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Sustainability strategies in the construction industry: implications on Green Growth in Nigeria

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Abstract. The construction industry is a major driver of economic growth. However, activities from the construction industry contribute significantly to environmental pollution and unsustainable consumption of depleting natural resources. Green growth on the other hand, is an innovative growth which motivates businesses to adopt environmental friendly activities. This paper assessed sustainability strategies in the construction industry. A quantitative research design was adopted with the use of questionnaires distributed to construction organizations in Lagos, Nigeria. Findings reveal that many of the construction organizations surveyed do not have sustainability strategies because of low awareness about sustainability issues in construction. However, of the three pillars of sustainability (environmental, economic and social sustainability), environmental sustainability was found to yield greatest benefit. For the construction industry to contribute to Nigeria's green growth agenda there should be increased awareness of sustainability issues and institutional policies to drive sustainability.

1. Introduction

Construction activities facilitate both social and economic development in all countries. The social and economic progress of a nation is determined by the quality of infrastructure provided by the country [1]. Construction businesses provide the manpower, competencies, materials, plant and equipment required for infrastructure development: a key goal of the sustainability agenda. Sustainability ensures that the present generation is able to meet its need without depriving future generation of meeting their needs [2].

However, in a bid to meet developmental needs, the construction industry consumes a large quantity of natural resources [3] particularly, fresh water, timber, sand and limestone. Buildings for instance, use about 50% of fresh water [4]. Moreover, the over dependence of fossil fuels [5] as alternative sources of power in buildings produce large quantities of atmospheric carbon, sulphur, nitrogen and other volatile organic compounds (VOCs) which pollute the environment. Embodied energy in building materials also releases toxic gases which are detrimental to the environment. Moreover, the construction industry generates large amount of waste deposited on landfills, which results in environmental degradation and CO₂ emission.

Construction professionals need to adopt environmentally friendly techniques to combat environmental issues from construction activities. [6] also reiterated the need for reliable and clean energy sources for Nigeria's sustainable development. Green growth on the other hand, is an agenda of governments and international agencies, which fosters development, and ensures that natural



resources are used sustainably, and continue to provide the resources and environmental services on which our well-being relies [7].

To achieve green growth in Nigeria, sectors such as construction which significantly pollute the environment and use considerable amount of natural resources, need to develop strategies for combating environmental challenges arising from the industry. The present study assessed the sustainability strategies adopted by firms in the construction industry. The study objectives are:

- i. To assess the core elements in organizations mission statement
- ii. To identify the factors militating against the development and implementation of sustainability strategies
- iii. To identify the benefits of incorporating sustainability into construction activities

2. Literature Review

2.1. Sustainability strategies of construction organisations

For sustainability to be entrenched into the fabrics of construction organizations there has to be a sustainability agenda driven by construction businesses. Good sustainability practices within organisations stems from the integration of sustainability concerns into core business strategies [8]. Organisational strategy flows from top management down to operational staff. [9] noted that sustainable practices can only be made possible by executives at the top strategic level of management. Once strategy has been delivered then, operational staff can align with the strategic consciousness of the organizations they work with. The anticipated strong commitment to sustainable practices will require that sustainability be incorporated in the organizational strategy [9]. For sustainable construction to thrive, managers and leaders of construction businesses have to develop and implement sustainability plans and provide requisite resources to handle changes arising from such implementation [10].

2.2 Factors militating against the development and implementation of strategies in construction organisations

One of the major hindrances to the development and implementation of sustainability strategies in the construction sector is poor awareness level. [11] noted that many stakeholders in the construction industry do not have sufficient information on sustainable. [8] also asserted that managers who are responsible for charting the sustainability cause have little or no information about sustainability. In Nigeria, the knowledge of sustainable construction is below average and the construction sector still oblivious of sustainable construction [12]. It is difficult to develop and implement a concept that is not well understood.

Fear of the cost of implementing sustainability construction also inhibits the development of sustainability strategies in construction businesses. This includes perception of higher investment costs, long pay-back period, client fears about viability, poor knowledge of life cycle cost and difficult access to financial resources [13]. Perceived high cost of undertaking sustainable construction is a barrier to its implementation. Higher costs of implementing Sustainable construction maybe perceived as more expensive than conventional construction because of increase in consultancy fee [13]. Moreover, the long term gains of sustainability are difficult to express in terms of financial gains [14]

Poor support from the government is also another factor militating against the development and implementation of sustainability strategies. [13] noted that intensive support from the government is required to implement sustainable construction. [14] also asserted that sustainable construction will thrive if the government puts in legislations in place that will drive corporate sustainability in construction organizations. Successful implementation of sustainable construction requires government commitment. The government plays a major function in the construction industry. Governments have the responsibility of providing adequate support for sustainable construction to thrive.

Low demand of sustainable construction by client has also been identified as a factor militating against the development and implementation of sustainability strategies. [13] reported that low demand of sustainable construction by clients possess a great challenge in the implementation of sustainable construction .

Poor expertise for sustainable construction also inhibits the implementation of sustainable strategies. [14] noted that unavailability of sustainable building materials, non-existence of sustainability measurement tools and absence of exemplar demonstration projects are issues bothering around expertise for sustainable construction and these have negative implications for the implementation of sustainable construction. [9] further noted resistance to cultural change is another hindrance to implementing sustainable construction.

3. Methodology

The quantitative research approach was used in this research. Target population for this research comprised of owners and managers of construction businesses in Lagos, Nigeria. Sixty copies of the questionnaire were distributed to owners and managers of construction businesses in Lagos, Nigeria. The questionnaire had four sections. Section one covered questions on the core elements in a organizations' mission statement, section two was about the factors militating against the development and implementation of sustainability strategies in construction organizations, Section three sought to elicit information on the benefits of incorporating sustainability in construction, while the fourth section covered demographic information of the respondents.

In sections one, two and three likert scale type questions where 1 signified strongly disagree, 2 signified disagree, 3 signified neutral, 4 signified agree and 5 signified strongly agree was used to obtain information from respondents.

The descriptive statistics (tables and mean score) were used to analyze the data obtained for this study.

3.1. Core element in company's mission

The core element in the mission statement of majority of the construction businesses surveyed is quality in project and product delivery (Table 2). Profit maximization (Table 2) was also found as the second core element in the mission statement of the construction businesses surveyed. Client satisfaction (Table 2) was the third core element in the mission statement of the construction businesses surveyed. Recycling waste was the least element in the mission statement of the construction businesses surveyed.

Table.1. Core element in company's mission

Company's core mission	Mean
To ensure quality in project/product delivery	4.65
To maximize profit	4.48
To ensure client satisfaction	4.42
To ensure occupational health and safety for all workers	4.17
To ensure the use of sustainable building products/materials	4.15
To reduce waste in operations	4.15
To reduce carbon foot print in all operations	4.13
To ensure cost reduction in all operations	4.13
To ensure better work life balance for all workers	3.96
To ensure that all workers develop capacity	3.94
To ensure equality for all workers	3.83
To conserve energy in operations	3.62
To conserve water in operations	3.52
To reach out to the immediate community as part of corporate Social responsibility	3.48
To recycle waste	3.25

3.2. Factors militating against the development and implementation of sustainability strategies

The most significant factor militating against the development and implementation of sustainable construction is low awareness of sustainable construction (Table 3). Poor government support for sustainable construction and lack of leadership support for sustainable construction were the second and third most significant factors respectively militating against the development and implementation of sustainable construction (Table 3).

Table 2. Factors militating against the development and implementation of sustainability strategies

Factor	Mean
Low level of awareness of sustainable construction	4.42
Poor government support for sustainable construction	4.35
Lack of leadership support for sustainable construction	4.21
Lack of relevant laws and regulation to drive Sustainable construction	4.12
Lack/poor expertise for sustainable construction	3.85
Fear of the cost of adopting sustainable construction	3.83
Resistance to change	3.38
Low demand for sustainable construction from clients	3.17

3.3. Benefits of incorporating sustainability in construction

Table 4 indicates the benefits of sustainable construction. The greatest benefit of sustainable construction is the belief that sustainable construction makes a company environmentally sustainable (Table 4). The second greatest benefit of sustainable is its perceived economic benefits while the third benefit of sustainable construction is that sustainable construction improves a company's reputation (Table 4).

Table 3. Benefits of Sustainable Construction

Benefits of Sustainable Construction	Mean
Sustainable construction improves organizations' environmental sustainability	4.56
Sustainable construction has economic value	4.48
Sustainable construction improves company's reputation	4.31
Sustainable construction is a business strategy	4.17
Sustainable construction creates a humane environment	4.20
Sustainable construction creates a dignifying environment	3.79
Sustainable construction creates an equitable working environment	3.73

4. Discussion

Quality performance was found to be the most common element in the mission statement of the organizations studied. This is followed by profit maximization and then client satisfaction. The mission statement of most of the construction organizations surveyed is more inclined towards project performance indicators.

Sustainability elements in mission statements of the organizations studied ranked low. This may be because of poor awareness of the concept of sustainable construction and poor government and leadership support for sustainable construction.

The greatest deterrent to developing and implementing sustainable construction is poor awareness. It is difficult to drive a concept that is not well understood by clients and business operators. This probably explains why sustainable construction is not a core element in the mission statement of most construction organizations surveyed.

Another factor militating against the development and implementation of sustainable construction is poor support from the government in driving the sustainability agenda. This is evident in the absence of relevant laws and regulations to drive sustainability especially in the construction sector. Inadequate support for sustainable construction by leaders of construction organizations also militates against the development and implementation of sustainable construction. This could be because the concept is not well understood.

The major perceived benefit of sustainable construction is that sustainable construction improves organizations' environmental sustainability. Respondents view sustainability more in terms of environmentally sustainability. This may be because of greater emphasis on environmental sustainability than economic or social sustainability.

Since majority of the firms surveyed do not have strategies for tackling sustainability challenges from construction activities, Nigeria's green growth will be hampered. Moreover, since the sustainability ethos is yet to be enshrined in construction organizations, it may be difficult to achieve the much needed green growth in Nigeria.

5. Conclusion

The mission statement of most of the construction organizations surveyed is more inclined towards project performance indicators. Sustainability elements in mission statements of the organizations studied ranked low. Sustainability awareness and sustainability polices are recommended in order to increase interest and implementation of sustainability in the construction industry. Development and implementation of sustainability strategies will foster achievement of the green growth agenda in Nigeria.

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