UNVEILING THE NEXUS: THE IMPACT OF SOCIAL FACTORS ON SUSTAINABILITY IN CONSTRUCTION PROCUREMENT

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Implementing social factors in construction projects contributes to the creation of social value and serves as a catalyst for promoting sustainability throughout the construction process. This paper evaluates current procurement practices within public tertiary institutions, specifically focusing on the relationship between sustainable construction and social factors in the context of Nigeria. Using survey findings, this study evaluates the interplay among these elements to determine the pivotal role social factors play in enhancing the overall well-being of both site workers and their surrounding communities. This research therefore highlights the significance of social factors on the overall well-being of site workers and community in construction projects, by clarifying the links between procurement practices, sustainable construction, and social considerations. The findings underscore the need to integrate a socially conscious approach into procurement strategies, thereby fostering positive outcomes for both the workforce and the communities engaged in construction endeavours.

Keywords: sustainable construction; social factors; procurement activities; well-being; Nigeria

INTRODUCTION

Sustainable development, which aims to harmonise environmental, social, and economic needs within societal constraints, presents a formidable global challenge (Sustainable Development Commission, 2016). Although efforts at addressing this challenge have gained traction, implementation is notably challenging in developing countries (Labaran *et al.,* 2021). This pursuit necessitates continuous sustainability efforts, reflecting the intricate nature of this undertaking (Barron *et al.,* 2023).

Central to sustainable development is the fusion of social, economic, and environmental dimensions of sustainability (Barron *et al.,* 2023). This integration is crucial, given the multifaceted challenges inherent in sustainable development, extending beyond mere asset construction (Freelove and Gramatki, 2022); to leveraging on social factors in the construction industry. Hence the emergence of social value as a development concept provides a mechanism for recalibrating priorities; thereby infusing social impact within procurement processes (Dobson *et al.,* 2020). Procurement, which is pivotal for sustainability, undergoes a transformative

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evolution from a focus on price and quality to accentuating intangible social value, notably within infrastructure sectors (Fujiwara *et al.,* 2022)

Aligned with corporate social responsibility principles, public procurement emerges as a strategic enabler of sustainability, thereby advancing social, economic, and environmental objectives (Sanchez-Graells, 2018; Sims, 2006). Sustainable construction principles are integral for societal progress as they endeavour to reconcile human settlements with nature, thereby fostering economic equality and societal well-being (Dania *et al.,* 2014). Socially sustainable procurement therefore strives to address critical issues, such as health, safety, and community empowerment, notwithstanding challenges in aligning corporate objectives with social sustainability targets (Barraket and Weissman, 2009; Valdes-Vasques and Klotz, 2011).

Nevertheless, the discourse on sustainability frequently overlooks the social dimension, despite its profound implications for societal well-being (Mangialardo and Micelli, 2017). In Nigeria, an imperative exists to fully integrate social sustainability into construction project procurement processes, highlighting the necessity for more integration efforts to reflect calls for sustainable practices (Dania *et al.,* 2014).

This paper therefore embarks on an assessment of current procurement activities in public tertiary institutions in Nigeria within the context of construction projects. By scrutinising the intricate interplay among sustainable construction, procurement practices, and social factors, this study aims to elucidate the pivotal role of social factors, in achieving holistic well-being in construction projects towards social value. Findings are anticipated to underscore the critical necessity of integrating a socially conscious approach into procurement strategies to catalyse positive outcomes for both the workforce and communities involved in construction endeavours.

Social Value and Social Sustainability

Social value and social sustainability are intricately linked concepts within the broader framework of sustainability. While both aim to address societal needs and improve the well-being of individuals and communities, there are notable commonalities and differences between the two, particularly within the construction industry.

Commonalities

Social value and social sustainability both aim to improve individuals' and communities' quality of life by addressing social needs, promoting well-being, and creating thriving environments (Ndimele *et al.,* 2018). They adopt a human-centric approach, considering diverse needs such as health, safety, human rights, and community well-being ((Pocock *et al.,* 2016). Additionally, they are integral to broader sustainability agendas, intersecting with economic and environmental concerns for holistic development (Awaysheh and Klassen, 2010).

Divergences

Social sustainability encompasses a wide array of social, economic, and cultural dimensions within sustainable development, while social value focuses primarily on the benefits of activities for society (Kordi *et al.,* 2021; Murtagh and Brooks, 2019). Social value is often operationalised through specific practices like corporate social responsibility programs or community development projects, relevant to decision-making in construction procurement (Andrecka, 2017; Sims, 2006). Conversely, social sustainability entails systemic changes in policies, practices, and decision-making processes for equitable and inclusive development (Pocock *et al.,* 2016).

Evaluation methods for social value rely on quantitative metrics to measure project impacts, facilitating straightforward comparisons of procurement strategies. In contrast, social sustainability may include qualitative assessments of well-being, cultural diversity, and community resilience, which can be subjective and challenging to standardise across projects (Hidayat *et al.,* 2020). Despite their shared goals, these concepts differ in scope, focus, implementation, and evaluation methods, yet both are crucial for addressing social challenges and advancing sustainable development.

This paper focuses on social value in construction procurement rather than social sustainability for the following reasons. Firstly, by prioritising social value, it enables a more targeted examination of the direct impacts of procurement activities on society, while acknowledging the broader scope of social sustainability. This approach allows for an exploration of the specific implications of procurement practices on society (Kordi *et al.,* 2021). Secondly, operationalising social value offers practical insights into considerations in procurement, thereby providing stakeholders with strategies to act on. In contrast, achieving social sustainability often entails broader systemic changes that require longer timeframes and more extensive resources to implement effectively (Pocock *et al.,* 2016). Finally, quantitative metrics for assessing social value facilitate straightforward evaluation of procurement practices, aiding decision-making processes within the industry. This stands in contrast to the qualitative assessments typically associated with social sustainability, which may pose challenges in standardisation across diverse projects and contexts (Hidayat *et al.,* 2020).

The literature has used various terms to describe social factors. Hidayat *et al.,* (2020), Karji *et al.,* (2019), and Hongyang *et al.,* (2018) used "social sustainability indicators" numbered 17, 33, and 22 respectively, while Kordi *et al.,* (2021) identified 9 attributes of social sustainability, and Jafari *et al.,* (2019) outlined 19 social sustainability criteria. Hendiani and Bagherpour (2019) categorised the factors into four "social sustainability enablers" comprising 16 dimensions. Murtagh and Brooks (2019) termed these factors as "social value." Recognising that achieving sustainability in alignment with the SDGs encompasses more than just the social aspect (Barron *et al.,* 2023), the social factors that meet the criteria of creating social value are aggregated (Dobson *et al.,* 2020). And using previous systematic literature reviews as demonstrated in Cartigny and Lord (2019), the social factors identified from these literatures were subjected to a survey.

METHOD

The method involved conducting a survey in line with the reliance of social value on quantitative metrics, as evaluation methods for assessing project impacts (Watts *et al.,* 2019). The initial steps ensured ethical compliance through participant consent. The survey was designed for clarity and standardisation, comprising four sections that were tailored to the study objectives of demographic data, procurement activities under statutory regulations, adherence to sustainable construction policies, and social factors in procurement: including worker and community well-being. Questions predominantly used are closed-ended formats and Likert scales to enhance objectivity and data reliability (South *et al.,* 2022). Respondents were also given the opportunity to provide additional insights for flexibility. The survey was administered through email using Microsoft Forms. Despite potential biases associated with self-reporting, sampling, and generalisation concerns (Gooden *et al.,* 2023), the internet-based surveys offered advantages like efficiency, accessibility, and environmental friendliness (Wang *et al.,* 2018; Denscombe, 2014).

The descriptive statistical tool of Relative Importance Index (RII) was used for data analysis. The 5 scale Likert-type questions underwent analysis using the RII, a non-parametric statistical technique widely adopted by construction management researchers for assessing ordinal data measurements of perceptions (Sakhare and Patil, 2019; Holt, 2013). The RII formula is presented as follows:

$$RII = \frac{\sum W_i}{A \times N} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

Where: W_i = Weighting given to each factor by the respondents (ranging from 1 to A),

N = Total number of respondents,

FINDINGS AND DISCUSSION

Participants

Construction professionals engaged in procurement were purposively sampled with 122 participating in an online survey out of a total of 150 involved, giving a response rate of 81.3%. Most of the participants hold master's degrees (51.6%) or bachelor's degrees (28.7%), while 16.4% have Higher National Diplomas and doctoral degrees (3.3%). The male respondents dominate (80.3%), with females comprising 19.7%. The most common roles of respondents are Senior Construction Professionals (37.7%) and Intermediate Professionals (22.1%), followed by Deputy Directors (19.7%) and Directors (12.3%). Their experience levels vary, with 6-10 years (25.4%) and 11-15 years (27.9%) being the most prevalent, while fewer respondents have less than 5 years or over 20 years of experience. The professional affiliations of respondents include the Nigerian Society of Engineers (18.9%), the Nigerian Institute of Architects (20.5%), and the Nigerian Institute of Quantity Surveyors (23.0%). This shows a diverse cohort of professionals in construction project procurement with varied academic backgrounds, gender representation, roles, experience levels, and affiliations that are essential for optimising procurement practices in the construction industry.

Compliance dimensions

The ratings for compliance with the Public Procurement Act 2007 in terms of Cost Effectiveness, Transparency, Competition, and Professionalism are shown in Table 1.

Table 1: Compliance to attain procurement objectives

Compliance Dimension N= 122, A = 5	Wi	RII	Rank
Professionalism	508	0.833	1
Transparency	504	0.828	2
Cost Effectiveness	496	0.813	3
Competition	471	0.772	4

From Table 1. Professionalism emerged as the most significant with an RII of 0.833, followed by transparency at 0.828. Cost-effectiveness and competition are rated second and third with RIIs of 0.813 and 0.772, respectively. This suggests an emphasis on professionalism and transparency. While cost-effectiveness and competition are also recognised as significant factors, they are slightly less prioritised.

Importance of sustainability in contractor selection

Table 2 shows the importance of sustainability issues in contractor selection. From Table 2, the importance of sustainability in contractor selection is rated as "Very important" by 47.5% of respondents, as "Important" by 26.2%, and "Extremely important" by 17.2%. This emphasizes the high priority placed on sustainability in the selection of contractors, underlining its critical role in construction projects.

Table 2: Importance of sustainability in contractor selection

Importance Level	Frequency	Percentage	Rank
Very important	58	47.5	1
Important	32	26.2	2
Extremely important	21	17.2	3
Less important	9	7.4	4
Not important	2	1.6	5
Total	122	100	

Compliance with the three pillars of sustainability

Table 3 shows compliance with the sustainability pillars in the procurement process.

Table 3: Institutions' compliance with the three pillars of sustainability

Pillars of Sustainability N= 122, A = 5	Wi	RII	Rank
Environmental	475	0.779	1
Economic	473	0.775	2
Social	453	0.743	3

The ratings from Table 3 are skewed towards the environmental pillar. This underscores the need for a balanced approach to sustainability across the three pillars.

Challenges affecting the implementation of sustainable construction.

Table 4 shows challenges affecting implementation of sustainable construction. Each challenge is rated on a scale from "Not Significant" to "Extremely Significant."

Table 4: Challenges to implementing sustainable construction

Challenges N= 122, A = 5	Wi	RII	Rank
Lack of information on benefits of sustainability	515	0.844	1
Lack of client commitment	511	0.838	2
Lack of client demand for sustainable construction	509	0.834	3
Lack of client awareness	506	0.830	4
Unwillingness to adopt sustainability principles	504	0.826	5
Perceived cost of adoption of sustainable construction	495	0.811	6
Lack of government enforcement	495	0.811	7
Inadequate time allotted to planning projects	494	0.810	8
Inadequate capacity for implementation	493	0.808	9
Lack of requisite skills by procuring entities	486	0.797	10
Procuring entity's resistance to change from current practices	481	0.789	11
Absence of legislation	476	0.780	12
Absence of government incentives	461	0.756	13

From Table 4, the challenges to implementing sustainable construction include a "Lack of information on benefits of sustainability" (RII: 0.844), "Lack of client commitment" (RII: 0.838), and "Lack of client demand for sustainable construction" (RII: 0.834). This underscores the importance of addressing knowledge gaps, fostering client commitment, and stimulating demand for sustainable construction practices.

Site workers well-being factors

Table 5 is on perceived importance of various measures to improve the well-being of site workers rated on a scale of from "Not Important" to "Extremely Important."

Table 5: Well-being of site workers

Workers' well-being factors N= 122, A = 5	Wi	RII	Rank
Ensure safety of workers on sites	573	0.939	1
Prompt wage payment	571	0.936	2
Provision of first aid	554	0.908	3
Compensation scheme for injury or death	545	0.893	4
Job security	543	0.890	5
Access to fresh drinking water	539	0.884	6
Pay for overtime	531	0.870	7
Implement on-the-job skills training	528	0.866	8
Provision for sick leave	527	0.864	9
Reasonable daily working hours	524	0.859	10
Orientation on dangers of drug/substance abuse	519	0.851	11
Stop forced labour practices	507	0.831	12
Transport workers to/from site	500	0.820	13
Reduce child labour	492	0.807	14
Adequate pension scheme	480	0.787	15
Allow site workers to join relevant labour unions	450	0.738	16
Cater for nursing mothers	441	0.723	17
Form labour unions where there is none	432	0.708	18
Provide free hot meals to workers	423	0.693	19
Engage women as site workers	402	0.659	20

From Table 5, the well-being of site workers is prioritised with "Ensure safety of workers on sites" (RII: 0.939), "Prompt wage payment" (RII: 0.936), and "Provision of first aid" (RII: 0.908) ranking as the top three factors. These underscore the necessity of ensuring the safety, timely payment, and health support of site workers, reflecting a commitment to their overall well-being.

Community well-being factors

Table 6 summarises the perceived importance of factors in improving well-being of communities' where projects are sited. Each measure is rated on a scale of from "Not Important" to "Extremely Important."

From Table 6, ranking for well-being of communities are: "Ensure safety of residents during construction activities" (RII: 0.915), "Sustain effective communication with the community" (RII: 0.897) and "Contribute to the community through specific infrastructural projects" (RII: 0.890). These necessitate the prioritising of safety, communication, and community-centric development approaches in construction projects, towards enhancing the overall well-being of the communities around.

The findings indicate that procurement can potentially promote sustainable construction by incorporating social value into contractor selection (Kordi *et al.,* 2021). This involves prioritising social factors (Dobson *et al.,* 2020; Dania *et al.,* 2014), addressing knowledge gaps by educating stakeholders on advantages of sustainable practices and client commitment (Sims, 2006), balancing sustainability dimensions (Barron *et al.,* 2023), enhancing community engagement (Barraket and Weissman, 2009), and adopting socially responsible practices (Fujiwara *et al.,* 2022).

Table 6: Well-being of communities

Communities' well-being factors N= 122, A = 5	Wi	RII	Rank
Ensure safety of residents during construction/demolition activities	558	0.915	1
Sustain effective communication with community	547	0.897	2
Contribute to community through specific infrastructural project	543	0.890	3
Provide a conflict resolution mechanism throughout the project	533	0.874	4
Effective waste management	540	0.885	5
Engage more local people as site workers	532	0.872	6
Reduce air pollution	532	0.872	7
Promote sustainable procurement	530	0.869	8
Prevent impacts that lead to climate change	526	0.862	9
Improve employability of young people	525	0.861	10
Communicate benefits of the projects to the community	520	0.852	11
Monitor the impacts of the projects to the community	519	0.851	12
Ensure better place to live	518	0.849	13
Ensure effective management of traffic during construction	515	0.844	14
Protect cultural practices of indigenous communities	509	0.834	15
Source building materials from within community	485	0.795	16
Employ to reflect equity in gender, religion, and other diversities	467	0.766	17
Engage with the community during the procurement process	431	0.707	18

In compliance with procurement objectives, the high emphasis on professionalism and transparency in procurement activities aligns with the principles of good governance and accountability (Sims, 2006). This underscore procuring entities' commitment to upholding ethical standards and ensuring fair and equitable processes. However, the slightly lower prioritisation of cost-effectiveness and competition in Table 1 may reflect a growing recognition of the need to balance economic considerations with social and environmental responsibilities (Fujiwara *et al.,* 2022).

From findings on importance of sustainability issues in contractor selection in Table 2, the significance attributed therein highlights a need to shift towards prioritising a more sustainability practice. This resonates with global trends towards integrating sustainability criteria into procurement decisions to drive positive social and environmental outcomes (Sanchez-Graells, 2018).

Looking at harmonising environmental, social, and economic needs, the literatures shows that the priority given to the environmental over social and economic sustainability destabilises the drive towards equilibrium (Sustainable Development Commission, 2016). The result in Table 3 underscores the need for greater attention to be given to achieving that balance (Barron *et al.,* 2023). While environmental considerations are crucial, neglecting the social dimensions can undermine the overall success and effectiveness of sustainability efforts (Dania *et al.,* 2014). Therefore, efforts to achieve a balanced approach to sustainability must address gaps in addressing social concerns within procurement processes as well.

On implementing sustainable construction, the identified challenges, such as the lack of information on sustainability benefits and client commitment in Table 4, suggests the need for targeted interventions to overcome barriers to sustainable construction adoption. Educating stakeholders about the advantages of sustainability and incentivising client engagement in sustainable practices are essential steps towards overcoming these challenges (Barraket and Weissman, 2009).

Lastly, Table 5 and Table 6 shows that the prioritisation of well-being of site workers and communities' factors are hinged on their safety and welfare. This reflects a growing recognition of the importance of social responsibility in construction projects. Ensuring the well-being of workers and communities not only enhances project outcomes but also contributes to building trust and fostering positive relationships (Valdes-Vasques and Klotz, 2011). Overall, the findings highlight the critical role of social factors in shaping sustainability outcomes in construction procurement. Integrating social considerations into procurement strategies is therefore essential for advancing holistic well-being and achieving positive social value. Moving forward, collaborative efforts involving stakeholders across the construction supply chain are needed to mainstream socially responsible practices and drive sustainable development in the Nigerian construction industry.

CONCLUSIONS

This study underscores the significance of integrating social factors into construction procurement to enhance sustainability outcomes. By evaluating the nexus between sustainable construction, procurement activities, and social considerations, it has identified key insights that can inform policy and practice in the construction industry.

Firstly, the discussion emphasizes the need for a shift towards prioritising the social agenda alongside environmental and economic considerations. Addressing social challenges such as worker welfare, community engagement, and inclusivity is essential for achieving holistic sustainability in construction projects. Secondly, it highlights the importance of stakeholder collaboration and engagement in driving sustainable procurement practices.

The discussion shows that stakeholders can implement social factors in construction projects to achieve social value and contribute to sustainable development in the construction industry. Therefore, prioritising transparency, balancing the three sustainability dimensions, educating on benefits, prioritising worker, and community well-being suffice. Also, building awareness, fostering commitment, and promoting dialogue among stakeholders are critical steps towards overcoming barriers to sustainable construction. Lastly, the research underscores the need for targeted interventions to address specific challenges identified in this study, such as the lack of information on sustainability benefits and client commitment. By implementing tailored strategies to address these challenges in Nigeria, stakeholders can unlock the full potential of addressing notable challenges in sustainable construction practices in a country that is a microcosm of developing countries.

In closing, integrating social factors into construction procurement is not only a moral imperative, but also a strategic necessity for globally advancing sustainable development goals. By embracing a socially conscious approach to procurement, stakeholders can create positive social value, enhance project outcomes, and contribute to the well-being of both the site workers and communities. Moving forward, future research could adopt qualitative methods to explore the nuances inherent in social value and develop a framework to integrate social factors in procurement for sustainable construction.

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