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Sustainable Practices of Multinational Construction Companies, Lagos, Nigeria

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Abstract: This study evaluated the sustainable practices of multinational construction companies (MCCs) in Lagos State, Nigeria, with a view to promoting sustainable development and achieving a sustainable future. A total of 150 structured questionnaires were administered to selected multinational construction companies, yielding a response rate of 47%. The collected data were analysed using frequency distribution and mean score techniques to classify respondents' perceptions of sustainability practices. Analysis of Variance (ANOVA) was employed to determine significant differences in respondents' opinions, while factor analysis was used to identify the underlying factors influencing sustainable practices. The findings revealed a high level of engagement by multinational construction companies in sustainable practices, including corporate social responsibility and ethical practices, installation of energy-efficient mechanical and electrical systems, reduction in the use of hazardous materials on construction sites, minimization of construction waste, and energy conservation in company operations. The study further identified cost effectiveness and financial gains, stakeholders' understanding, access to sustainable technologies, operational and economic considerations, and corporate image and value delivery as the most influential factors driving sustainability adoption. The study concluded that multinational construction companies in Lagos State are actively implementing practices that contribute to environmental sustainability and the well-being of future generations. However, financial and cost-related constraints remain significant barriers to the effective implementation of sustainable practices within the construction sector.

Keywords: *Sustainable Practices; Multinational Construction Companies; Corporate Social Responsibility; Sustainable Construction; Environmental Sustainability.*

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I. INTRODUCTION

The construction industry is one of the largest contributors to global greenhouse gas (GHG) emissions, with the built environment accounting for approximately 50% of annual emissions (Blumberg and Sibilla, 2023). Human-induced climate change, driven by fossil fuel combustion and industrial activities, has intensified environmental challenges including flooding, drought, water scarcity, extreme weather events, and biodiversity loss (Aloshan, 2024)). Among the sectors responsible, the construction industry is significant, producing nearly a third of global emissions (Labaran et al., 2021). Multinational construction companies (MCCs), due to their scale, expertise, and international presence, contribute considerably to these emissions through the delivery of infrastructure projects across sectors such as energy, manufacturing, transportation, water, and telecommunications (Bieser et al., 2024; Karakosta and Papathanasiou, 2025). Their activities, while vital for economic growth, often impose environmental and social costs that must be addressed to ensure sustainable development.

In response to these challenges, sustainability has emerged as a central agenda. Defined by Elsawy and Youssef (2023) as meeting present needs without compromising future generations, sustainability in construction focuses on resource efficiency, environmental stewardship, and social responsibility. Practices such as waste reduction, recycling, energy efficiency, sustainable supply chain management, corporate social responsibility, and eco-design are increasingly being adopted to reduce adverse impacts and improve overall performance (Nwaogbe et al., 2025). These practices not only help minimize waste and conserve resources but also enhance profitability, competitiveness, and organizational culture. However, research shows that their implementation can be influenced or constrained by several factors, including regulatory requirements, government policies, technological advancements, leadership commitment, financial incentives, stakeholder pressures, employee skills, and organizational culture (Nwaogbe et al., 2025; Yılmaz, M., & Bakış). Thus, understanding these drivers and barriers is critical for achieving meaningful sustainability outcomes.

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Despite the global emphasis on sustainable construction, there is limited knowledge on how multinational construction companies (MCCs) operating in developing contexts, such as Nigeria, adopt these practices. Lagos State, Nigeria's economic hub, is experiencing rapid urbanization and significant infrastructure demand, attracting several MCCs to deliver critical projects. However, with increasing construction activities comes rising environmental pressure, and there is a pressing need to investigate whether these companies integrate sustainability into their operations (Auwalu and Bello, 2023). Most existing studies have focused on small and medium-sized firms or general industry assessments, creating a knowledge gap regarding MCCs' sustainable practices in Nigeria. Understanding their strategies, influencing factors, and associated impacts will not only inform policy and industry standards but also contribute to minimizing carbon footprints and advancing climate action goals, particularly Sustainable Development Goal 13.

This study therefore assesses the sustainable practices of MCCs in Lagos State, examining what practices are implemented, what factors influence their adoption, and how these practices impact organizational outcomes. By addressing this gap, the research provides insights into the role of MCCs in advancing sustainability in a rapidly urbanizing context and highlights actionable measures to align construction activities with environmental and socio-economic priorities.

II. METHODOLOGY

➢ *Data Collection*

Quantitative data collection method was adopted via use of empirical questionnaire survey due to its ease of measurement and analysis. Sustainable construction practices and factors influencing these practices highlighted from the literature review as highlighted in Tables 1 and 2, formed the basis of the questionnaire which was divided into three sections. The first section contains the respondents background information, while the second section highlighted the various sustainable practices, and the third contained the factors influencing sustainable practices in MCCs. The respondents were asked to rate the definition of sustainable construction practices as well as factors influencing these practices using a five-point Likert scale (4=strongly agree, 3 = agree, 2 = neutral, 1 = disagree and 0 = strongly disagree). The scale ensured that the responses obtained were summarized, averaged and further analyzed via various statistical methods. Hence, a total of 150 questionnaires were administered to the construction professionals through google forms by adopting random sampling method with a response from 70 correspondent. The overview of the professionals is presented in Table 3.

➢ *Formulation of the Questionnaire*

- *Survey Delivery Mode*

The questionnaire for the study was created and administered using the Google Form platform (Ade Dissertation - Google Forms). Google form is a free online provided by Google. The form will be used to collect responses from the respondents from each of the companies being surveyed.

- *Questionnaire Content*

The questionnaire contained a total of 93 multiple-choice questions, which are grouped into five sections namely A, B, C, D and E. The questions in section A are 15 and include closed questions identifying gender, age, profession, highest academic qualification, professional membership, professional status and roles in the company. Other questions include years of experience in construction industry, size of employee, company's revenues, company's assets and company's years of operation in construction business and Nigerian construction industry including the specialisation of the company. Questions were also asked on the nationality and specialisation of the respondents' company.

In Section B, there are 12 questions (B1-B12), which explain how the term sustainability is described. These questions are rated on a scale 0 to 4 where 4 (strongly agree), 3 (agree), 2 (neutral), 1 (disagree), 0 (strongly disagree). The purpose of numerical ratings is to ensure and ease the process of carrying out statistical analysis. Section C of the questionnaire consists of a total of 27 questions, which are sustainable practices that multinational companies can implement to achieve a sustainable construction. These questions are ranked using a scale 0 to 4 where 4 (always), 3 (often), 2 (sometimes), 1 (rarely) and 0 (never).

In Section D, there are 27 questions and they are factors influencing sustainable practices in multinational construction companies. These questions are rated on a scale 0 to 4 where 4 (strongly agree), 3 (agree), 2 (neutral), 1 (disagree) and 0 (strongly disagree). There are 12 questions in section E of the questionnaire, which are impacts of sustainable practices in multinational construction. These questions are ranked on a scale 0 to 4 where 4 (strongly agree), 3 (agree), 2 (neutral), 1 (disagree) and 0 (strongly disagree).

The validity test of the questionnaire was undertaken by sending a copy of questionnaire to one construction professional each in practice and academia. The professionals completed the questionnaire under 10-15 minutes and the responses received affirmed that the professionals understand the questions.

➢ *Data Measurement and Analysis*

After the close of the survey, the responses obtained through questionnaire were extracted into the Microsoft Excel spreadsheets format according to the research questions namely descriptions of sustainability, sustainable practices, factors influencing sustainable practices, and impacts of sustainable practices. The study used frequency, mean, analysis of variance (ANOVA) and factor analysis tools to analyse the data collected.

Frequency pie charts were generated for questions about the general profiles of the respondents. Mean and ANOVA were computed for research questions on descriptions on sustainability, sustainable practices for

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organisations; factors influencing sustainable practices; and impacts of sustainable practices on organisations. Factor analysis was also used for factors influencing sustainable construction. In case of ANOVA, the level of significance "P" was set at $p<0.05$ and this is equated at 95% or 5 in 100 chance of getting it wrong (Farrell, 2016).

➢ *Reliability Test*

In order to test how reliable are the data collected with the questionnaire from the respondents, a reliability test was carried out and a Cronbach's Alpha score of 0.70 and above was used as a benchmark. The results of the analysis are presented on Table 4. The results on sustainable practices is positive with Cronbach' Alpha value of 0.970, which is very closer to 1.00 and show a significant positive correlation. For factors influencing practices and impacts of sustainable practices, the Cronbach' Alpha value is 0.941 and 0.887 respectively. These also show significant positive correlation.

Table 1 Sustainable Practices in Organizations

Sustainable Practices	Sources
Reducing, recycling and re-use of construction and demolition debris.	Mohammed et al., 2020
Reducing the use of hazardous materials on the site.	Mohammed et al., 2020
Use of eco-friendly materials.	Pheng et al., 2019
Reducing carbon or greenhouse gas emissions from company's operations.	Pheng et al., 2019
Implementing waste reduction and recycling programs.	Pheng et al., 2019; Batista and Francisco, 2018
Using renewable energy in company's operation	Batista and Francisco, 2018
Engaging in corporate social responsibilities, practices and ethics.	de Oliveira et al., 2023
Engaging local community and fair labour practices.	Kreiss et al., 2016; Batista and Francisco, 2018
Sourcing for and producing alternative materials.	Kreiss et al., 2016
Adopting eco-friendly designs.	Marconi & Favi, 2019; Piwowar-Sulej et al., 2020
Protecting existing vegetations and planting new ones.	Mohammed et al., 2020
Making environmentally friendly purchasing decisions.	Mohammed et al., 2020
Installing more energy-efficient mechanical and electrical systems.	Mohammed et al., 2020
Utilizing sustainable building materials.	Ismail et al., 2017
Using water or natural resources in efficient ways.	Ismail et al., 2017
Minimizing or reducing waste during construction production.	Ismail et al., 2017
Adopting and complying to green/sustainable practices regulations for production of projects.	Willar, 2021
Enhancing use of water and mitigating wastage of water.	Ismail et al., 2017
Ensuring that environment is well managed.	Bakhtiar et al., 2008
Adopting sustainable procurement and supply chain techniques.	Bakhtiar et al., 2008; Batista and Francisco, 2018
Engaging in sustainable investment.	Willar, 2021; Bakhtiar et al., 2008
Engaging in research and development on sustainable products and services.	Batista and Francisco, 2018

Table 2 Factors Influencing Sustainable Practices in Organizations

Factors	Sources
Legal and regulatory requirements.	Esezobor, 2016
Prevailing organizational culture.	Afzal & Lim, 2022; Afzal and Lim, 2022
Advancements in technology and innovation.	Pheng et al., 2019
Customer preferences and focus.	Pheng et al., 2019
Supply chain capability and management	Afzal & Lim, 2022
Client requirements, demands and satisfaction.	Esezobor, 2016
Understanding of customer needs.	Afzal and Lim, 2022
Clear communication of goals.	Afzal and Lim, 2022
Employee skills, attitudes and involvement.	Afzal and Lim, 2022
Company's awareness, advocacy, and reputation.	Akindele et al., 2023
Professional stakeholders' awareness, training, expertise and communication.	Akindele et al., 2023
Company's level of technological capabilities.	Afzal & Lim, 2022
Market identification and supplier's pressure.	Serpell, Kort and Vera, 2013
Stakeholders' understanding.	Esezobor, 2016; Serpell, Kort and Vera, 2013
Value delivery and cost reduction.	Akindele et al., 2023; Serpell, Kort and Vera, 2013;
Access to sustainable technologies.	Akindele et al., 2023
Political will.	Esezobor, 2016

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Table 3 Background Profile of Respondents

Variables	Frequency
Profession	
Quantity Surveyors	29
Engineers	9
Architects	13
Project Managers/Builders	14
Others	5
Total	*70*
Academic Qualifications	
National/Higher National Diploma	6
Bachelor of Science or Technology	27
Master of Science or Technology	35
Doctor of Philosophy	2
Total	*70*
Years of Experience	
Less than 5	12
6 to 10	38
11 to 15	14
16 to 20	2
Greater than 20	4
Total	*70*

Table 4 Reliability Test

Objective	Cronbach's Alpha	Number of Items	Conclusions
Sustainable practices	0.970	27	Positive reliability
Factors influencing practices	0.941	27	Positive reliability
Impacts of sustainable practices	0.887	12	Positive reliability

III. RESULTS AND DISCUSSION

➢ *Sustainability Practices of MCCs in Nigeria*

The findings on sustainable practices among multinational construction companies (Table 5) indicate a moderate level of adoption across environmental, social, and operational dimensions. Overall mean scores ranged from 2.42 to 2.92, suggesting that while sustainability is recognized and practiced, its implementation remains uneven and largely incremental. The most highly rated practice was engaging in corporate social responsibilities, practices and ethics (M = 2.92), underscoring the growing emphasis on ethical conduct, stakeholder engagement, and social accountability within multinational construction firms.

Practices related to energy efficiency and environmental management were also ranked relatively high, including installing more energy-efficient mechanical and electrical systems (M = 2.89), minimizing or reducing waste during construction production (M = 2.86), reducing the use of hazardous materials on site (M = 2.87), conserving energy in company operations (M = 2.83), and enhancing water use efficiency and mitigating water wastage (M = 2.80). These practices are often associated with regulatory compliance, operational cost savings, and reputational benefits, which may explain their higher adoption levels among multinational firms. Similar practices were identified by Pheng et al. (2019), who highlighted the use of eco-friendly materials, reduction of carbon emissions, and implementation of environmentally and socially responsible strategies as key sustainability measures in construction organizations. Likewise, waste reduction, energy conservation, and social responsibility as core sustainability initiatives have been emphasized in similar studies (Mohammed et al., 2020; Batista and Francisco, 2018).

Environmental stewardship practices such as ensuring that the environment is well managed, utilizing sustainable building materials, adopting eco-friendly designs, and reducing carbon or greenhouse gas emissions from company operations recorded moderate mean values. These findings suggest that while firms acknowledge the importance of environmentally responsible construction, full integration of design-led and innovation-driven sustainability strategies is still developing. This aligns with the work of Marconi and Favi (2019), who identified eco-design and sustainable leadership as emerging but not yet fully embedded organizational practices, as well as Wang et al. (2021) in Alraja et al. (2022), who emphasized technological innovation and green practices as critical enablers of sustainability.

Other practices, such as using water or natural resources efficiently, engaging in sustainable measurement and reporting systems, adopting sustainable procurement and supply chain techniques, engaging local communities and ensuring fair labour practices, sourcing alternative materials, and engaging in sustainable investment were also identified as practices adopted by multinational construction companies, albeit with lower overall rankings. These practices often require systemic organizational changes, long-term investment, and cross-supply-chain collaboration,

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which may constrain their widespread adoption. Batista and Francisco (2018) similarly observed that while companies adopt a wide range of sustainable practices, activities such as sustainable supply chain management, research and development, community engagement, and diversity initiatives tend to lag behind operational environmental measures.

Practices associated with innovation, long-term planning, and ecological preservation, including engaging in research and development on sustainable products and services, using renewable energy in company operations, protecting existing vegetation and planting new ones, and reducing, recycling, and re-use of construction and demolition debris, recorded the lowest mean scores. This suggests that despite their acknowledged importance, these practices remain under-prioritized, possibly due to financial constraints, limited technical expertise, or weak enforcement mechanisms. Mohammed et al. (2020) similarly argued that achieving sustainability in construction organizations depends on deliberate adoption of practices such as debris recycling, limiting hazardous materials, protecting vegetation, environmentally responsible procurement, and energy-efficient systems-areas that still show relatively low uptake in practice.

Analysis across professional groups shows that respondents categorized as “Others” consistently reported higher mean scores for most sustainable practices, indicating stronger sustainability orientation or broader exposure to sustainability frameworks. In contrast, Quantity Surveyors and Engineers generally reported lower mean values, particularly for practices related to eco-design, renewable energy use, and sustainability education and training. However, ANOVA results indicate that, except for engaging in corporate social responsibilities, practices and ethics (Sig. = 0.03), there are no statistically significant differences in perceptions among professional groups. This suggests that sustainability challenges are largely industry-wide rather than profession-specific.

The findings corroborate earlier studies (Ismail et al., 2017; Kreiss et al., 2016) which identified sustainable construction practices as encompassing environmentally friendly design, efficient resource use, alternative material sourcing, minimal waste generation, and responsible land use planning. The results indicate that multinational construction companies have made progress in adopting compliance-driven and operational sustainability practices; however, greater emphasis is required on innovation, renewable energy integration, research and development, and ecological preservation to achieve a more holistic and long-term sustainability transition.

Table 5 Sustainable Practices in Multinational Construction Companies

Sustainable Practices	**QS**		**Engr**		**Arch**		**B/PM**		**Others**		**Overall**		**ANOVA**	
	M	**R**	**M**	**R**	**M**	**R**	**M**	**R**	**M**	**R**	**M**	**R**	**F**	**Sig.**
Engaging in corporate social responsibilities, practices and ethics	3.14	1	2.33	9	3.14	1	2.50	18	3.20	17	2.92	1	2.79	**0.03**
Installing more energy-efficient mechanical and electrical systems	3.00	2	2.56	3	2.79	9	2.79	4	3.40	5	2.89	2	0.66	0.62
Reducing the use of hazardous materials on the site	2.90	6	2.56	3	2.93	2	2.79	4	3.40	5	2.87	3	0.55	0.70
Minimizing or reducing waste during construction production	2.93	5	2.67	1	2.86	7	2.64	11	3.40	5	2.86	4	0.69	0.60
Conserving energy in company’s operation	2.97	4	2.44	6	2.93	3	2.50	18	3.40	5	2.83	5	1.31	0.28
Adopting and complying to green/sustainable practices regulations for production of projects	3.00	3	2.33	9	2.50	18	2.86	2	3.20	17	2.80	6	1.17	0.33
Enhancing use of water and mitigating wastage of water	2.86	7	2.67	2	2.50	17	2.93	1	3.20	17	2.80	6	0.63	0.64
Ensuring that environment is well managed	2.79	8	2.44	6	2.79	10	2.64	11	3.40	5	2.76	8	0.71	0.59
Utilizing sustainable building materials	2.72	12	2.33	9	2.71	13	2.71	9	3.20	17	2.70	9	0.58	0.68
Adopting eco-friendly designs	2.79	10	2.00	26	2.79	11	2.64	11	3.20	17	2.69	10	1.40	0.24
Use of eco-friendly materials	2.76	11	2.22	17	2.50	19	2.79	4	3.40	5	2.69	10	1.36	0.26
Reducing carbon or greenhouse gas emissions from company’s operations	2.79	9	2.22	17	2.50	21	2.57	15	3.60	1	2.68	12	1.62	0.18
Reducing the generation of waste	2.66	14	2.33	9	2.93	4	2.43	22	3.40	5	2.68	12	1.21	0.31

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Using water or natural resources in efficient ways	2.55	20	2.33	9	2.86	6	2.79	4	3.20	17	2.68	12	0.83	0.51
Engaging in sustainable measurement and reporting systems	2.66	15	2.33	9	2.57	16	2.50	18	3.60	1	2.63	15	1.28	0.29
Adopting sustainable procurement and supply chain techniques	2.55	19	2.56	3	2.43	24	2.86	2	3.20	17	2.63	15	0.75	0.56
Engaging local community and fair labour practices	2.72	13	2.11	23	2.79	12	2.43	22	3.00	25	2.62	17	1.09	0.37
Sourcing for and producing alternative materials	2.59	18	2.22	17	2.93	5	2.36	25	3.40	5	2.62	17	1.31	0.28
Engaging in sustainable investment	2.52	22	2.33	9	2.43	25	2.79	4	3.40	5	2.59	19	1.01	0.41
Making environmentally friendly purchasing decisions	2.62	16	2.22	17	2.50	23	2.57	15	3.20	17	2.58	20	0.66	0.62
Implementing waste reduction and recycling programs	2.62	17	2.11	23	2.64	15	2.36	25	3.40	5	2.56	21	1.38	0.25
Adopting sustainable policies and legal framework	2.55	21	2.33	9	2.50	20	2.64	11	3.00	25	2.56	21	0.40	0.81
Engaging in sustainable education and training	2.45	25	2.44	6	2.50	22	2.57	15	3.40	5	2.55	23	0.89	0.48
Using renewable energy in company's operation	2.48	24	2.11	23	2.71	14	2.50	18	3.00	25	2.52	24	0.70	0.60
Engaging in research and development on sustainable products and services	2.48	23	2.22	17	2.29	27	2.43	22	3.60	1	2.48	25	1.46	0.23
Protecting existing vegetations and planting new ones	2.31	26	2.00	26	2.43	26	2.71	9	3.40	5	2.45	26	1.42	0.24
Reducing, recycling and re-use of construction and demolition debris	2.14	27	2.22	17	2.86	8	2.29	27	3.60	1	2.42	27	2.50	0.05

- *Factors Affecting Sustainability Practices of MCCs in Nigeria*

The analysis of factors influencing sustainable practices in multinational construction companies (Table 6) reveals a convergence of economic, organizational, technological, and regulatory drivers. Using a 5-point Likert scale, respondents across professional groups identified several high-impact factors, with some variation in emphasis depending on professional roles.

From the descriptive analysis, quantity surveyors emphasized advancements in technology and innovation, stakeholders' understanding, client requirements, employee competence, and cost-related considerations as key drivers. Engineers, on the other hand, highlighted political will, operational cost, supply chain capability, and managerial perspectives as dominant influences. Architects strongly associated sustainable practices with cost effectiveness, access to sustainable technologies, and value delivery, while also recognizing stakeholder understanding, environmental concerns, and communication clarity as important. Builders and project managers placed greater importance on corporate image and value delivery, alongside organizational culture, operational cost, and strategic competitiveness.

Despite these variations, the overall mean scores indicate a strong consensus across all respondents. The most influential factors include cost effectiveness and financial rewards/gains (MS = 3.25), stakeholders' understanding (MS = 3.24), access to sustainable technologies (MS = 3.23), operational cost and economic reasons (MS = 3.23), and corporate image and value delivery (MS = 3.20). Furthermore, the ANOVA results confirm that there is no statistically significant difference in perceptions among the professional groups, suggesting a shared understanding of sustainability drivers within multinational construction firms.

Additional supporting factors include cost effectiveness, access to sustainable technologies, operational and financial considerations, environmental concerns, business strategies, technological innovation, client demands, organizational culture, customer preferences, supply chain management, employee competence, and international pressures. Together, these findings demonstrate that sustainable practices are shaped by an interplay of financial incentives, stakeholder influence, regulatory frameworks, and organizational capabilities.

The findings of this study both align with and diverge from existing literature. For instance, the results contradict Irfan et al. (2022), who identified organizational culture, regulatory obligations, and stakeholder influence as the primary drivers. Similarly, while Pheng et al. (2019) emphasized financial rewards, technological advancement, and consumer preference, this study finds a broader range of interrelated factors. However, the results are consistent with Afzal and Lim (2022), who highlighted organizational culture, human resource management, supply chain management, employee enablement, and business strategies as critical determinants.

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The findings also partly agree with Zhivkova (2022), particularly regarding the importance of managerial perspectives, employee involvement, financial gains, value delivery, client satisfaction, customer focus, and clear communication of goals. In addition, the role of regulatory frameworks identified in this study supports the findings of Bond and Perrett (2012), who reported that government regulations can act as barriers to sustainable practice adoption.

More recent studies, such as Zulu et al. (2023), further corroborate the importance of company reputation, cost considerations, government policies, technological adoption, and professional expertise. Conversely, Afzal and Lim (2022) reinforce the role of organizational culture, supply chain capabilities, technological capacity, employee skills, and business strategies in achieving effective sustainability outcomes.

Table 6 Factors Influencing Sustainable Practices in Multinational Construction Companies

Factors	QS		Engr		Arch		B/PM		Others		Overall		ANOVA	
	M	R	M	R	M	R	M	R	M	R	M	R	F	Sig.
Advancements in technology and innovation	3.28	1	2.78	23	3.21	15	3.07	20	3.40	10	3.17	8	1.48	0.22
Stakeholders' understanding	3.21	2	3.00	11	3.36	5	3.29	9	3.40	10	3.24	2	0.41	0.80
Client requirements, demands and satisfaction	3.17	3	2.78	22	3.21	15	3.36	5	3.20	20	3.17	8	0.66	0.63
Employee skills, attitudes and involvement	3.17	3	2.78	24	2.86	27	2.93	26	2.80	27	2.99	26	0.62	0.65
Cost effectiveness and financial rewards/gains	3.14	5	3.11	4	3.64	1	3.07	20	3.60	4	3.25	1	1.65	0.17
Access to sustainable technologies	3.14	5	2.89	14	3.50	2	3.29	9	3.40	10	3.23	3	0.99	0.42
Operational cost and economic reasons	3.10	7	3.33	2	3.21	15	3.43	2	3.20	20	3.23	3	0.45	0.77
Professional stakeholders' awareness, training, expertise and communication	3.10	7	3.00	13	3.00	24	3.00	23	3.60	4	3.08	19	0.49	0.74
Corporate image and value delivery	3.10	7	2.89	19	3.14	21	3.50	1	3.60	4	3.20	5	1.17	0.33
Financial gains or economic issues	3.07	10	3.11	4	3.36	5	3.21	13	3.40	10	3.18	6	0.38	0.82
Value delivery and cost reduction	3.07	10	3.00	9	3.50	2	3.14	17	3.40	10	3.18	6	0.84	0.51
Company's level of technological capabilities	3.07	10	2.89	18	3.21	15	3.29	9	3.60	4	3.15	12	0.62	0.65
Prevailing organizational culture	3.07	10	2.89	20	3.14	21	3.43	2	3.20	20	3.14	14	0.96	0.44
Environmental issues	3.03	14	3.11	4	3.36	5	3.21	13	3.40	10	3.17	8	0.64	0.64
Customer preferences and focus	3.03	14	2.89	15	3.36	5	3.00	23	3.60	4	3.11	15	0.97	0.43
Company's business strategies, reputation and competitiveness	3.03	14	2.89	17	3.21	15	3.36	5	3.80	1	3.17	8	1.92	0.12
Stakeholder demands and influence	3.03	14	2.67	25	3.21	15	3.29	9	3.40	10	3.10	18	1.54	0.20
Government rules, policies and regulations	3.03	14	2.67	26	2.93	25	3.36	5	3.60	4	3.07	20	1.27	0.29
Political will	3.00	19	3.44	1	3.36	5	3.07	20	3.20	20	3.15	12	0.95	0.44
Managerial concerns and perspectives	2.93	20	3.11	4	3.29	12	3.00	23	3.00	26	3.04	21	0.44	0.78
Clear communication of goals	2.93	20	3.00	12	3.36	5	3.21	13	3.40	10	3.11	15	0.69	0.60
Market identification and supplier's pressure	2.86	22	2.89	16	3.29	12	3.14	17	3.40	10	3.04	21	0.88	0.48

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Legal and regulatory requirements	2.86	22	2.89	21	3.14	21	3.14	17	3.80	1	3.04	21	1.53	0.21
Supply chain capability and management	2.83	24	3.33	2	3.29	12	2.79	27	3.80	1	3.04	21	2.40	0.06
Company's awareness, advocacy, and reputation	2.83	24	3.11	4	3.36	5	3.43	2	3.20	20	3.11	15	1.46	0.23
International pressures	2.83	24	2.22	27	2.93	25	3.36	5	3.20	20	2.90	27	2.16	0.08
Understanding of customer needs	2.72	27	3.00	10	3.43	4	3.21	13	3.40	10	3.04	21	1.65	0.17

IV. CONCLUSION

The research began with sending out questionnaires to about 150 professionals with 70 responses. After which the Likert Scale obtained results were averaged and ranked based on the mean values. After which the Cronbach, KMO and communality test were carried out on the values in order to determine their suitability for factor analysis.

From the factor analysis, for sustainability practices, engaging in corporate social responsibilities, practices and ethics, installing more energy-efficient mechanical and electrical systems, reducing the use of hazardous materials on the site, minimizing or reducing waste during construction production and conserving energy in company's operation are the practices mostly adopted in multinational construction companies in Lagos State, Nigeria. It was also found that engaging in corporate social responsibilities, and reducing, recycling and re-use of construction and demolition debris are significant practices. While for factors influencing sustainability in MCCs, corporate image and value delivery, political will, managerial concerns and perspectives, legal and regulatory requirements, value delivery and cost reduction, clear communication of goals, government rules, policies and regulations, professional stakeholders' awareness, training, expertise and communication, stakeholders' understanding, and market identification and supplier's pressure to be the major factors.

Based on the findings and conclusions drawn from it, this research recommends that organisations, construction and non-construction industries must ensure that sustainable practices are prioritized and employed when carrying out company activities. It is also recommended that measures that influence adoption of sustainable practices should positively be given adequate consideration.

The research provided information on sustainable practices among multinational construction companies in Lagos State, Nigeria by providing an insight on the practices adopted. It also went ahead to expose their benefits to companies and environment and to reveal the factors influencing sustainable practices in multinational construction companies with a view to minimizing carbon footprints and achieving a sustainable world. This outcome will guide public/government and its ministries, departments, agencies, parastatal at federal, state and local levels in formulating policies on sustainability and climate actions. It will also assist private organizations to understand what actions are required of them during their operation that will keep the environment safe in order to achieve a sustain earth.

- *Funding*
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- *Data Availability*
  Data is provided within the manuscript.

- *Declarations*
  No ethical approval was needed for this research.

- *Competing Interest*
  Not applicable.

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