CHALLENGES IN THE DELIVERY OF ENVIRONMENTAL SUSTAINABILITY IN HOUSING DEVELOPMENT IN ABUJA, NIGERIA

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Abstract
The environment has a major impact on our lives; construction can affect communities and business and can make heavy demands on limited natural resources, however, when planned successfully it can also lead to positive outcomes. Sustainable development is the achievement of a better quality of life through the efficient use of resources, which realize continued social progress while maintaining stable economic growth and caring for the environment. The aim of this paper is to explore the challenges in the delivery of environmentally sustainable housing schemes in Abuja. The research uses desk study, which involves the review of related literature, and Delphi method, which is used in developing variables for the interview and survey questions. Abuja was selected, because of the level of housing development that is taking place there providing the ideal environment to undertake the study. Preliminary results show that there are challenges in achieving environmental sustainability in housing delivery in Abuja.

Keywords: Challenges, Delivery, Environmental sustainability, Housing development

1 Introduction

Housing provision is a major challenge facing not only developing countries but also the developed ones, for example, in the UK there exists a housing demand of over three million houses in England (Long et al., 1990). This challenge is more pronounced in developing Countries and will remain a major socio-economic and financial problem for these economies (Akintola et al., 2013). This problem led 131 Nations, including Nigeria, to endorse 64 recommendations of the 'National Action Plan' at the United Nations conference on Human settlement, on the 11th of June 1976 in Vancouver Canada. Meeting this challenge globally has led to plundering the natural environment without regards to its preservation or protection, and thus extends to a more complex problem. About 170 Nations met at Rio de Janeiro, Brazil, on June 3rd 1992 for another United Nation Conference tagged "Earth Summit," or "Rio Declaration on Environment and Development.'' The debate centred on sustainability, with particular emphasis on resolving the conflict between development and the environment,

however current debate is critical about the lack of post-Rio momentum at both political and practical level (Lozano, 2008).

Nigeria is a signatory to the 'Rio declaration' and is laden with a huge housing deficit. It struggles towards achieving sustainable environment are noticeable through the various policy formulations and advocacy (Odebiyi, 2010). The 1999 constitution, the pinnacle of all laws in Nigeria, has a provision for the protection of the environment, for example section 20 of the law states that: 'The State shall protect and improve the environment and safeguard the water, air, land, forest and wildlife of Nigeria' (FGN 1994). One of the local environmental laws, which have been enacted is: the Land Use Decree of 1978. There is also the National Policy on Environment (1989) concerned with securing the quality of the environment, conserving and using the environment for the benefit of present and future generations; restoring, maintaining and enhancing the ecosystem and ecological processes essential for the functioning of the biosphere and the principle of optimum sustainable yield in the use of natural resources. Another major provision of this policy is promoting public awareness on the link between development and the environment; international co-operation with countries and international organizations in the protection of the environment.

The aim of this paper is to explore the challenges in the delivery of environmental sustainable housing schemes in Abuja with particular emphasis on ways to address these challenges

2 Housing and Environmental Sustainability

As momentum continues to increase on concerns over the depletion of our natural environment, principle of sustainable practice has continued to raise more attention globally. The number of various concerned advocacy, conferences and seminars being held on the issue, evidences this. The activities within the built environment is said to contribute between 30-40 percent of greenhouse gases globally. (Abolore, 2012). As identified in literature, housing provision takes centre stage in depletion and pollution of the environment. Fiorino (1990) opines that the built environment provides a synthesis of environmental economic and social issues he asserts that it provides us with houses, infrastructures and also plays a vital role in our economy. Agbola (1998) concludes that its design is significant in determining the pattern for the resource consumption over its relative life cycle. Initiations have prompted philosophies and strategies in pursuing affirmative actions and policies in numerous countries to engage and implement sustainability issues in property valuation. Architects are also required to provide sustainable construction (Lorenz, 2006; Majdalam et al., 2006)

Arayela (2002) concludes that the transition to sustainability is urgent because global life-support systems and the environment have a time limit. Arayela posits that there is no time to dream of creating more living spaces or more environments, the remnants of the environment must be saved, time must be allowed for regeneration of what humans have already damaged.

Environmental sustainability is a globally – espoused objective, mainly credited to Brundtland commission (WCED, 1987), UNCED earth submit in 1992 and the position of Canada (1992). Environmental sustainability means maintaining global life support systems, or more specifically, maintaining environmental sound capacities to assimilate wastes and maintaining environmental sound capacities to regenerate raw materials, such as healthy air, water and so forth (Arayela, 2002). Therefore environmental sustainability means maintaining both the sources of raw materials and energy within its regenerative and assimilative capacities.

3 Conceptual Framework

Housing policies that focus on quantity, instead of quality, and that ignore the most basic sustainability guidelines, as well as the fact that many developing countries lack housing policy to speak of are issues that need to be addressed. While where such policies exist,

implementation become an outcry. Criteria is synonymous to indicators of environmental sustainability. Odebiyi (2010) stated that it is not clear what the phrases mean for analytical practice. The implication of that statement is that, there are varied criteria or indicators, which suggest the term to be genuine. Odebiyi (2010) studied the environmental equity and sustainability from the art benefit side, and concluded that Environmental Equity and sustainability are of major interest to those outside economics. The European Association for Bio-industries (2008) sets out Environmental sustainability creative for biofuels, the document finds that Environmental and Social criteria are equally important. The building and construction authority (2008) code for Environment sustainability of buildings version 1.0 allocate points for each of the category of the building criteria, which includes: energy efficiency, water efficiency, environmental protection, in door environmental quality, other Green features. Addae et al. (2009) did a stakeholder analysis and local identification of indicators of the success and sustainability of farming based livelihood systems, which sets out sustainability indicators for natural resources management and policy. The document meet further to develop a set of indicator of the sustainability of farming based livelihood systems that can be used to assess or monitor the impact of policy and intellectual change, which will produce two set of indicators, external set of sustainability and the second set comprising local indicators of success. The studies identified internal indicators for sustainability in Uganda under the following themes Natural Physical, Financial, Human and Social.

Alabi (2012) analyzed Environmental Equity and sustainability rejecting the Kaldor-Hicks Criteria finding by Katie and Carol (2006) and Dietz and Neumayer (2007) and advocates a multi-criteria decision analysis (MCDA) framework, that the construction industry can use in ensuring that decision about built assets are balanced, feasible, desirable and as sustainable as possible. Studies by Metal et al. (2008) employed a numerical approach to measure performance, in terms of the following parameters, energy, land, water, materials, greenhouse gases, ozone, site ecology, solid waste, liquid effluents, noise, and quality aesthetics, durability, indoor environmental quality, adaptability, traffic, socio-economic and creative.

Studies by Dietz and Neumeyer (2007) agree that major difficulties with the assessment of sustainability, and the plethora of conceptualization and terminology has led to an equally diverse range of techniques and methods used to assess or appraise sustainability development. Lozano (2008) observes that Sustainability is a difficult concept for people to understand. Studies by Alabi (2012) found that there is a need to refine the decision making process for assessing sustainability applicable to the built environment the author also stresses that this should involve integrating various aspects of sustainability rather than dealing with discrete element of the problem.

Herath and Prato (2006) made use of various methods for assessment of environmental sustainability, which included multi-criteria analysis. Guy and Kibert (1998) discuss the local development of sustainability indicators, the authors concluded that sustainability indicators are principally about raising awareness and making environmental, economic and social sub-systems transparent to citizens and decision makers: whilst Bond and Saunders (2011) brought up a range of assessment issues, including the difference between “green” and “Sustainable” references and benchmarks, target performance levels, potential version actual performance version actual performance qualitative and quantitative criteria. Bond and Saunders (2011) identified three dimensions of assessment criteria (human, site, ecological); Time (past, present, future) and scale (materials, components, site, community, regional, global) and stated that the notion of a universally applicable tool that would be widely adopted in different countries was questionable. Lenz (2006) found that the existing design and assessment tools used do not address the many economic, social and performance facets over the life span of a building; and do not provide building assessment results for all dimensions of sustainable

development. Lenz highlighted that the maturity of sustainability evaluation begins with the assessment of the technical building design and construction costs, followed by the introduction of life cycle costs (LCC) and life cycle assessment (LCA) to the further introduction of social aspects and utility, resulting in an Integrated model that evaluates technical building design in the context of economic, social and environmental criteria.

4 Environmental Sustainability in Nigeria

With an area of 923,770sqkm, Nigeria is the largest country in tropical West Africa. It extends between latitude 4° 16' N and 13° 52' N and between longitude 2° 49' E and 14° 37' E and bounded by Cameroun and Chad Republic to the East, Niger Republic to the North and Benin Republic of to the West. The southern coastline is dominated by the Delta of the River Niger. Although Nigeria is the twelfth largest country in Africa, it contains a quarter of the continents people and a greater population than any other country in Africa. The country has a great diversity of ecosystems that range from the rainforest through dry savannah to dry lands and flat coastal zones to plateaus and highlands. The current environmental issues in Nigeria like most developing countries cover soil degradation, rapid deforestation, urban air and water pollution, desertification, oil pollution - water, air and soil have suffered serious damage from oil spills: loss of arable land and rapid urbanization (Alabi 2012). Erosion is one of the identified ecological problem that have affected many cities. Solid waste characteristics in Nigeria are similar to those of other developing countries and can be classified into residential, municipal and industrial waste (Iyagba, 2012). In many cities, waste is disposed of informally at open dumps.

5 Challenges to Environmental Sustainability

Past studies on sustainability has been focused on areas as wide as tourism (Kruja and Hasaj, 2010). Studies by Lenz (2006) look at barriers that affect the implementation of environmental management initiatives in an organization. The study further notes that the implementation of an environmental management strategy involves several dynamic stages that may be affected by various barriers. The barriers that may affect an organization depend on: its size; incompatibility with corporate culture; lack of information and knowledge; lack of resources; formal and informal management styles; presence of multiple stakeholders with conflicting interest; and the stage of development of the organization of environmental programmers.

Most of these barriers may be related to one another and often the presence of one barrier may increase the likelihood of or lead to, the presence of another barrier. The following strategies that can be utilized to overcome potential barrier and improve implementation of environmental programmers' strategies identified by Djokoto and Dadzie (2013) are: identifying the driving factors that affect an organization; education; training and communication; aligning the organizations environmental management strategies; identifying and sharing resources.

6 Methodology

The research uses desk study, which involves the review of related literature, and Delphi method, which is used in developing variables for the interview and survey questions. A semi-structured interview protocol was used in eliciting information on the challenges of environmental sustainability. The first round of interview involved nine professionals who were selected on a set of criteria (see Fellows and Liu, 2008). The second round of interviews involved three key professionals who were selected based on their knowledge in the field of environmental sustainability and housing to validate or disprove the themes generated by the first round of interviews (Garson, 2007). The first set of answers provided was compared to the extant literature, in other to develop the key variable using the open-ended technique. For

detail on the Delphi and survey methods see (Fellows and Liu, 2008; Fink, 2003). The rationale for adapting this approach hinges on a number of cogent considerations as outlined by Gill and Johnson (2012). Hakim (1997) observed that the method offers a logical template to study selected issues exhaustively, they further assert that approaching research work without being constrained by predetermined categories of analysis contribute to the depth, openness and details of qualitative enquiry. The researcher will be able to have a first-hand experience or in depth knowledge of challenges of housing development on environmental sustainability. Abuja was selected, because of the level of housing development taking place, which will provide the ideal environment to undertake the study. The research used data obtained from interviews for analysis. The questions were first developed using Delphi method to carry out a first round of interviews of nine respondents, who were experts in their field. They included Architects, builders, town planners, estate surveyors, environmental managers and quantity surveyors; however contractors and the end users were not included in the Delphi techniques which culminated in the development of the interview questions.

7 Findings and Discussions

7.1 Challenges of delivering environmental sustainability in housing schemes in Abuja

For the challenges in the delivery of sustainability in housing development the key informants all agree that stakeholders' perception of environmental sustainability and the challenges to the delivery of environmental sustainability is directly correlated and that the relationship is also significant. Some of the challenges to the delivery of sustainability in housing development are the mentality of people who believe that concrete is better than green lawns, the cutting of trees to be used for construction (as wood) and the cutting of the trees to make way for construction work which is in line with earlier findings by Abolore (2012), Agbola (1998), and Watuka and Fiorino (1990). Also a challenge to environmental sustainability is that construction managers and construction supervisors don't know environmental sustainability very well, this may be as result of low level of awareness or lack of awareness as observed by Lenz (2006), and Djokoto and Dadzie (2013). Another notable factor is in the design not being inclusive and integrating nature, the emphasis is on artificial buildings, which agrees with findings by Herath and Prato (2006), Peloza et al. (2012) and Long et al. (1990). Also of note is the finding that there is no articulate policy and legislation that spells out the indices and process to achieving environmental sustainability, which conforms to findings by Lozano (2008), Megbhenu, (2003) and Freeman (1984); non-inclusion of the community in the policy framework to enhance the environment, which agrees with findings by Fiorino (1990), Long et al. (1990), and John et al. (2012). Akintola et al. (2013) notes that there is an implementation gap in adaptive strategy for environmental sustainability as a result of barriers within the residential community.

8 Conclusion and Further Research

The findings from the extant literature and semi-structured interview indicates that land uses, design of houses, affordability and availability of materials for housing, community involvement in activities that would influence or affect the environment and the process in which environmental sustainability would be carried out, policy framework are key factors that need to be considered in overcoming the challenges in environmental sustainability in the Nigerian Federal Capital Territory of Abuja. The non-inclusion of communities and other stakeholders may affect the results obtained, as it is not a true reflection of the generality of the stakeholders. Further research can be carried out to include the exempted stakeholders. A large number of stakeholders may be used, which would allow the use of factor analysis to factor in

the variables as it affects embedding environmental sustainability into the housing delivery process in Abuja.

9 Limitation

The purpose of this research was mainly focused on Architects, Town Planners, Estate Surveyors, Quantity Surveyors, Builders, and Environmental Managers, which is not a true reflection of the totality of the stakeholders in environmental sustainability in the Nigerian Federal Capital Territory of Abuja. Hence the findings cannot be generalized to the totality of the stakeholders group. The number of the Delphi interviews and subsequent personal interviews were limited due to obvious reasons as outlined by the criteria for Delphi techniques.

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