GOVERNMENT AND ATTITUDINAL BARRIERS TO GREEN PROCUREMENT IMPLEMENTATION IN PUBLIC BUILDING PROJECTS IN ABUJA, NIGERIA

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ABSTRACT

Purpose: Despite severe environmental challenges and absence of explicit sustainability criteria for public building projects, public sector organizations lack systematic green procurement practices due to cultural and structural hinderances. This study investigates government and attitudinal related barriers to green procurement implementation in Nigeria's public building projects with a view to achieving sustainable development.

Design/methodology/approach: Quantitative data were collected through questionnaires administered to stakeholders, with 334 valid responses analysed using descriptive statistics in IBM SPSS (version 25). Mean scores, standard deviations, and the Severity Index (SI) formula were employed to determine the relative impact of each barrier.

Findings: Government-related barriers such as poor awareness and delays in decision-making (SI = 88.6%) and lack of compelling laws or policies (SI = 88.2%), as well as attitudinal barriers such as fear of higher costs (SI = 91.8%) and failure to understand stakeholder needs (SI = 80.8%) emerged as the most severe. The findings emphasize the need for policy reforms, institutional incentives, and stakeholder awareness to enhance sustainable procurement in Nigeria. to overcoming these barriers and promoting sustainable procurement practices in Nigeria.

Research limitations/Implications: The study focused on only Abuja. This narrow coverage limits the generalizability of the findings to other Nigerian states.

Practical implications: Based on the findings, Nigeria must adopt a comprehensive, multi-level approach to green procurement in public building projects. This requires moving from voluntary guidelines to mandatory legislation with clear regulatory frameworks that address both structural and attitudinal barriers.

Originality/value *– This study is original in systematically quantifying and ranking government and attitudinal barriers to green procurement in Nigeria's public building projects using a Severity Index approach, thereby providing context-specific evidence and actionable insights that extend beyond descriptive accounts in previous studies.*

Keywords: Government; Attitudinal; Green Procurement; Barriers: Implementation

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1.0 INTRODUCTION

Green procurement (GP) refers to acquiring products and services with minimal environmental impact across their life cycle compared to conventional alternatives (Gosh, 2018; Soyege, 2023; Kilinkaridou, 2023). By embedding environmental considerations into purchasing decisions, GP has become a vital tool for advancing sustainability. In construction, it promotes sustainable practices through environmental performance criteria (EPC), though implementation remains challenging (Adeleke *et al.,* 2020; Olanipekun *et al.,* 2022; Orfanidou et al., 2023; Han et al., 2024). Beyond project-level benefits, GP contributes to global climate goals by reducing emissions and supporting efforts to limit global warming below 2°C (*Upadhyay et al.,* 2023; Kabange *et al.,* 2023). Internationally, it has gained traction in countries such as the United States and Canada, where it is expected to cut emissions by 30% below 2005 levels by 2030 (Ullah *et al.*, 2023; Woolley *et al.,* 2022).

In Nigeria, however, GP adoption is constrained by weak regulatory support. The Public Procurement Act of 2007 outlines general procedures but lacks explicit sustainability criteria for public building projects (Komolafe, 2022; Oyewobi *et al.,* 2017; Agbesi *et al.,* 2018; Oyewobi & Jimoh, 2022). This gap has contributed to rising CO_2 emissions and environmental challenges such as urban sprawl, flooding, erosion, and slum development, which undermine sustainable development (Atanda & Olukoya, 2019; Festus et al., 2020; Leal Filho *et al.,* 2019; Chhetri, 2023).

Transitioning from traditional procurement requires public organizations to move beyond cost and schedule priorities to embrace environmental and social considerations (Akenroye & Oyedijo, 2023). Yet, adoption in Nigeria faces systemic challenges: inadequate regulatory frameworks, weak enforcement, limited training, budgetary constraints, and stakeholder resistance (Bohari *et al.,* 2017; Bidin *et al*., 2019; Ajayi *et al.,* 2021; Khaderi *et al.,* 2022; Unegbu *et al.,* 2024; Nwogu & Emedosi, 2024). These challenges are compounded by organizational inconsistencies, collusion, poor planning, and attitudinal barriers such as lack of awareness and resistance to change (Ayarkwa *et al.,* 2020; Alqadami, 2020). Addressing them requires integrated urban planning and inclusive governance to manage the pressures of rapid urbanization (Boumo & Changwak, 2025).

While prior studies have identified barriers to GP, few have quantified their relative severity. This study fills that gap by applying a Severity Index (SI) to rank obstacles to GP implementation in Nigeria's public building sector. The findings aim to provide policymakers and practitioners with actionable insights to strengthen sustainable procurement practices and advance environmental goals.

2.0 LITERATURE REVIEW

Green public procurement (GPP) has emerged as a critical policy instrument for advancing sustainability and addressing climate change (Walker & Brammer, 2012; Grandia, 2016). Despite its environmental and economic potential, the adoption of GPP faces significant barriers at both governmental and organizational levels (Adjei-Bamfo *et al.,* 2019; Saastamoinen *et al.,* 2018). This review focuses on two major categories of obstacles: government-related and attitudinal barriers.

2.1 Government Barriers to GPP Implementation

Research highlights several government-related challenges that hinder effective implementation. These include inadequate legal and regulatory frameworks, weak policy direction, limited government commitment, absence of internal management structures to support sustainable procurement, and insufficient incentives (Ogunsanya *et al.;* Alqadami, 2020; Ganiyu *et al.,* 2020; Mojumder *et al*., 2022; Yap *et al.,* 2024; Otali *et al.,* 2022; Nwogu & Emedosi, 2024; Pourvaziri *et al.,* 2024; Lou *et al.,* 2023). Collectively, these barriers underscore the need for comprehensive policy formulation that provides clear standards, enforcement mechanisms, and incentive structures to promote sustainable procurement practices (Saastamoinen *et al.,* 2018).

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Table 1: Government Related Barriers

S/N	Factors	SOURCES
1	Lack of explicit statutory requirements that cover sustainable procurement.	Otali *et al.,* 2022; Rahman *et al.,* 2020; Pour Vaziri *et al.,* 2024 Ganiyu *et al.,* 2020;
2	Lack of government commitment	Oyewobi & Jimoh 2022; Rane 2019; Khan *et al.,* 2018; Bidin 2019; Pourvaziri *et al* 2024; Yap *et al.,* 2024; Lou *et al.,* 2023; Mojumder *et al.,* 2022
3	lack of leadership and support within organizations for implementing green procurement	World bank 2021; Rahman *et al.,* 2020
4	Lack of compelling law or policy	Kolawole & Katun 2020; Alqadami 2020; Ganiyu *et al.,* 2020; Rane 2019; Bidin 2019; Agyekum 2022; Mojumder *et al.,* 2022; Yap *et al.,* 2024; Otali *et al.,* 2022; Nwogu & Emedosi 2024; Pourvaziri *et al.,* 2024; Lou *et al.,* 2023; Mojumder *et al.,* 2022
5	Absence of internal management structures that support sustainable procurement	Ogunsanya *et al.,* 2021; Alqadami 2020; Nwogu & Emedosi 2024; Pourvaziri *et al.,* 2024
3	limited funding and expertise	Rath *et al.,* 2022; Rahman *et al.,* 2020
6	Poor awareness and delay in decision-making	Oyewobi & Jimoh 2022;
7	Insufficient Incentives	Pourvaziri *et al.,* 2024; Mojumder et al 2022; Yap *et al* 2024; Ganiyu et al 2020; Otali *et al* 2022; Nwogu & Emedosi 2024; Shen *et al* 2017; Lou *et al.,* 2023; Nwogu & Emedosi 2024; Akcay, (2023).
8	Lack of clients' demands and awareness	Oyewobi & Jimoh 2022; Otali et al 2022; Yap *et al.,* 2024; Lou *et al*, 2023; Ganiyu *et al* 2020;
9	Bureaucratic procedures	Otali *et al.,* 2022
10	Lack of innovation in public sector	Mojumder *et al.,* 2022;
11	Lack of collaboration	Wong *et al* 2023; Rahman *et al,* 2020; Lou *et al*, 2023
12	Poor implementation of building regulations	Otali *et al* 2022; Kagande *et al,* 2020; Ganiyu *et al.,* 2020; Akcay, (2023).

2. 2 Attitudinal Barriers to Green Procurement Implementation

Attitudinal barriers remain some of the most persistent challenges to green procurement adoption (Preuss, 2009). Stakeholder resistance to change and clients' reluctance to embrace new sustainability requirements often hinder progress, as traditional procurement routines foster scepticisms toward innovative practices. This resistance is reinforced by short-term orientations, where organizations prioritize immediate cost savings over the long-term life-cycle benefits of

sustainable procurement (Oyewobi & Jimoh, 2022; World Bank, 2021; Liu & Ma, 2021; Lou *et al.,* 2023; Mojumder *et al.,* 2022; Pourvaziri *et al.,* 2024).

Another critical barrier is the misperception of green products. Decision-makers frequently regard environmentally friendly alternatives as expensive, unreliable, or technologically unproven, leading to risk-averse behaviour that favours conventional procurement methods (Yap *et al.,* 2024; Mojumder *et al.,* 2022; Pourvaziri *et al.,* 2024). In addition, weak corporate commitment and limited leadership support undermine organizational culture around sustainability. Without visible endorsement from leadership, staffs often perceives green procurement initiatives as optional rather than integral to procurement policy (Khan *et al.,* 2018; Pourvaziri *et al.,* 2024).

Table 2: Attitudinal Related Barriers

S/N		SOURCES
1	Stakeholders' resistance to change	Oyewobi & Jimoh 2022; World bank 2021; Liu and Ma 2021 Lou *et al.,* 2023
2	Lack of trust among stakeholders	Agyekum 2022,
3	Lack of communication among stakeholders	Agyekum 2022,
4	Failure to understand stakeholders need and expectation	Agyekum 2022; Mojumder *et al.,* 2022;
5	Client and stakeholders' uncooperative attitudes	Agyekum 2022; Ojo etal 2021; Otali *et al.,* 2022
6	Difficulty in identifying stakeholders and balancing multiple inputs	Agyekun 2022; Ganiyu*, et al.,* 2020;
7	Lack of social drive from major stakeholders	Ogunsanya *et al.,* 2021 Liu and Ma 2021; Agyekum 2022; Ojo et al 2021
8	Wrong perception of quality of green products	Yap *et al.,* 2024; Mojumder *et al.,* 2022; Pourvaziri *et al.,* 2024
9	Lack of environmental responsibilities	Yap *et al.,* 2024; Mojumder *et al.,* 2022; Pourvaziri *et al.,* 2024
10	Inadequate capacity of small-scale suppliers and contractors	Yap *et al.,* 2024; Mojumder *et al.,* 2022; Otali *et al.,* 2022; Pourvaziri *et al.,* 2024
11	Lack of Corporate commitment	Khan *et al.,* 2018; Pourvaziri *et al.,* 2024
12	Lack of interest in sustainable building development	Nwogu & Emedosi 2024;
13	Fear of higher cost	Ogunsanya *et al.,* 2021, Saferi 2018 Liu and Ma 2021; Bidin 2019 Ganiyu *et al.,* 2020

3.0. AREA OF THE STUDY

Abuja, located in Nigeria's Federal Capital Territory (FCT), was conceived in 1976 when the government decided to relocate the capital from Lagos to a more central location, and it was officially inaugurated on December 12, 1991 (Federal Government of Nigeria, 1991). Geographically, Abuja lies at approximately 9°03′N latitude and 7°29′E longitude, bordered by Niger, Kogi, Nasarawa, and Kaduna States, making it strategically accessible from all regions of the country (NPC, 2006). Demographically, the 2006 National Population Census recorded the FCT population at 1,405,201 people, but rapid urbanization has since driven exponential growth, with

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projections estimating over 4.2 million residents by 2025 (NPC, 2006; UN-Habitat, 2025). This expansion positions Abuja among the fastest-growing cities in Africa, yet it also intensifies sustainability challenges such as urban sprawl, infrastructure strain, flooding, and environmental degradation, underscoring the urgent need for sustainable procurement and planning practices in the city's development trajectory (Atanda & Olukoya, 2019; Festus et al., 2020).

4.0 METHODOLOGY

This study investigates government and attitudinal related barriers to green procurement implementation in Nigeria's public building projects and measures their severity using the severity index (SI). Quantitative data were collected through questionnaires administered to stakeholders, with 334 valid responses analysed using descriptive statistics in IBM SPSS (version 25). Mean scores, standard deviations, and the Severity Index (SI) formula were employed to determine the relative impact of each barrier.

4.1 Sampling technique and sample size

In this study, probability sampling will not be suitable because green procurement is an evolving infrastructure delivery strategy in Nigeria. There is neither an official list nor standard Database stipulating the number of stakeholders involved in Geen Procurement infrastructure projects in Nigeria (Amadi *et al.*, 2014; Ashoke, 2025). Therefore, a non-probability sampling technique is adopted for the study. The study employed purposive and snowball sampling to select respondents involved in green procurement of public building projects in Nigeria.

Purposive sampling was first used to deliberately identify professionals with relevant expertise such as procurement officers, project managers, architects, engineers, environmental officers, and consultants ensuring credible and contextually grounded data. This was necessary because green procurement is a specialized and emerging field in Nigeria, requiring insights from individuals with direct experience. Snowball sampling was then applied to broaden the sample, with initial participants referring other qualified experts within their networks. This method helped reach otherwise inaccessible professionals due to bureaucratic or hierarchical barriers and tapped into informal networks. By combining these methods, the study captured diverse expert perspectives and generated a robust dataset suitable for analysis.

4.2.1 Sample size

According to the Krejcie and Morgan (1970) table which postulates that for a population of 1,000,000 that the sample size is 384. The attained sample size consequently offers adequacy in strength in the analysis and justifies the validity of the study results. 400 Questionnaire survey was distributed to stakeholders working in Abuja to cover for non-response rate. Incorporating predictors of non-response in analyses can improve the accuracy of estimates through methods like multiple imputation (Silverwood et al., 2024).

4.3 Questionnaire Administration

The questionnaire consists of two sections. The first section (A) consists of respondents' demographic information. Section(B) has to do with the level of severity of factors hindering green procurement, with a 5-point severity index Likert rank scale, from 1-Not severe at all to 5 extremely severe. This study administered questionnaires to professionals, clients end users and suppliers in Abuja, Nigeria. The distribution and responses are shown below. The total number of useful responses reached 334 {180 (53.9) paper-based and 154 (46.10) online}. The two formats shared the same items, and there was consistency between the modes. These replies were combined into one data set to analyse.

Table:3 Questionnaire Administration

Mode of Administration	Distributed	Returned	Usable	% Response
Paper based (Hardcopy)	220	195	180	53.9
Online (Google form)	180	164	154	46.10
Total	400	359	334	100

Implication: This implies that the return rate of the questionnaires is 83.5%.

4.3.1 The Reliability of the Constructs

For findings of research to be generalised, it is important to take appropriate steps that will ensure that the findings in relation to the data set are precise and consistent by ensuring the validity and reliability (Noble and Smith, 2015; Saunders *et al.,* 2016). Validity refers to the level an idea is correctly analysed in a quantitative study (Heale and Twycross, 2015). The reliability of constructs was achieved using the reliability scale. Reliability scale < 0.60 Poor reliability; 0.6 - 0.69 Questionable reliability; 0.70- 0.79 Acceptable reliability; 0.80 -0.89 Good reliability;>0.90 Excellent reliability (Ahmad et *al.,* 2024). The reliability of the constructs was analysed by finding Cronbach's alpha as suggested by Pallant (2011). Overall Cronbach's alpha for questionnaire was 0.909. This means that the questionnaire as a whole is reliable and acceptable. The reliability test for the field data presented in Table 4, showed that the Cronbach's alphas obtained for each of the constructs are within the same range.

Table 4: Reliability Status

S/N	Construct category	Sub constructs	No. of Items	Cronbach's α	Reliability Status
1	Factors	Government Related Barriers	11	0.900	Excellent reliability
		Attitudinal Related Barriers	12	0.918	Excellent reliability

4.3.2 Method of Analysis

Data obtained were analysed using IBM SPSS statistics version 25 to determine the mean and standard deviation. Snowball sampling was used through physical and online questionnaire distribution. The Severity Index (SI) was computed using the formula: SI= (Mean Score / Maximum Possible Score) ×100. Barriers were categorized into four levels: Very High Severity (≥80%), High Severity (70–79%), Moderate Severity (60–69%), and Low Severity (<60%) (Poljansek, *et al.,* 2020).

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5.0 PRESENTATION AND DISCUSSION OF RESULTS
Table 5: Demographic Information

S/N	Variable		Option		Frequency	Percentage
1	Type of Organization		a)	Govt Agency	120	35.9
			b)	Private	214	64.1
			Total		**334**	**100.0**
2	Profession of respondents		a)	Architecture	45	13.5
			b)	Quantity Surveyor	160	47.9
			c)	Project Management	3	0.9
			d)	Building	49	14.7
			e)	Engineering	37	11.1
			f)	Facility Managers	11	3.3
			g)	Others	29	8.7
			Total		**334**	**100**
3	Years of Experience		a)	1-5 years	8	2.4
			b)	6-10	68	20.4
			c)	11-15	76	22.8
			d)	16-20	94	28.1
			e)	Above 20 years	88	26.3
			Total		**334**	**100.0**
4	Highest Qualification obtained		a)	HND	24	7.2
			b)	Bsc/Btech	143	42.8
			c)	Mtech/Msc	136	40.7
			d)	PHD	23	6.9
			e)	Others	8	2.4
			Total		**334**	**100.0**
5	Designation of respondents		a)	Client	75	22.5
			b)	Designer/Consultant	22	7.2
			c)	Contract	112	33.5
				Administrator	37	11.1
			d)	Project Manager	34	10.2
			e)	Govt or policy maker	52	15.6
			f)	others	**334**	**100.0**
			Total			

Table Five (5) above provides the details of the demographic information of the respondents. Three hundred and thirty-four (334) respondents participated in the study as follows; client organizations' (75), Designer/Consultants (24) and contract administrators (112), government and policy maker (34). These professionals include architects (45), quantity surveyors (160), builders (49), engineers (37) facility managers (11) and others (29). Quantity surveyors participated more than other professionals in the survey with 47.9%. Their academic qualifications are First Degree (143), Masters (136) Higher Diploma (24), and Doctoral (23). All the respondents had post-secondary

education. This confirmed that the respondents have enough experience for them to participate constructively in the study.

Table 6: Level of Severity of Government related barriers

S/N	Factors	Mean	Std. Dev.	Severity Index (%)	Severity Level
1	Poor awareness and delay in decision-making	4.43	0.823	88.6%	Very High Severity
2	Lack of compelling law or policy	4.41	0.650	88.2%	Very High Severity
3	Lack of government commitment	4.13	0.906	82.6%	Very High Severity
4	Insufficient incentives	4.07	1.352	81.4%	Very High Severity
5	Fragmented policies	3.72	1.166	74.4%	High Severity
6	Absence of internal structures that support sustainable procurement	3.70	0.993	74.0%	High Severity
7	Bureaucratic procedures	3.60	1.210	72.0%	High Severity
8	Short-term political goals	3.50	1.133	70.0%	High Severity
9	Lack of leadership and support within organizations	3.47	1.044	69.4%	Moderate Severity
10	Lack of collaboration	3.26	1.155	65.2%	Moderate Severity
11	Difficulty identifying stakeholders and balancing multiple inputs	2.81	0.953	56.2%	Moderate Severity

Table six (6) shows the severity of government related barriers to green procurement implementation was assessed using the Severity Index (SI), calculated as the ratio of each barrier's mean rating to the maximum possible Likert scale value (5), multiplied by 100. The study found out that the most severe barriers identified were "poor awareness and delay in decision-making" (SI = 88.6%) and "lack of compelling law or policy" (SI = 88.2%), both rated as very high severity. These were followed by "lack of government commitment" (SI = 82.6%) and "insufficient incentives" (SI = 81.4%). Barriers such as "fragmented policies" and "absence of internal management structures" fell within the high severity range (SI = 70–79%), while "difficulty in identifying stakeholders" was rated as moderate severity (SI = 56.2%), the lowest among all listed factors.

Table 7: Severity Index of Attitudinal related factors

S/N	Factor	Mean	Std. Dev.	SI (%)	Severity Level
1	Fear of higher cost	4.59	0.784	91.8%	Very High Severity
2	Failure to understand stakeholder needs	4.04	1.001	80.8%	Very High Severity
3	Stakeholders' resistance to change	3.49	1.068	69.8%	High Severity
4	Lack of leadership and support within organizations	3.45	0.969	69.0%	High Severity

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S/N	Factor	Mean	Std. Dev.	SI (%)	Severity Level
5	Lack of social drive from major stakeholders	3.35	1.101	67.0%	High Severity
6	Difficulty in measuring environmental impact	3.34	0.777	66.8%	High Severity
7	Lack of trust among stakeholders	3.26	1.162	65.2%	High Severity
8	Client and stakeholder uncooperative attitudes	3.22	1.145	64.4%	High Severity
9	Scepticisms about effectiveness	3.16	0.813	63.2%	High Severity
10	Lack of capacity for small-scale suppliers/contractors	3.13	0.917	62.6%	High Severity
11	Perceived complexity	3.07	1.114	61.4%	High Severity
12	Cultural attitudes	2.96	1.022	59.2%	Moderate Severity

Table seven (7) above shows the severity of attitudinal related factors to green procurement was assessed using the Severity Index (SI), calculated by dividing the mean score of each factor by the maximum Likert scale value (5) and multiplying by 100. The results indicate that "fear of higher cost" (SI = 91.8%) and "Failure to understand stakeholder needs" (SI = 80.8%) were perceived as very highly severe factors to implementation.

Other factors such as stakeholders' resistance to change (69.8%), lack of leadership support (69.0%), and difficulty in measuring environmental impacts (66.8%) were rated as high severity, indicating widespread agreement about their negative influence. The lowest-ranked factor, "cultural attitudes" (SI = 59.2%), was classified under moderate severity, though it still reflects a meaningful obstacle to procurement reform.

5.1 Discussion

The study reveals that both government-related and attitudinal barriers significantly impede green procurement (GP) implementation in Nigeria, with poor awareness and policy gaps ranked as the most severe (SI = 88.6% and 88.2%). These findings align with international evidence. Ortega Carrasco *et al.* (2024) emphasized the absence of legal frameworks, political opposition, and budget constraints as consistent barriers worldwide. Evidence from Botswana's public sector (Ayarkwa *et al.,* 2020; Ershadi *et al.,* 2021) further highlights relational and information-sharing difficulties within government agencies, underscoring the global need for stronger institutional support.

Attitudinal barriers in Nigeria, particularly fear of higher costs (SI = 91.8%), mirror international findings. Studies show that this perception often stems from limited knowledge of lifecycle costs and short-term budget pressures (AlNuaimi *et al.,* 2021; Opoku-Mensah *et al.,* 2024). Misconceptions about green products being costly or unreliable are widely documented, reinforcing risk-averse procurement behaviour. Training and awareness gaps also emerge as critical across contexts. Pătărlăgeanu *et al.,* (2020) stressed insufficient knowledge among public officials. Resistance to change and cultural attitudes, though moderate in Nigeria, parallel global findings where psychological resistance, competing stakeholder interests, and weak leadership commitment limit adoption (Preuss & Walker, 2015; Wu & Jia, 2018).

6.0 CONCLUSION AND RECOMMENDATIONS

This study identifies the most severe government-related and attitudinal barriers to GP implementation in Nigeria's public building projects, highlighting the dual challenge of weak

institutional frameworks and negative stakeholder perceptions. To overcome these obstacles, the following recommendations are proposed:

1. Strengthen regulatory frameworks by enacting and enforcing compelling green procurement laws and policies.
2. Enhance awareness and capacity building through targeted training programs to improve knowledge and dispel misconceptions about costs.
3. Introduce incentives both financial and non-financial to encourage adoption and reward sustainable practices.

6.1 Research Implication

Based on the findings, Nigeria must adopt a comprehensive, multi-level approach to green procurement in public building projects. This requires moving from voluntary guidelines to mandatory legislation with clear regulatory frameworks that address both structural and attitudinal barriers. Such systemic intervention, rather than fragmented efforts, will accelerate green procurement integration and advance the country's sustainability and climate goals."

REFERENCES

Adeleke, A. Q., Bahaudin, A. Y., & Kamaruddeen, A. M. (2020). Barriers to sustainable construction practices in Nigeria: A developing country perspective. *Journal of Cleaner Production*, *253*, 119962.

Adjei-Bamfo, P., Maloreh-Nyamekye, T., & Ahenkan, A. (2019). The role of e-government in sustainable public procurement in developing countries: A systematic literature review. *Resources, Conservation and Recycling*, *142*, 189-203.

Agbesi, K., Fugar, F. D., & Adjei-Kumi, T. (2018). Modelling the adoption of sustainable procurement in construction organization. *Built environment project and asset management*, *8*(5), 461-476.

Agyekum, A. K., Fugar, F. D. K., Agyekum, K., Akomea-Frimpong, I., & Pittri, H. (2022). Barriers to stakeholder engagement in sustainable procurement of public works. *Engineering, Construction and Architectural Management*.

Ajayi, E. O., Onikoyi, I. A., Babalola, H. B., & Lateef, S. A. (2021). Green Supply Chain Management: An Empirical Study of Green Distribution and Procurement and Operational Performance within Nigerian SMEs. *Appl. Econ. Bus*, *5*, 62.

Akcay, E. C. (2023). Barriers to undertaking green building projects in developing countries: a Turkish perspective. *Buildings*, *13*(4), 841.

Akenroye, T., & Oyedijo, A. (2023). Climate-smart procurement: Tackling climate change in Nigeria. World Economic Forum. https://www.weforum.org/[rest-of-URL]

Alqadami, A. T., Zawawi, N. A. W. A., Rahmawati, Y., Alaloul, W., & Alshalif, A. F. (2020, May). Key success factors of implementing green procurement in public construction projects in Malaysia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 498, No. 1, p. 012098). IOP Publishing.

Amry, N. N. S., bin Mohd Noor, M. Z., & D'Silva, J. L. Recovering Construction Industry: Incorporate Circular Waste Management Towards Lower Construction Waste.

Atanda, J. O., & Olukoya, O. A. (2019). Green building standards: Opportunities for Nigeria. Journal of Cleaner Production, 227, 366-377.

Ayarkwa, J., Agyekum, K., Opoku, D. G. J., & Appiagyei, A. A. (2020). Barriers to the implementation of environmentally sustainable procurement in public universities. *International Journal of Procurement Management*, *13*(1), 24-41.

AlNuaimi, S., AlMarzooqi, H., & Khan, M. (2021). Lifecycle costing awareness and barriers to sustainable procurement in developing economies. *Sustainability*, 13(14), 7892. https://doi.org/10.3390/su13147892

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Amadi, L. O., Ija, M. I., & Jimoh, R. A. (2014). Achieving sustainable procurement practices in the Nigerian construction industry: Examining potential barriers and strategies. *ATBU Journal of Environmental Technology*, 10(2), 45–58. Retrieved from AJOL

Ashoke, L. R., Magaji, S., & Musa, I. (2025). Digital technologies and sustainable procurement in Nigeria: Enhancing transparency and efficiency through multi-stakeholder collaboration. *ISA Journal of Business, Economics and Management*, 2(5), 112–130.

Atanda, J. O., & Olukoya, O. A. (2019). *Barriers to sustainable procurement in the Nigerian construction industry: An exploratory factor analysis. International Journal of Construction Management.* https://doi.org/10.1080/15623599.2019.1658697

Ayarkwa, J., Acheampong, A., & Boateng, P. (2020). Challenges of sustainable procurement in Botswana's public sector. *Journal of Construction in Developing Countries*, 25(2), 45–62. https://doi.org/10.21315/jcdc2020.25.2.3

Bidin, Z. A., Bohari, A. A. M., Rais, S. L. A., & Saferi, M. M. (2019). A SWOT analysis of green procurement implementation in construction projects. In *IOP Conference Series: Earth and Environmental Science* (Vol. 385, No. 1, p. 012017). IOP Publishing

Bidin, Z. A., Mohamad Bohari, A. A., Hashim, N., & Zanudin, K. (2024). Preliminary Findings on Collaborative Approach Elements in Influencing Green Procurement Implementation for Construction Projects. International Journal of Research and Innovation in Social Science, VIII(XII), 4146–4158. https://doi.org/10.47772/ijriss.2024.8120344

Bohari, A. A. M., Skitmore, M., Xia, B., Teo, M., & Khalil, N. (2020). Key stakeholder values in encouraging green orientation of construction procurement. Journal of Cleaner Production,270,https://doi.org/10.1016/j.jclepro.2020.122246

Boumo, E., & Changwak, E. J. (2025). Impact of urbanisation and displacement on environmental sustainability in Abuja, 1991–2022. African Scholars Multidisciplinary Journal, 9(January), 10–20.

Brammer, S., & Walker, H. (2011). Sustainable procurement in the public sector: An International comparative study. International Journal of Operations & Production Management, 31(4), 452–476. [https://doi.org/10.1108/01443571111119551] cement and concrete industries. *Nature Reviews Earth & Environment*, *1*(11), 559-573.

Ershadi, M., Khosravi, A., & Mphale, M. (2021). Institutional barriers to green procurement in African public agencies: Evidence from Botswana. *International Journal of Public Sector Management*, 34(6), 721–739. https://doi.org/10.1108/IJPSM-03-2021-0075

Ezekwu, E. (2025). Sustainable supply chain practices: Driving efficiency, reducing waste, and promoting circular economy models. International Journal of Science and Research Archive, 14(1), 1167

Federal Government of Nigeria (1991). *Proclamation of Abuja as the Federal Capital City.* Federal Government of Nigeria, Abuja.

Festus, E. A., Farouk, Z., Etim, E. J., & Goma, D. (2020). *Sustainable development challenges in Abuja's construction industry: Balancing economic growth and environmental conservation. Fountain Journal of Environmental Studies.* Retrieved from AJOL (Research on sustainability challenges in Abuja)

Ganiyu, A. Y., Adebiyi, R. W. M., Abdulraheem, R. T., Orire, M., Eluwa, I. S., & Stephen, E. (2020). Barrier Factors Affecting Adoption of Green Building Technologies in Nigeria/Ganiyu Amuda-Yusuf…[et al.]. *Built Environment Journal (BEJ)*, *17*(2), 37-48.

Ghosh, M. (2019). Determinants of green procurement implementation and its impact on firm performance. *Journal of Manufacturing Technology Management*, *30*(2),

Grandia, J. (2016). Finding the missing link: Examining the mediating role of sustainable public procurement behaviour. *Journal of Cleaner Production*, 124, 183-190.

Han, Q., Blaauwbroek, S., & Lee, P. H. (2024). Environment performance criteria as means for green public procurement. In Sustainability in Energy and Buildings 2023 (pp. 11-22). Singapore: Springer Nature Singapore.

Kabange, N. R., Kwon, Y., Lee, S. M., Kang, J. W., Cha, J. K., Park, H., ... & Lee, J. H. (2023). Mitigating greenhouse gas emissions from crop production and management practices, and livestock: A review. *Sustainability*, *15*(22), 15889.

Khaderi, S. S., Yub, Y., Bakri, A. S., & Abd Shukor, A. S. (2022). Green Procurement Implementation in Construction industry: Analysis of Developer's Challenges. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1067, No. 1, p. 012052). IOP Publishing.

Khan, M.W.A., Ting, N.H., Kuang, L.C., Darun, M.R., Mehfooz, U., Khamidi, M.F., (2018). . Green procurement in construction industry: a theoretical perspective of enablers and barriers. MATEC Web of Conferences 203, 02012. https://doi.org/10.1051/ matecconf/201820302012.

Kilinkaridou, M. (2023). Green Procurement practices across the EU: Challenges & Opportunities.

Kolawole, R. A., & Idris, K. M. (2020). Investigating Barriers to the Uptake of Sustainable Procurement in the Nigerian Construction Industry. *African Journal of Earth and Environmental Science*, *2*(1), 508-516.

Komolafe, O. F. (2022). Evaluation of Sustainable Procurement Strategies in the Nigerian Construction Industry.

Leal Filho, W., Balogun, A. L., Olayide, O. E., Azeiteiro, U. M., Ayal, D. Y., Muñoz, P. D. C., & Li, C. (2019). Assessing the impacts of climate change in cities and their adaptive capacity: Towards transformative approaches to climate change adaptation and poverty reduction in urban areas in a set of developing countries. *Science of the Total Environment*, *692*, 1175-1190

Lou, K. R., & Huang, Y. F. (2023). Effect of exhibition facilities, professional competence, and green procurement on green meeting, incentive travel, convention, and exhibition industry performance measurement: A case study of the exhibition industry of Taiwan. *Sustainability*, *15*(16), 12179.

Lyulyov, O., Chygryn, O., Pimonenko, T., & Kwilinski, A. (2023). Stakeholders' Engagement in the Company's Management as a Driver of Green Competitiveness within Sustainable Development. Sustainability, 15(9), 7249. https://doi.org/10.3390/su15097249

Ma, Y., Liu, Y., Appolloni, A., & Liu, J. (2021). Does green public procurement encourage firm's environmental certification practice? The mediation role of top management support. *Corporate Social Responsibility and Environmental Management*, *28*(3), 1002-1017**.**

Mojumder, A., Singh, A., Kumar, A., & Liu, Y. (2022). Mitigating the barriers to green procurement adoption: An exploratory study of the Indian construction industry. *Journal of Cleaner Production*, *372*, 133505.

National Population Commission (NPC). (2006). *Population and Housing Census of the Federal Republic of Nigeria: National and State Population and Housing Tables.* Abuja: National Population Commission. (Official census report)
Policy and Management, 32(1), 55–72. https://doi.org/10.1016/j.jepp.2024.01.004

Nwogu, P. C., & Emedosi, A. (2024). Benefits and Drivers of Green Building Projects Implementation in Nigeria. *British Journal of Environmental Sciences*, *12*(2), 31- 42.

Opoku-Mensah, K., Boateng, D., & Owusu, A. (2024). Attitudinal barriers to green procurement adoption: Evidence from Nigeria. *International Journal of Sustainable Construction Management*, 29(1), 101–118. https://doi.org/10.1080/15623599.2024.1876543

Ortega Carrasco, R., López, J., & Martínez, P. (2024). Global barriers to sustainable public procurement: Legal, political, and financial constraints. *Journal of Environmental*

Isaac A. BOBAI [1] Nuru, GAMBO[2], Mohammed M. MUSA[3] and Alhassan, DAHIRU [4]

Ogunsanya, O. A, Clinton O. Aigbavboa & Didibhuku W. Thwala (2021): Sustainable procurement model for publicly funded construction projects in developing nations – a structural equation modeling approach, *International Journal of Construction Management,* DOI: 10.1080/15623599.2021.1889087

Ojo, L. D., Oladinrin, O. T., & Obi, L. (2021). Critical barriers to environmental management system implementation in the Nigerian construction industry. *Environmental Management*, *68*(2), 147-159.

Okechukwu, N. (2024). Department of History and International Relations, Abia State University Uturu, Nigeria. *British Journal of Mass Communication and Media Research*, *4*(1), 1-.11

Olanipekun, A. O., Aje, I. O., & Fadugba, D. (2022). Investigating the challenges of green procurement adoption in Nigerian public construction projects. *Sustainable Development in Africa*, *24*(2), 75–86.

Olanipekun, A. O., Aje, I. O., & Fadugba, D. (2022). Investigating the challenges of green procurement adoption in Nigerian public construction projects. *Sustainable Development in Africa*, *24*(2), 75–86.

Oluwabukunmi A. Ogunsanya, Clinton O. Aigbavboa, Didibhuku W. Thwala & David J. Edwards (2019): Barriers to sustainable procurement in the Nigerian construction industry: an exploratory factor analysis, *International Journal of Construction Management*, DOI:10.1080/15623599.2019.1658697

Orfanidou, V. S., Rachaniotis, N. P., Tsoulfas, G. T., & Chondrokoukis, G. P. (2023). Life Cycle Costing Implementation in Green Public Procurement: A Case Study from the Greek Public Sector. *Sustainability*, *15*(3), 2817.

Orfanidou, V., Rachaniotis, N. P., Tsoulfas, G. T., & Chondrokoukis, G. (2023). Life Cycle Costing Implementation in Green Public Procurement: A Case Study from the Greek Public Sector. Sustainability,15(3),2817. https://doi.org/10.3390/su15032817

Otali, M., Adewuyi, T., & Ugwoeri, C. J. (2022). Drivers and barriers influencing the implementation of green technology principles for sustainable infrastructural developments in Niger-Delta region of Nigeria. *Journal of the Nigerian Institute of Building*, *7*(66), 66-82.

Oyewobi, L. O., Ija, M. I., & Jimoh, R. A. (2017). Achieving sustainable procurement practices in the Nigerian construction industry: Examining potential barriers and strategies. *ATBU Journal of Environmental Technology*, *10*(2), 63-84.

Oyewobi, L.O.; Jimoh, R.A. (2022) Barriers to Adoption of Sustainable Procurement in the Nigerian Public Construction Sector. *Sustainability* **2022**, 14, 14832. https://doi.org/ 10.3390/su142214832

Poljanšek, K., Disperati, S., Vernaccini, L., Nika, A., Marzi, S., & Essenfelder, A. H. (2020). INFORM Severity Index.

Pourvaziri, M., Mahmoudkelayeh, S., Kamranfar, S., Fathollahi-Fard, A. M., Gheibi, M., & Kumar, A. (2024). Barriers to green procurement of the Iranian construction industry: An interpretive structural modeling approach. International Journal of Environmental Science and Technology, 21(4), 3599-3616.

Pătărlăgeanu, S. R., Dumitrescu, A., & Ionescu, C. (2020). Training and awareness gaps in sustainable procurement: A cross-country analysis. *Journal of Cleaner Production*, 276, 124–135. https://doi.org/10.1016/j.jclepro.2020.124135

United Nations Human Settlements Programme (UN-Habitat). (2025). *World Urbanization Prospects: Abuja Population Projections.* New York: United Nations. (Population projection data)

Rahman, T., Ali, S. M., Moktadir, M. A., & Kusi-Sarpong, S. (2020). Evaluating barriers to implementing green supply chain management: An example from an emerging economy. *Production Planning & Control*, *31*(8), 673-698.

Rane, S. B., & Thakker, S. V. (2020). Green procurement process model based on blockchain–IoT integrated architecture for a sustainable business. *Management of Environmental Quality: An International Journal*, *31*(3), 741-763.

Shen, L., Zhang, Z., & Long, Z. (2017). Significant barriers to green procurement in real estate development. *Resources, Conservation and Recycling*, *116*, 160-168.

Sönnichsen, S. D., & Clement, J. (2020). Review of green and sustainable public procurement: Towards a better understanding of sustainable public procurement. *Journal of Cleaner Production*, 247, 119188.

Soyege, O. O., Makinde, G. O., & Akinlabi, B. H. (2023). Green Supply Chain Management and Organizational Performance of Fast-Moving Consumer Goods Firms in Lagos Nigeria. *International Journal of Entrepreneurship*, *6*(2), 1-20.
To link to this article: https://doi.org/10.1080/15623599.2019.1658697

Ullah, A., Ghani, H. U., & Gheewala, S. H. (2023). Green Public Procurement and Ecolabels Towards Sustainable Consumption and Production.

Ullah, A., Ghani, H. U., & Gheewala, S. H. (2023). Green Public Procurement and Ecolabels Towards Sustainable Consumption and Production.

Unegbu, H. C., Yawas, D., & Dan-Asabe, B. (2023). An Assessment of the Literature on the Performance of Construction Projects in Nigeria. *Jurnal Mekanikal*, 27-38.

Upadhyay, A. K., Sheetal, & Khan, M. I. (2023). Comparing Sustainable Procurement in Green Supply Chain Practices Across Indian Manufacturing and Service Sectors. *Business Perspectives and Research*, 22785337221148827.

Walker, H., & Brammer, S. (2009). Sustainable procurement in the United Kingdom public sector. *Supply Chain Management: An International Journal*, 14(2), 128-137.

Wong W.K., Teh B.H., Tan S.H. (2023) The Influence of External Stakeholders on Environmental, Social, and Governance (ESG) Reporting: Toward a Conceptual Framework for ESG Disclosure. Foresight and STI Governance, 17(2), 9–20. DOI: 10.17323/2500-2597.2023.2.9.20

Woolley, F., Macnaughton, A., Milligan, K., & Sandler, D. (2022). Equitable Tax Policies for Post-Secondary Education. Can. Tax J., 70, 595.

World Bank. (2021). Green Public Procurement: An Overview of Green Reforms in Country Procurement Systems.

Yap, J. B. H., Teh, Y. H., Loo, S. C., & Sulaiman, Z. B. (2023). Benefits of green procurement: perspectives from the Malaysian construction industry. *International Journal of Construction Management*, 1-10