

The imperative of social sustainability and procurement in the Nigerian construction industry

Francis O. Okeke¹, Rosemary C. Nnaemeka-okeke^{2*}, and Foluso C. Awe³

^{1,2}Department of Architecture, University of Nigeria, Nigeria

³Department of Architecture, Federal University Oye Ekiti, Nigeria

Abstract. The social sustainability transition in the construction sector seeks to improve safety and health of workers, gainful employment and total inclusiveness. However, it is novel in the Nigerian construction industry and a less debated domain within this framework is how employment requirements provide opportunities for the socially disadvantaged such as the poorly educated, youths, immigrants and disabled individuals to be employed in the construction industry. In Nigeria alone, there are over 27 million disabled human species, most of who are living in extreme poverty with poor quality of life. Furthermore, there are evidence of development projects designed and built in developing countries that have failed socially and many mass housing scheme in Nigeria suffices as examples. Drawing on a systematic review of relevant literature, this research qualitatively examines social sustainability practices in the Nigerian construction industry, and highlight strategies for diffusing the approach at each phase of the project life cycle. The outcome of the result will initiate a novel research domain and promote sound academic debate towards improving total inclusiveness in Nigerian and Africa's built environment. The potential impact of this research is that it will contribute to the knowledge base of the social sustainability concept and provide an alternative solution to the increasing shortage of skilled labour force in the construction industry. Its conclusion surmises that social procurement is a strategic tool for creating employment for the disadvantaged in the construction sector.

1. Introduction

The building and construction industry of today have significant impact on cities in all aspects of sustainability, be it from an environmental, social or economic perspective. These cities whether underdeveloped, developing or developed have their construction industries contributing to the gross domestic product, gross national product and gross fixed capital formation. In recent times, both scholars and practitioners in the building and construction industry have recognized sustainability as a topical issue in the construction field. Yet, research output on sustainability in building and construction, likewise efforts geared towards attaining a sustainable built environment, have heavily focused on ecological and financial components, resulting in few advancements in social sphere [1]. The general public and patron of the building and construction sector are increasingly expecting the industry to make more positive contribution to the society in which it operates. This has increased the pressure on the industry to focus not only on productivity and energy efficiency, but also on the social well-being of the people who live in the communities in which they function [2].

The United Nations 2030 Agenda for Sustainable Development, that aims at eradicating poverty and achieving sustainable development for all by 2030 [3], perfectly captures the social perspective of sustainability targeted at improved worker safety and health, reduced employment discrimination [4], and promote total inclusiveness. However, the social theme has consistently been supplanted by ecological and economic concerns [5]. In mainstream sustainability debates, social performance is generally ignored. Priority is usually accorded to other sustainability pillars particularly in the context of planning, housing, and communities where policy and investment have focused largely on renewable resources, low-carbon cities, and encouraging pro-environmental behaviour in homes. As a

*Corresponding author: rosemary.nnaemeka-okeke@unn.edu.ng

direct consequence, there are limited pragmatic resources that explicitly tackle the issue of how to create socially sustainable places as well as environmentally responsive physical infrastructure. According to James et al. [6], Projects designed and built by well-intentioned groups working in developing countries often fail to live up to their expectations. When social sustainability demands of cities have not been met, expecting entire communities to uproot themselves from their social, historical and cultural context from one moment to the next is not only unrealistic but also unsustainable. Evidence in literature revealed that the long-term social requirements of human settlement in Nigeria are frequently neglected in the hurry to deliver large-scale development projects. Consequently, this is view as one of the effects of increased the unemployment rate in the country and therefore requires urgent attention. This study examined the notion that social sustainability is a multidimensional concept that can be defined differently depending on the context. It investigated various definitions of social sustainability, as well as their input and strategies in the context of sustainability. The character of social sustainability as a multi-faceted concept [7], influenced by different parties involved in a project, necessitates a collaborative approach of several stakeholders in order to produce efficient and optimal delivery. As a result, this effort may result in the creation of shared value among stakeholders, which is a desired approach that will inevitably be beneficial to the society as a whole. Therefore, the current study qualitatively investigates social sustainability practices in the Nigerian building and construction industry, and highlight strategies for incorporating social sustainability at each phase of a project life cycle. Since it leverages social value into the traditional objects of procurement in the construction industry and consistent with the UN sustainable development goals of total inclusiveness in the built environment; this research is considered valuable because its findings will reignite a research domain and stimulate a strong academic discourse towards enhancing total social inclusion in the built environment of Nigeria and Africa, as well as offering an alternative remedy to the construction industry's growing shortage of skilled labour force. This will also be a focus for policymakers in future public social procurement policies.

2. Literature review

2.1. Overview of concept of Sustainability

Even though the idea of sustainability may have appeared in the 1960s in reaction to the environmental deterioration occasioned by poor resource practices [8], it was the Brundtland report, tagged 'Our Common Future' that defined the concept and serve as the foundation for efforts to establish bio-physical, ecological and socioeconomic policy goals [9]. The "overlapping circles" model concept is relatively new and the most dominant sustainability model, emphasizing the importance of recognizing all three domains of environment, society and economy as unified in order to attain sustainable development. The Earth Summit in Rio de Janeiro, Brazil, of 1992, inspired establishments to implement policy initiatives centered on achieving economic, environmental, and social objectives [10]. Amidst John Elkington's 1997 efforts to coin the phrase "triple bottom line" and incorporate all aspects of sustainability, the involvement of the social component is seldom, compared to those of the economic and environmental factors [8]. Harris et al. [11] tried to distinguish environmental, economic and social sustainable systems as follows.

- An economical sustainable system should continuously produce goods and services, maintain manageable levels of government and external debt, and avoid sectorial differences that could harm industrial or agricultural production [11].
- An ecologically responsible system should maintain a stable resource base, not overexploit renewable resource systems and limit the use of finite resources to the level that adequate alternatives are invested in. It includes biodiversity conservation, atmospheric stability, as well as other ecological processes that cannot be labeled as economic resources [11].
- A socially sustainable system would have to provide some of society's essential tenets, such as equity in provision and allocation of opportunity, adequate delivery of social services like healthcare and education, promoting gender equality, political participation and accountability [11].

The contradicting nature of objectives derived from the three components of sustainability is a source of challenge to sustainable development, which has been discussed in published literature and explained by the World Bank. According to Soubbotina [12], progress can only be sustained if it is thorough and successfully strikes a balance between economic aims and social and environmental objectives. The phrase "triple bottom line" or triple-p (People, Planet, Profit), coined by John Elkington in 1997, has gained international traction as the standard corporate reporting format that takes into account the three sustainability-related environmental, social, and economic concerns [9, 13]. Furthermore, in order to incorporate all three pillars and ensure that the development is sustainable, social fairness, the satisfaction of fundamental health and educational needs, and participatory democracy are crucial components of development [11].

Many times, the social pillar of sustainability has been ignored or has received only sporadic attention. According to [9, 10, 14], this is because the social pillar of sustainability has been difficult to define and has received inconsistent treatment from researchers when it comes to implementation. The social pillar of sustainability has not been fully implemented in practice, according to evidence in published literature. Murphy [14] argues that rather than being a result of policy coherence, the social measurement parameter in sets of sustainable development indicators (SDIs) is a function of power, which powerful parties can exploit by incorporating their own preference and concern. The author made the case that these metrics represent distinct social goals and are frequently chosen for political as opposed to scientific considerations. The human development pillar of sustainability is sometimes seen as providing for all of a person's basic needs, gaining a reasonable level of comfort, leading meaningful lives, and equally sharing in societal chances for health and education [11].

2.2. *Social sustainability aspect of sustainable development*

It is vital to define the social pillar of sustainability in order to examine the concept's underlying details and help its practitioners produce tangible effects. According to McKenzie [8], there are two main presumptions that govern the role of the social pillar in a lot of literature: sustainable development programs are observed to achieve high living standards measured against the least amount of environmental degradation, thus promoting careful balance between social development and environmental protection; and many definitions of sustainability in environmental and economic contexts inspect social sciences as useful disciplinary. Additionally, Omann & Spangenberg [10] assert that little consideration was given to a sustainability viewpoint in the development of social science research's many societal objectives, techniques, and measuring instruments. According to Murphy [14], recent efforts to clarify the social pillar of sustainability have shown some promise, and he predicts the emergence of a widespread grasp of the fundamental ideas and goals of policy. According to Vallance et al. and Murphy [9, 14], there are as many or more complexity involved in trying to define social sustainability as there are in trying to adopt a universal strategy. They also note that breaking the notion down will help people comprehend it better. They divide social sustainability into three main categories: development, bridge, and preservation. Development involves tackling issues of equality and poverty; bridge encourages strong environmental ethics; and preservation involves preserving sociocultural identities. The following definitions were put forth by Spangenberg and Omann [10] as attractive from the perspective of functional analysis in their study.

- “A socially sustainable society is one that is just, equitable, inclusive and democratic, and provides a decent quality of life for current and future generations” [15]
- “Social sustainability is concerned with how individuals, communities and societies live with each other and set out to achieve the objectives of development models which they have chosen for themselves, also taking into account the physical boundaries of their places and planet earth as a whole” [16]
- “Social sustainability is a life-enhancing condition within communities, and a process within communities that can achieve that condition” [8]
- “Social sustainability occurs when formal and informal processes, systems, structures and relationships actively support the capacity of future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life” [17]
- “Social sustainability is the orderly progress of society” [18]
- “Social sustainability of a city is the development and/or growth that is compatible with the harmonious evolution of civil society fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population” [19]
- “Social sustainability includes achieving a fair degree of social homogeneity, equitable income distribution, employment that allows the creation of decent livelihoods, and equitable access to resources and social services, [...] a balance between respect for tradition and innovation, and self-reliance, endogeneity and self-confidence” [20]

The definitions of social sustainability that came before them offered compelling evidence that the existing tension in understanding the central idea is not only a battle to strike a balance between social goals and economic and ecological considerations, but also a lack of agreement on defining the elements of the social component itself. According to Vallance et al. [9], in order to integrate the goals deriving from the three features of sustainability and provide workable solutions, further clarification of the issue of social sustainability is required and can be accomplished through close collaboration between the various sciences (physical and social sciences). The social pillars can also be expanded to strongly emphasize environmental, global, and intergenerational aspects [14], reaching the ultimate objective of long-term sustainable human development. As a result, when exploring

sustainability in social terms, human development is seen as the major aim, with economic and environmental endeavours viewed as means to an end.

2.3. Social Sustainability in the construction industry

The term sustainability in the milieu of construction has been generally defined as the goal of realizing harmony between a project's economic, environmental, and social impact. Specifically, a balance in terms of improving human lives by achieving social and economic objectives while minimizing environmental impact [21]. Given the fact that there exists plethora of studies on economic and environmental sustainability, just little research effort has been put in to investigate social sustainability in construction, and no common perception appears to prevail on the issues underlying the social implications of sustainable construction [22]. Though, several attempts have been made by various authors to contribute to a deeper comprehension of the interpretations of social sustainability. Every individual researcher focused their explanation and classification of social sustainability on study area of specialization or discipline-specific criteria which has now made consensus agreement on definition complicated [16]. As postulated by Valdes-Vasquez and Klotz [23], social sustainability in construction is defined as the involvement of employees, clients, local neighbourhood, as well as the supply chain with the aim of meeting the future and present needs of populations and communities. However, Hill and Bowen [24] offer a broader definition in their study, describing it as a means of improving human life, allowing for social self-determination and cultural diversity, promoting skills training and capacity development for disadvantaged people, and aiming for intergenerational equity as well as trying to allocate construction social costs and benefits equally. In addition, Farzanehrafat et al. [25] defined social sustainability as a community's capacity to preserve a healthy society by developing strategies and improving frameworks that satisfy the needs of both the present and future generations. Almahmoud and Doloi [7] devised a further interpretation, stating that the concept of social sustainability in the field of construction is conveyed through meeting and managing the requirements all stakeholders including end user, the industry and surrounding local community; also taking into account not only the impact of construction projects on future users' lives, but also the impact during construction with workers health, safety and working conditions as a way to attaining social sustainability. However, it is significant to mention that the concept has multiple interpretations in the building and construction sector, which largely depend on the stakeholder's perception or where and how it is adopted during the life of a project [26]. As a result, majority of the studies concentrated on core criteria and indicators for operationalizing social sustainability rather than theoretical definitions [27].

3. Research Methodology

The study utilized a qualitative research approach that employed basically secondary sources of data. The methodology adopted for the study is a systematic review of related literature and researchers' opinion on social sustainability to give an insight of the less debated domain of sustainability. The evaluation of published literature found in a variety of sources, such as journals, workshop and conference papers, was used to gather the secondary data. Searches on online databases like Google Scholar and Science Direct, among others, helped find the papers that were examined. The study's findings are evaluated in the context of the literature-based information. The data were subjected to thematic content analysis and inferential deduction. Based on these results, strategies were put forward for the promotion of social sustainability context in Nigerian construction industry. The study advances our understanding of the subject under study and provides new avenues for investigation.

4. Results and Discussion

4.2. Social Sustainability Criteria (Ssc) and strategies throughout project lifecycle

In building design, architects establish realities once constructed are not altered easily [8] therefore, to holistically understand the concept of social sustainability from the viewpoint of building construction, a holistic view of the project lifecycle is necessary [28]. A construction project has different phases, there are several different performance criteria relating to the social dimension of sustainable construction at each stages in the project cycle. However, few research on social sustainability have proposed for a variety of criteria, but the very influential will be explored at each stage of the project life cycle.

A typical construction project has five sequential processes: inception, design, construction, operation, and demolition. At the inception phase, multiple scenarios and decision making about the imperative, need and prospect of investment are carefully evaluated. The investment concerns are addressed in a way that why, when, whom and how to invest are resolved [29]. Feasibility investigations are conducted to collect essential data for investment strategies. These exercises are critical for clients in determining possibility of project success or failure [28]. The second stage is indeed the design stage, in which the project concept are presented as construction and contract document that include specifications, 3D models, bill of quantities, technical and engineering drawings. The design

and planning process do have a huge influence on the project's sustainability overall performance, and it is during such a transition stage that techniques and processes like Social Impact Assessment (SIA) are factored in, to evaluate the effects of the project proposal [26].

So at construction stage, the goal is to actualize the construction blueprints by transforming drawing plans to real life situation utilizing various category of resources like building materials, human resources, construction equipment and financial tools [30]. Several entities and professional are involve and undertake physical construction activities. These include the consultants/designers, supervisors, nominated suppliers, contractors and subcontractors; and this union introduces fresh management challenge in terms of integrating and coordinating multiple stakeholders to accomplish a common objective [28]. After the project has been practically completed, it enters the operational phase which is the longest stage of the project life cycle along with maintenance [31]. During this phase, the goals will be to satisfy the project design purpose, programmed requirements and functions. Finally, the demolition phase denotes the end of the project's life. When a construction project fails to meet its initial design performance criteria, there are two possible options to undertake: either grave or refurbished/recycle [31]. As previously stated, social sustainability criteria can be found throughout the project life cycle. These include;

4.2.1. Inception phase

Shen et al. [29], assert that there exist six potential social sustainability parameters to consider at the project's initiation phase. For land use selection, developers should consider the safeguard of arable land and natural resources. Furthermore, preservation of heritage, both cultural and natural is an essential parameter that should be incorporated into land use practice and therefore should prevent any adverse impact on ancestral heritage. Again, the project proposal could perhaps stimulate possibilities for local recruitment, as well as the indigenous labour market taken into account. Following that, enhancing public infrastructure potential including activities such as public drains, street road, communication lines, sewage systems, power, public transit, and education should be considered. As a result, the project should include provisions for community amenities such as parks, socializing areas, educational institutions, parking lots, and so on. Safety assessment ought to be incorporated during this phase of the project, where future risks to public and project users' safety are identified and evaluated. Lastly, social concern in procurement is a component that can be taken into account during the inspection stage. Clients could perhaps pinpoint and recognize the societal or community needs and consider how they can be met through project implementation.

4.2.2. Design phase

With increased modernization, fresh social sustainability standards have been set, which must be considered when developing design specifications. Because health risk and safety hazards involving relevant stakeholders and the local neighbourhood are a major topic of social sustainability in construction industry, therefore safety and security design is a valid criteria to be considered [29]. The preservation and advancement of well-being through a secured and healthy workplace environment is commonly referred to as safety design. The goals of construction safety design are to reduce sites work deaths and injuries while also improving construction worker health [28]. Terror attacks are more likely in buildings that lack defined security measures [32]. The safety design can be customized to the facility itself, taking into account emergency situations such as inferno, seismic activity, flood, radioactivity and environmental disasters [29]. As previously stated, the concern of security during the design stage has been defined as a Social sustainability criteria, that relates to the security of the final product [21]. Stakeholder engagement in design and the principle of social design are two additional requirements to address during the design process. The demands of indirect external stakeholders are referred to as public engagement or community participation. By integrating external stakeholders in a transparent decision-making process increases the likelihood that their aspirations and interests will be reflected in the final design [28]. Integration of community's participation is critical to improving the flow of information about projects from designer to the public and likewise public to designer.

As it relates to social design, the term refers to a variety of components linked to various users. The goal of social design is to create an inclusive design that takes into account the end user's productivity, well-being and safety [28]. Subsequently, social design focuses on occupants' inclusion, meeting user functional needs, and enhancing the design group decision-making process [7]. Furthermore, Klotz and Valdes-Vasquez [26] posit that social design is related to certain design perspectives that are necessary to guarantee inclusion by taking marginalised minorities into consideration, like ease of access for the disabled and the elderly.

4.2.3. Construction phase

At this phase, criteria like job prospects should be taken into account during project execution. The project's construction phase should include provisions for creation of employment ventures to the indigenous labour force, which include built environment professionals, construction workers and artisans. Furthermore, health and safety in

construction refers to an improvement in the overall project's health and safety performance during the construction phase. This is a necessary attribute for both employees and the local community. On the aspect of site workers, they should be supplied with sufficient details as well as the requisite personal protective clothing to accomplish their tasks safely [7]. Consequently, the work area itself must be designed and built in a secure environment. Therefore, installing safety devices, posting warning signs and communicating hazards is critical. The health and well-being of the local neighborhood also should be recognized, which falls under the category of public safety. The public can be kept out of the construction site by providing warning signs, appropriate barricades, and signal mechanisms since they could be unaware of the vulnerabilities on site [28]. Besides that, the health and safety of the general public can be improved by providing alternative sideways when regular footpaths are closed, controlling environmental pollution like dust and noise, and a safe method of disposing of hazardous materials [7]. During construction, training and retraining should always be made available to the manpower and the immediate environment [24]. For a workforce to become professionally competent, Brent & Labuschagne [33] believes they need to receive training and education constantly. Apprenticeship programs are also used to educate and prepare locals within the community who are having difficulty integrating into the workforce [34]. Consequently, as argued Farzanehrfat et al. [25], construction works should be designed with an aim of utilizing available local resources for construction to benefit the indigenous neighbourhood. According to Okeke et al. [35], everyone in the community will understand the value of the project, not least because all of the materials used are ones they live with each day. Furthermore, Almahmoud & Doloi [7] follows a similar stance, arguing that site activities should be designed with the specific intent of leveraging domestically sourced materials. Additional criteria to consider during construction include minimizing neighborhood disruption. The project's construction should aim to reduce the project's noise level, pollution glare, and waste.

Table 1. Summary table of Social Sustainability Criteria and strategies

S/n	Project Phase	Social Sustainability Criteria
1	Inception phase	Land use Social consideration in procurement, Local Employment Infrastructure capacity building Community amenities, Safety assessment
2	Design phase	Safety Design Stakeholder engagement in design Security Design Social Design
3	Operation phase	Populace's accessibility Service Provision development of the Local community Social justice Interaction with communities
4	Construction phase	Employment opportunities Health and safety during construction Public safety Skill acquisition and Training Utilization of local resources Minimize neighbourhood disruption
5	Demolition Phase	Investment opportunities Communication to the public Job opportunities Operational safety

4.2.4 Operation phase

Social equity can be considered throughout operation. At the occupancy stage, criteria such as public accessibility can be considered. The availability of safe and secured open green fields, links to mass transportation, proximity amenities, and the supply of sufficient infrastructure are all elements that contribute to attaining public accessibility [7, 21,]. Furthermore, Shen et al. [29] stated that service provision is a supplementary criterion, implying that when a construction project is initiated in a locality, the neighborhood should benefit directly by creation of additional work

opportunities, services, and so on. Provision of places for social interaction and group formation is critical during the operational stage to increase interconnection and social integration [7].

4.2.4. Demolition phase

The demolition phase of a project should open up investment options and income generation avenue based on the needs of the surrounding community. During decommissioning, jobs for the local area should be made available for site work, cleaning, haulage, disposal and treatment of waste. Furthermore, during this project phase, it is critical to consider both workers and public safety risks. Explosions, disassembly, toxic and radioactive materials are examples of safety risks to consider during demolition. An essential final criterion is public communication, which includes activities such as raising awareness of the potential consequences of project demolition [36, 37].

5. Conclusions

The social sustainability benefits are related to improvements in the quality of life, health, gainful employment, total inclusiveness and well-being. These benefits can be realized at different levels – buildings, the community, and society in general. It has been a concept in chaos, where no universal definition is attributed to the concept either by academician or by professionals in the industry. As the sustainability concept itself, social sustainability is neither absolute nor a constant as it is applicable to all phases of construction project and observed as dynamic, changing over time in a place according to nature of project. The study has provided an understanding of the concept and strategies for diffusing the Social Sustainability Criteria throughout a Project Lifecycle into the construction industry. Considering the pace of urbanization and extent at which new human settlements and their corresponding building structures are planned, designed and constructed around the world, particularly in sub-Saharan Nigeria; there is a crucial need to develop and apply a reasonable understanding as well as a professional commitment in building new communities and cities that are socially, economically and environmentally sustainable.

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