively impacts consumer loyalty and brand image, implying that organizations can boost their market competitiveness through sustainable procurement practices.

Mensah and Osei (2023) performed a longitudinal study assessing the sustainability outcomes for organizations that implemented GPP over a five-year period. The researchers evaluated data from several organizations in the Greater Accra Region and found that those practicing GPP achieved a 30% reduction in resource use and a 25% cut in greenhouse gas emissions. The study underscored the long-term environmental advantages of GPP and its capacity to instigate systemic change in production and consumption patterns. In an empirical study by Yeboah and Aidoo (2025), the impact of government policies on the adoption of GPP was analyzed. The researchers used case studies from different municipal authorities and determined that supportive policies and clear guidelines significantly bolstered the adoption of GPP. The analysis suggested that municipalities with strong sustainability frameworks were more inclined to adopt effective green procurement practices, resulting in better environmental outcomes.

A recent investigation by Adjei et al. (2024) examined the significance of supplier involvement in the success of GPP initiatives. By surveying 100 procurement managers, the study revealed that organizations actively working with suppliers to advance sustainable practices were more successful in reaching their sustainability goals. Approximately 70% of the respondents stated that robust supplier connections helped facilitate the implementation of green procurement strategies, highlighting the importance of collaboration in achieving sustainable results.



METHODOLOGY

This study employed a quantitative research method to analyse collected data. Data was collected using a questionnaire adapted from Amanda (2024). The questionnaire was pre-tested with procurement specialists. To ensure the validity and reliability of the research instrument, the input from the pre-test studies resulted in adjustments to some of the items supplied.

The population for this study comprised members of staff who are involved in public procurement activities in the 17 MMDAs in the Greater Accra Region with a target population of 300 staff who are actively involved in the Greater Accra Resilient and Integrated Development (GARID) Project. The GARID Project encompasses a significant number of administrative areas within the Greater Accra Region. The 17 MMDAs are provided in Table 1 below:

Table 1: Beneficiaries (MMDAs) of the GARID Projects

1	Accra Metropolitan Assembly (AMA)	7	Ayawaso Municipal Assembly	East	13	Ga Assembly	North	Municipal
2	Ablekuma Central Municipal Assembly	8	Ayawaso North Municipal Assembly	North	14	Ga West Assembly	West	Municipal
3	Ablekuma North Municipal Assembly	9	Ayawaso West Municipal Assembly	West	15	La Dade Kotopon Municipal Assembly		
4	Ablekuma West Municipal Assembly	10	Adentan Municipal Assembly	Municipal	16	La-Nkwantanang Madina Municipal Assembly		
5	Ayawaso Central Municipal Assembly	11	Ga Central Municipal Assembly	Municipal	17	Okaikoi North Municipal Assembly	North	Municipal
6	Ga East Municipal Assembly	12	Korle-Klottey Municipal Assembly					

These assemblies are the primary beneficiaries of the GARID project's initiatives, which are strategically designed to enhance flood risk management capabilities, improve solid waste management practices within the critical Odaw River basin, and expand access to essential basic infrastructure and services for vulnerable, low-income communities situated in flood-prone areas across the Greater Accra Region. Studying their procurement practices provides insights into how green procurement can mitigate these challenges.

The survey covered a sample of 171 staff from the Procurement Unit, Finance/Accounts Section, Internal Audit Unit, and Entity Tender Committee of the municipalities. The sample size of respondents was established, based on a 95% confidence level and a 5% margin of error using Yamine's Formula for sample size determination. On average, 10 respondents were selected from each assembly using a mix of purposive and simple random sampling techniques. This was employed in the sample selection to guarantee that only staff directly involved in public procurement activities were included and each had an equal opportunity of being selected. The identified respondents were asked questions related to green public procurement. Finally, when data collection was completed, the questionnaires were coded, and the data were processed using the Statistical Package for Social Sciences (SPSS) software, which is provided in the following tables. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarise responses and describe the green procurement



practices currently adopted by the MMDAs. To explore the institutional factors that influence implementation, inferential techniques including chi-square tests, t-tests, and correlation analysis were used. Finally, multiple regression analysis was employed to assess the impact of green procurement practices on sustainable production and consumption outcomes.

RESULTS AND DISCUSSIONS

Current Green Procurement Practices in MMDAs

This section presents the findings on the green procurement practices currently adopted by Metropolitan, Municipal, and District Assemblies (MMDAs) in Ghana's Greater Accra Region. The analysis focuses on three key dimensions: supplier selection, green purchasing, and supplier development, as reported by procurement officers and stakeholders. The results reveal varying levels of adoption across these practices, highlighting both progress and persistent gaps in implementing sustainable procurement. Descriptive statistics provide insights into the extent to which environmental criteria are integrated into procurement processes, while also identifying areas requiring institutional reinforcement. The discussion contextualises these findings within Ghana's policy framework and global green procurement trends, offering a baseline assessment of local implementation challenges and opportunities. The result is shown in Table 2 below:

Table 2: Current Green Procurement Practices in MMDAs

#	Statements	Mean	Std. Dev.	Skewness		Kurtosis	
		Stat	Stat	Statistic	Std. Error	Statistic	Std. Error
Supplier Selection							
1	Our assembly has a formal policy to prioritise suppliers offering certified green products/services.	3.1	1.149	-0.229	0.172	-0.573	0.343
2	We routinely select suppliers based on the use of recycled/reused/reduced materials in their products.	3.08	0.974	-0.053	0.172	0.316	0.343
3	We routinely select suppliers based on the adoption of energy-efficient technologies in production/delivery.	3.43	1.084	-0.232	0.172	-0.267	0.343
4	We verify suppliers' environmental claims through audits or certifications before engagement.	3.78	0.816	-0.034	0.172	-0.169	0.343
Overall Supplier Selection		3.35	1.01	-0.14	0.17	-0.17	0.34
Green Purchasing							
1	Environmental sustainability is a mandatory requirement in our tender evaluations.	3.8	0.759	0.074	0.172	-0.356	0.343



2	We assess suppliers' internal environmental management systems (e.g., ISO 14001) during selection.	3.54	1.145	-0.43	0.172	-0.565	0.343
3	We collaborate with suppliers to set joint environmental targets (e.g., waste reduction goals).	3.57	0.939	-0.343	0.172	0.178	0.343
	Overall Green Purchasing	3.64	0.95	-0.23	0.17	-0.25	0.34
	Supplier Development						
1	We provide guidance and training to help suppliers meet our green procurement standards.	3.19	1.134	-0.466	0.172	-0.417	0.343
2	Our suppliers demonstrate tangible investments (e.g., technology, R&D) in green innovation.	3.28	1.132	-0.519	0.172	-0.3	0.343
3	We monitor and review suppliers' performance on agreed green KPIs (e.g., carbon footprint).	3.4	1.105	-0.395	0.172	-0.246	0.343
4	Our assembly recognizes and rewards suppliers for exceptional environmental	3.15	1.187	-0.249	0.172	-0.633	0.343
	Overall Supplier Development	3.26	1.14	-0.41	0.17	-0.40	0.34

Source: Author's Research 2025

The result in Table 2 reveals that green procurement practices among MMDAs in the Greater Accra Region are partially adopted, with varying degrees of implementation across different dimensions. Supplier selection practices show moderate adoption, with a mean score of 3.35 out of a scale of 5. The most widely adopted practice in this category is the verification of suppliers' environmental claims through audits or certifications, which has a mean score of 3.78. This suggests that MMDAs place importance on ensuring the credibility of suppliers' green claims. However, the adoption of formal policies to prioritise suppliers offering certified green products or services is less consistent, with a mean score of 3.1. This indicates room for improvement in institutionalising green procurement standards.

Green purchasing practices are relatively stronger, with an overall mean score of 3.64. The inclusion of environmental sustainability as a mandatory requirement in tender evaluations scores the highest (mean = 3.8), reflecting a commitment to integrating sustainability into procurement processes. However, the assessment of suppliers' internal environmental management systems, such as ISO 14001, and collaboration with suppliers to set joint environmental targets show moderate adoption, with means of 3.54 and 3.57, respectively. This suggests that while MMDAs are proactive in setting sustainability criteria, deeper engagement with suppliers to achieve environmental goals is still developing.

Supplier development emerges as the weakest dimension, with an overall mean score of 3.26. Practices such as providing guidance and training to suppliers to meet green procurement standards (mean = 3.19) and recognizing suppliers for exceptional environmental performance (mean = 3.15) are less established. The monitoring of suppliers' performance on agreed green KPIs, though slightly better (mean = 3.4), still indicates variability in implementation. These



findings highlight a critical gap in supplier capacity-building and incentive mechanisms, which are essential for fostering long-term sustainable procurement practices.

In summary, while MMDAs demonstrate foundational efforts in green procurement, particularly in supplier selection and green purchasing, there are inconsistencies and gaps, especially in supplier development. Strengthening formal policies, enhancing supplier engagement, and investing in training and incentives could further advance sustainable procurement outcomes. Addressing these areas would align more closely with the broader goals of sustainable production and consumption, as outlined in SDG 12.

Institutional Factors that Enable or Hinder Green Procurement Practices

This section examines the institutional factors that either facilitate or constrain the adoption of green procurement practices in MMDAs. Understanding these factors is critical, as they shape the operational environment in which sustainability policies are implemented. The analysis focuses on five key dimensions: budget adequacy, policy clarity, training, supplier availability, and management support. By identifying these enablers and barriers, the study provides actionable insights for strengthening green procurement frameworks at the local government level. The findings reveal how structural and organisational factors interact to influence the success of sustainability initiatives in public procurement. The result is shown in Table 3 below:

Table 3: Correlation Analysis

		Sustainable Practices	Production	Sustainable Consumption Practices
Adequate budget	Pearson Correlation	-0.003		.140*
	Sig. (2-tailed)	0.972		0.049
	N	171		171
Clear guidance	Pearson Correlation	.619**		.476**
	Sig. (2-tailed)	0		0
	N	171		171
Sustainability training	Pearson Correlation	.609**		.522**
	Sig. (2-tailed)	0		0
	N	171		171
Limited green suppliers	Pearson Correlation	.445**		.307**
	Sig. (2-tailed)	0		0
	N	171		171
Management support	Pearson Correlation	.363**		.310**
	Sig. (2-tailed)	0		0
	N	171		171

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

** Correlation is significant at the 0.01 level (2-tailed).



The correlation analysis in Table 3 provides valuable insights into the institutional factors that either enable or hinder the implementation of green procurement practices in Metropolitan, Municipal, and District Assemblies (MMDAs) in Ghana's Greater Accra Region. The findings reveal several key patterns that align with the study's second objective of identifying critical institutional factors affecting green procurement adoption.

Clear guidance emerges as the strongest enabler, showing highly significant positive correlations with both sustainable production ($r = 0.619$) and consumption practices ($r = 0.476$). These robust relationships indicate that well-defined policies, procedures, and implementation frameworks substantially enhance MMDAs' ability to operationalise green procurement. The stronger association with production practices suggests that explicit guidelines are particularly crucial for embedding sustainability into core procurement processes and supplier selection criteria. Similarly, sustainability training demonstrates powerful positive relationships ($r = 0.609$ for production; $r = 0.522$ for consumption), highlighting how capacity building equips procurement staff with the necessary knowledge and skills to effectively implement green procurement initiatives.

Management support shows moderately positive correlations ($r = 0.363$ for production; $r = 0.310$ for consumption), confirming that leadership commitment and organisational culture play important, though secondary, roles in facilitating green procurement adoption. Interestingly, the analysis reveals that an adequate budget shows no significant relationship with sustainable production practices ($r = -0.003$) and only a weak positive association with consumption practices ($r = 0.140$). This suggests that while financial resources may marginally support the purchase of eco-friendly goods, they are not the primary determinant of successful green procurement implementation.

A counterintuitive finding emerges regarding limited green suppliers, which shows positive correlations with both production ($r = 0.445$) and consumption practices ($r = 0.307$). This may indicate that MMDAs facing supplier constraints develop compensatory strategies, such as more rigorous evaluation of available suppliers or innovative partnerships. However, the moderate strength of these relationships still suggests that supplier market limitations present real challenges to comprehensive green procurement adoption.

These results collectively suggest that institutional factors related to governance and human capital (clear guidance and training) are more critical enablers than financial resources alone. The findings imply that policy interventions should prioritise developing comprehensive green procurement frameworks, investing in capacity building, and fostering leadership commitment, while also addressing supply-side constraints through market development initiatives. The relatively minor role of budgetary factors indicates that green procurement implementation may be more dependent on strategic planning and human resource factors than on substantial financial investments.



What Measurable Effects Have These Practices Had on SPC Outcomes

Using regression analysis, the study quantifies the relationship between green procurement adoption, institutional factors, and sustainable production and consumption (SPC) performance in MMDAs. The results reveal how these variables interact to drive sustainability outcomes, offering insights for policy and practice. The result is shown below:

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.745a	0.554	0.55	0.43241	0.554	121.898	2	196	0

a Predictors: (Constant), Green Procurement Practices, Institutional Factors

b Dependent Variable: SPC

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.585	2	22.793	121.898	.000b
	Residual	36.648	196	0.187		
	Total	82.234	198			

a Dependent Variable: SPC

b Predictors: (Constant), Green Procurement Practices, Institutional Factors

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.394	0.191		2.066	0.04
	Institutional Factors	0.571	0.06	0.532	9.485	0.00
	Green Procurement Practices	0.284	0.051	0.311	5.542	0.00

a Dependent Variable: SPC

The regression analysis provides compelling evidence that both institutional factors and green procurement practices significantly contribute to sustainable production and consumption outcomes in MMDAs. The model explains 55.4% of the variance in these outcomes, demonstrating a strong predictive relationship. Institutional factors emerge as the more influential driver, with a standardised beta coefficient of 0.532, which means that for every unit change in institutional factors, sustainable production and consumption will change by 0.532. The standardised beta coefficient of green procurement practices is 0.311, implying that a unit change in green procurement practices, sustainable production and consumption will change by 0.311. This indicates that while both elements are important, the presence of clear policies,



training programs, and management support has a greater overall impact on achieving sustainability goals than the implementation of green procurement practices alone.

The findings suggest that institutional frameworks serve as critical enablers for effective green procurement implementation. When MMDAs establish robust governance structures, provide adequate training, and demonstrate leadership commitment, they create an environment where sustainable procurement practices can thrive. Green procurement practices, while important, appear to function best when supported by these institutional foundations. This aligns with previous findings of Amoah et al. (2024) and Kumar et al. (2022). The findings revealed that organisations that adopted GPP reported significant improvements in operational efficiency, cost savings, and public perception. Specifically, 75% of the respondents indicated that GPP led to reduced waste and energy costs, highlighting the economic benefits of integrating sustainability into procurement processes. Furthermore, the findings align with the study by Yeboah and Aidoo (2025), whose analysis indicated that municipalities with robust sustainability frameworks were more likely to implement effective green procurement practices, resulting in improved environmental outcomes.

CONCLUSION

This research explored how green procurement practices affect sustainable production and consumption (SPC) outcomes within Metropolitan, Municipal, and District Assemblies (MMDAs) in Ghana's Greater Accra Region. The results indicate that although green procurement practices are somewhat integrated, their effectiveness is greatly affected by institutional elements such as clear policy direction, training in sustainability, and backing from management. While the practices of selecting suppliers and engaging in green purchasing are well-established, the development of suppliers remains an area that needs more focus.

The regression analysis highlights the vital importance of institutional frameworks, which explain a significant portion of the variance in SPC outcomes. This emphasizes the necessity of strong governance structures, capacity-building initiatives, and leadership dedication in promoting sustainable procurement. Green procurement practices are beneficial, but they are most effective when bolstered by these supportive institutional factors.

The study adds to the current literature by offering empirical evidence on the relationship between green procurement practices and institutional facilitators within a developing country context. It corresponds with global findings that highlight the economic and environmental advantages of green procurement, including waste reduction, lower energy expenses, and enhanced public perception.

For policymakers and practitioners, the study suggests prioritizing the creation of comprehensive green procurement frameworks, investing in training programs for procurement personnel, and strengthening partnerships with suppliers to build capacity. It is also crucial to address supply-side limitations and encourage sustainable practices among suppliers to achieve long-term sustainability objectives.

Although challenges persist, the adoption of green procurement practices, backed by strong institutional frameworks, provides a practical avenue for MMDAs to support Sustainable Development Goal (SDG) 12 and foster sustainable production and consumption in Ghana.



Future research might investigate longitudinal studies to evaluate the long-term effects of these practices and examine contextual elements that could affect their implementation across various regions.

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