

An Exploratory Study of Challenges to Sustainable Housing Development in the Kumasi Metropolis of Ghana: Perceptions of Built Environment Consultants

Nongiba Alkanam Kheni and Wisdom Dzidzienyo Adzraku

^{1,2}Department of Construction and Wood Technology Education,

College of Technology Education,

University of Education, Winneba, Ghana, P.O. Box 1277 Kumasi, Ghana.

Corresponding Author: Nongiba Alkanam Kheni

Abstract

Residential building construction is an important activity crucial for fulfilling the housing needs of nations, particularly low- and lower-middle -income countries. The study examines the challenges militating against sustainable housing development (SHD) and to situate the findings within the broader context of sustainable development in Ghana. The study adopts a qualitative approach involving unstructured in-depth interviews of experts in the Kumasi Metropolis in Ghana. The findings of the study suggest that the key challenges to sustainable housing development include; informal house building practices with little regard for regulatory compliance, clients' lack of awareness or ignorance of design principles relating to SHD, culturally disenabling attitudes that hinder SHD, inadequate capacity of local expertise in relation to the use of local materials and technology to promote SHD, inability of regulatory institutions to ensure housing is delivered sustainably and low level of commitment to funding research and development to promote SHD. The paper has made recommendations to address the challenges stated.

Keywords: sustainability, housing development, consultants, Ghana.

INTRODUCTION

Housing development is central to sustainable development because of its relationships with the physical environments as well as the implications it has on human life; socially culturally and economic growth. A key goal of the sustainable development espoused by the United Nations is to achieve sustainable cities and communities by the year 2030. This goal can be met if amongst other considerations housing development in cities and communities are planned, designed, constructed and maintained through the application of the principles of sustainable development. The World Commission on sustainable development defines sustainable development as 'development that meets the needs of the present without having to compromise the ability of future generations to meet their own needs' (World Commission on Environment and Development (WCED), 1987:8 &43). The main aspects of sustainability that feature prominently in the literature include; the environment, social needs, cultural considerations and economic considerations (Ellman and Allen 2014; United Nations Human Settlements Programme (UN-Habitat) 2012). Productive activities and consumption including housing development must be managed in a manner that maximizes sustainability in terms of these stated dimensions.

The housing sector is the largest subsector of the construction industry and it has direct relationship

with the environment, society and economic growth. Additionally, its connectivity with culture cannot be overlooked. In the words of Omoniyi and Jiboye (2009) housing defines the identity of man. In other words housing portends the cultural symbols of humanity. The implementation of housing development that integrates with all the facets of sustainable development is necessary. Such a housing development will amongst others guarantee, especially its users; good quality life, safety, inclusiveness and affordability.

Achieving a sustainable approach to housing can only be realized through clear and thorough understanding of the contextual challenges that hinder the successful implementation by the stakeholders concerned. However, these issues have neither been adequately addressed nor discussed in the literature, especially that knowledge about sustainable development is beset with gaps in understanding (Huong and Soebarto 2003; Kibert 2008). In a more recent study by Zimm et al. (2018), the authors pointed out the lack of research operationalizing the targets of sustainable development goals to reduce their complexity and also accounting for long-term sustainability concerns beyond 2030. In response these stated concerns, pertinent research questions worth finding answers to include: how may traditional housing norms be effectively integrated with principles of sustainable development? How may the challenges to the successful implementation

of housing development that takes cognizance of sustainable development principles be understood by stakeholders? Answers to these questions are helpful guides to achieving sustainability of housing development as well as directing further research effort. The present study addresses the latter question. Therefore, the prime objective of the study was to examine challenges to sustainable housing development in the Kumasi Metropolis of Ghana. The Kumasi Metropolis is the second largest city of Ghana which is well noted for its poor record of building development administration (Poku-Boansi 2011). The rest of the paper is organised into sections that consider literature on the concept of housing, housing development in perspective, context of sustainable housing development in Ghana, main stakeholders in sustainable housing development and challenges to sustainable housing development. This is followed by a methodology section, results, discussion of results and conclusions.

Concept of Housing

Housing has been defined differently by many scholars and researchers based on their understanding and the field they find themselves. According to Listokin and Burchill (2007), housing can be defined as a structure built for the reason of human habitation permanently. The term housing goes beyond buildings or structures put up physically. The National Housing Policy document (Government of Ghana, Ministry of Water Resources, Works and Housing 2015) defines housing as “a multi-dimensional commodity that includes physical shelter, the related services and infrastructure, and the inputs such as land and finance required for producing and maintaining it. Housing also covers the solutions geared at improvement of the shelter and the environment in which it exists”. While this definition encompasses many aspects that are needed to make building habitable, it leaves some ambiguity as to what is to be explicitly construed as ‘environment’. Omoniyi and Jiboye (2009) give a broader view of housing by specific reference to community life and housing as engendering all the social amenities, services, utilities and any available facilities that make a living community suitable and safe for human existence (Omoniyi and Jiboye, 2009). This all-encompassing view of housing has long been pointed out by the World Health Organisation (WHO) (1961) cited by Poku-Boansi (2011) where it views housing as the residential environment, neighbourhood, micro district or the physical structure that mankind uses for shelter, and the environments of that structure, including all the necessary services, facilities, equipment and devices needed for the physical health and social well-being of the family or individual. It is therefore evident from the numerous definitions as provided by researchers and scholars that housing has something more than the mere structure. It is an embodiment of

the physical structure and services for education, recreation, sports, social welfare, health, transportation and commerce.

The stated definitions suggest that a good housing provides the physical well-being as well as the satisfaction of social, cultural, psychological and economic needs of individuals and families, a view similarly held by Okeyinka (2014) and Yalley and Ofori-Darko's (2012). It is thus inferred from the stated views that housing plays a pivotal role in the continuous existence and development of humans. In other words, the existence of a connection between housing development and economic development of every nation as well as its influence on the social, cultural and physical well-being of the people is being acknowledged. The study is adopting this broader meaning of housing that is inextricably linked to environment, social, cultural and economic dimensions of sustainable development and, more appropriately the term sustainable housing development (SHD) as used in this paper refers to the overarching view of housing.

HOUSING DEVELOPMENT IN PERSPECTIVE

Although the current area of urbanization is less than 1% of the earth's surface (Schneider et al., 2009 cited by Schmidt and Frank 2018), urban centers ironically contain over 50% of the world's population (United Nations, Department of Economic and Social Affairs, Population Division 2014). The concentration of people in urban centers means more housing units and other social infrastructure are needed to sustain city life. The need for housing for urban population is more pressing in developing economies than in developed countries because of rapidly increasing population and urbanization in the latter (Lanrewaju 2012; Mukiibi 2011). The increasing urbanization trend poses serious challenges to sustainable housing development in cities, particularly in Sub Saharan African countries and those in Asia.

Ghana's population is presently estimated at 29.6 million and increasing at a rate of 2.5% per annum (Ghanaian Times 2018) and it is acknowledged that the urban population is poorly housed and accounts for over half of the entire country's population (UN-Habitat 2011). Approximately 60% of the urban population is concentrated in the Greater Accra, Ashanti and Western Regions. In these urban areas housing development is characterized by a dominant informal private sector housing development contributing up to 90% of informal housing systems and the rest (formal housing systems) attributable to public housing and formal private sector (UN-Habitat 2011). Organic housing systems mainly associated with traditional urban settlements with or without compliance to building regulations are also found in the urban centers. Government continues to provide

more strategic support aimed at enhancing the participation of the private sector in housing development much to the benefit of the formal private sector. The estimated current housing deficit ranges from 106,806 to 170,751 units (Inclusive Business Action (IBAN) (2016).

To address the stated housing deficit in Ghana, several interventions have been formulated by successive governments to address the problem. However, the statistics reveal that success of such programmes remains marginal (Yirenkyi, 2013). Notably, a more direct comprehensive policy formulation aimed at solving the housing deficit after three decades of policy vacuum produced the National Housing Policy and Action Plan ((1987–1990) and subsequently, the National Shelter Strategy 1991-92. Sadly, the two policy documents were never implemented and the former was revived alongside coordinated programmes of economic and social development policies based on the directives of National Constitution, more specifically clause 38 subclause 5 of 1992 Constitution.

The Context of Sustainable Housing Development in Ghana

The development and successful implementation of viable national developments plans are seen as the genuine path to achieving sustainable development goals (Gumede(2014) cited by Abubakari et al. (2018)). This argument is also supported by research studies that link sustainable growth of countries with successful implementation of development plans (Abubakari 2018; Henderson et al. 2002; World Bank 2004). The stated literature findings make it compelling not to overlook the developmental policy context of a country in investigating development issues such as sustainable housing development. Development policies that attempt to integrate with sustainable development are numerous but the potentially viable ones are discussed here.

The national housing policy make explicit references to the adoption of sustainable development principles, particularly green building and green communities that are resilient to natural disasters and climate change. The kind of housing development envisioned by the housing policy is one that is safe, secure, decent and affordable. Obviously, the spirit of it leaves no doubt as to the relevance of the green and brown agendas in sustainable housing development. The policy also includes strategies that outline the necessary structures (institutional and legal frameworks) for successful and smooth implementation.

National development policy is rooted in the constitution of Ghana and section 36 subsection 5 requires the president to present to parliament a co-ordinated programme of economic and social

development policies two years after taking over office. The National Development Planning Commission (NDPC) is the state agency responsible for development planning and has prepared a 40-year development plan. The approved plan is an official document that contains the vision for the growth and development of the nation and policies for attaining the vision spanning from 2018 to 2057, the end of which coincides with the centenary celebrations of Ghana's independence (Nii-Moi 2017). Successive governments' 7-year development plans will have to fit into this long-term plan. The present government has already launched its 7-year Coordinated Programme of Economic and Social Development Policies. The SDGs have been adequately factored into the 7-year plan and as such relevant to sustainable housing development. Commenting on the relevance of the 40-year development plan from which it is derived, Abubakari et al., (2018) noted that the priorities set out in government plans will determine the extent to which the environmental, social and economic dimensions of sustainability are addressed.

Land is an important resource that directly influences sustainable housing development and equally other spheres of economic activities. The policies that guide land use are of relevance to housing development. Land use for sustainable housing development is determined by the National Land Policy, relevant acts of parliament and building regulations. Notably land uses in connection with sustainable housing development are supposed to consider all facets of sustainable development. For instance, building regulations and other regulations guiding land use specify use of land in accordance with sustainable resource management principles, maintenance of viable ecosystems, land conservation, environmental conservation, provision for recreation and development as well as protection of greenbelts. There are challenges to land use for sustainable housing development and these may persist until strategies are devised to rout them. For instance, poor demarcation of land, multiple sale of land and issues relating to compensation are endemic. In response to growing concern on these issues a land bill that seeks to consolidate all existing laws on land administration to ensure sustainable land administration and management inter alia is currently being considered by Ghana's Parliament (Daily Graphic 2018d).

Main Stakeholders in Sustainable Housing Development

The stakeholders in housing provision may be broadly categorized into two; the government and private sector. Generally, the contribution of the private sector to housing development far outstrips that of government. It is not surprising that government's focus continue to be providing the enabling environment to private sector participation

in housing development in Ghana. The private sector may be further divided into the formal private sector and the informal private sector. Informal house building is in the form incremental house building whereby savings are used to build incrementally. The formal private sector includes NGOs, banks, estate developers and consultants. Consultants offer planning advice, design services, cost advice and other vital services relating to the project management and construction and operation of housing. Given their current role, built environment consultants are placed in a strategic role to offer particular services vital for the realization of the sustainable housing development. This will require a shift from the provision of traditional services to clients to services for sustainable housing development. This, will be a shift from the traditional services rendered for typical social housing in the 70s to the integration of green and brown agendas in housing development in cities and peri-urban communities. Such a shift in the service delivery by built environment consultants also requires effective collaboration of government with all stakeholders of the housing subsector of the construction industry (Jiboye 2011).

Challenges to Sustainable Housing Development

Owing to the challenges Ghana currently faces in housing development, it has been recommended that government play the role of coordinating and supporting the private sector in all aspects including social, environmental and cultural in order to provide sustainable housing strategies to house the masses (Collier, 2014). For instance, it has long been noted that the capacity of the private sector in housing delivery in Ghana is inadequate (Kwofie et al, 2011). The private sector relies on local expertise such as artisans who are poorly trained in the use of locally available materials such as compressed earth blocks, pozzolana, burnt clay bricks and tiles, micro roofing tiles and bamboo. These challenges have been acknowledged by Ibem et al. (2011) in noting that private sector has had minimal impact on the provision of affordable, accessible and quality housing in Ghana. Other challenges to the housing subsector include organizational, external economic and environmental factors and these may as well have negative impact on SHD (Olotuah and Bobadoye 2009; Ademiluyi 2010; Häkkinen and Belloni 2011).

The delivery of sustainable housing is contingent on the commitment and motivation of politicians, civil society organisations (CSOs), non-governmental organisations (NGOs) and other key stakeholders of sustainable development. Politics has been noted to be an area that is difficult to mobilize effort towards the achievement of common societal goals such as the SDGs because interest of politicians and political parties is often paramount to other goals (see Daily Graphic 2018b). This, rather, is an attitude that

milicates against the achievement of developmental goals and one that extends to corrupt practices of government officials and politicians. Acknowledging this evil has led a National Anti-Corruption Action plan (NACAP) as a strategy to address it (Daily Graphic 2018c). Sadly, CSOs that complement government effort in the fight against corruption are presently facing dwindling donor support as a result of gradual withdrawal of international donor support with Ghana's attainment of middle income status (Daily Graphic 2018a).

Efforts to find solutions to Ghana's developmental problems as well as designing strategies to propel economic growth, have led to a multiple institutions with overlapping responsibilities and several laws and regulations with little impact on the problems they were expected to resolve. It is thus questionable whether the existing institutions and legal frameworks are relevant, devoid of conflicting roles and misinterpretations and capable of securing an enabling environment for sustainable housing development. Certainly, there are anecdotes suggesting that institutions have overlapping roles and some regulations are ineffective in the light of changing social life and technological development.

Infrastructural development by city authorities and government agencies are essential for the construction of well laid out houses (Afrane et al, 2016). Many investors in real estate are often times attracted by infrastructure development since it will serve to boost housing delivery. Nonetheless, the development of infrastructure and provision of accompanied services are either non-existent or not adequate in many parts of cities in Ghana and may therefore impede sustainable housing development. The UN-Habitat (2011) rightly points out that, the failure of the municipal, metropolitan and district assemblies (MMDAs) to put in place appropriate infrastructure and services have drastically slowed the rate of housing delivery in Ghana. The cost of infrastructure provision and utility constitutes about 10% to 30% of production cost (Afrane et al, 2016; Abdul-Aziz and Kassim, 2011); hence if such infrastructure is inadequate or nonexistent, it could lead to cost escalation of sustainable housing development schemes.

METHODOLOGY

In addressing the research questions posed, a qualitative approached was adopted to explore the subjective experiences of practitioners involved in sustainable housing development to provide insights on challenges they identify as militating against sustainable housing development as well as possible ways of mitigating the challenges. In this light an interpretive paradigm was considered appropriate by the authors. The underlying assumption was that people create and associate their own subjective

meanings as they interact with the world around them and there is no objective reality. Unstructured interviews with experts (architects, town planners and engineers) representing their various firms and data from secondary sources such as public documents, national diaries and published papers. The interview participants were purposively selected with the characteristics being each expert being duly registered by the relevant professional institution and having practiced for not less than 10 years.

The analysis of the qualitative data involved the development of twenty-six codes; for instance, issues, difficulty, consensus, ways around, ventilation, energy efficiency relating to sustainable housing development practices. The literature facilitated the development of these codes and the list was extended to other related codes such as; ambience, breathing, attitudes of the urban man and so forth, during the analysis of the interview transcripts. Nvivo software allowed summaries of participants' views relating to these codes which were further explored for emerging themes.

RESULTS

The interview participants numbered eight (8) and were all registered with their respective professional institutions and had experiences ranging from 11 years to 27 years. Three (3) out of the eight were in public practice and five were in private independent practice. The responses have been anonymised using the letters, T, U, V, W, X, Y and Z to represent the interviewees. The results are presented as six emerging themes presented in the subsections that follow.

Informal Construction or House Building Practices

Many projects are executed without the intervention of architects, engineers or well qualified construction supervisors and even where qualified persons are involved the project team members are not maintained till the completion of the project. There are situations where a building is designed by one professional and the construction works are carried out under the supervision of a different consultant. Interview participant Z lamented on such instances saying:

"You may design a building and your involvement ends there, the supervision of the construction processes is handled by somebody else; what do you do?"
Participant Z.

Many building projects are executed without the involvement of qualified professionals as can be seen from the from same interview participant below:

"There are many people out there in the street who claim to and indeed do provide a wide range of services to clients but they

lack the right skills and knowledge. Many clients patronize such services because they think that their projects are 'small' and therefore they do not need the advice of qualified professionals" (Participant Z).

Clients' Lack of Awareness or Ignorance of Sustainable Design Principles

Designers who are pushing for sustainable development (of course, including sustainable housing development) face many different challenges. Take for instance, clients who have become aware of new technologies through their exposure to the internet or exposure as they travel to other places. Thus what they specify to consultants as their requirements are fundamentally different from what is acceptable to the consultants given the technical conditions of the region. Their views tend to be stronger because they pay for the works. For instance X puts it this way:

"Let's consider fenestration or ventilation, he has travelled to Dubai and saw aluminium glazed buildings and wants to adopt that here forgetful of the fact that electricity is cheaper in Dubai where they can afford the use of airconditioners. A case in point is that of a 1000-seater assembly hall of a Senior High School for which the Headmistress insisted on aluminium glazed windows to be fixed without airconditioners; that definitely is going to result in a cut down on the area of openings which will lead to poor ventilation. I struggled to get the right thing done by insisting on the original fenestration in naco louvres with adequate openings" (Participant X).

Yet, another interview participant was emphatic about issues bordering on clients' ignorance in relation to ventilation. Describing a situation encountered as follows:

"This was a fine standard Guesthouse but the building isn't breathing; there were airconditioners installed and were functioning alright but there was no air-change!" (Participant W).

Another interview participant recounted his frustrations over the actions of yet another ignorant client having similar tastes and attitudes as the Headmistress mentioned above. In his case he complained about how the client actually went ahead, after the completion of the project, to effect changes on fenestration by closing some openings in a way that will impair ventilation and fixing into other openings glazed aluminium windows.

The above illustrations are supportive of the fact that ignorance is a factor when it comes to technical issues relating to building or housing projects. Clients or artisans not well trained would like to make design

inputs notwithstanding the fact that those decisions may not be technically sound when it comes to sustainability issues like thermal comfort, energy efficiency, provision of adequate water and sanitation which are considered key to an efficient environment of a sustainable housing development.

Inability of Regulatory Institutions to Effectively Enforce Regulations

Regulatory institutions were referred to as not effective implementers of the laws for which they were established. The agencies or departments of interest here are the Assemblies, Planning and Lands Departments. These institutions were established to implement laws and regulations that could impact positively on sustainable development. The interview participants' observation regarding compliance with regulations and laws indicated a tendency for projects to be completed without conforming to building regulations and laws. This, as noted by U, is blamable on failure of statutory authorities to enforce regulations and laws they are mandated to implement:

"Building projects including houses are built without permits; occasionally, you see such buildings under construction marked 'stop work' but they get completed without any indication that some modifications were done perhaps on the design to conform to the building regulations. It means the owners of the projects have found some unconventional ways round the authorities" (Participant V).

Commenting on noncompliance of regulations and laws, one of the study's participants chose to comment on reservations and described the situation as widespread and pathetic:

"You and I are aware of the planning regulations stipulating reservations between the road and the house but what we see instead is widespread encroachment on the right of way. It is pathetic that such developers turn around to demand compensation from the government when the need arises to further develop the road....." (Participant U).

Commenting on safety of buildings, one participant blamed the collapse of structures like the Melcome Building and other similar cases that have occurred in Ghana largely on the lack of enforcement of existing building regulations and laws. He puts it tersely:

"Investigations on these structural failures revealed lapses in enforcement of building regulations and laws by enforcement agencies" (Participant X).

Commitment to Funding Research and Development Relating to Local Building Materials

There are a number of buildings some of which are experimental that use local building materials such as compressed earth blocks, pozzolana, burnt clay bricks and tiles, micro concrete roofing tiles and bamboo. Unlike conventional materials, the manufacturing process and the fact that these local materials are locally available makes their use more appealing from sustainability viewpoint as compared with conventional ones. However, there are number of challenges associated with their use as can be observed from the responses of the interview participants. Commenting on their durability and resilience one interviewee had this to say:

"Kwame Nkrumah University of Science and Technology and Building and Road Research Institute have come up with a number of local materials which are relatively affordable and attractive from point of view of environmental sustainability but their durability and resilience are issues to worry about. A building should last for generations....." (Participant W).

Another interview participant was of the opinion that we need to continue to research on the ways of improving these locally available materials to arrive at improved products that can withstand the test of time. These concerns are evident from his views as expressed below:

"The stark truth is, we need to research further and further to arrive at improved products that are sustainable, of higher quality than imported ones. That will erase the mentality that what is local is inferior to that which is imported. I am afraid this could mean more research funding and commitment; Isn't it technology which is the hidden hand in the growth of technologically advanced countries? So, I am pointing in the right direction and I put it flatly, if we are committed, we will get there someday" (Participant T).

In response to a request to further elaborate on some aspects of her views, it became apparent that commitment was tied to leadership of the nation developing the right policies and implementation strategies as well as effective monitoring and evaluation frameworks for the achievement of related goals and objectives of development programmes. She explained saying:

"We all know what committed leaders can achieve, I believe we have the expertise to develop pragmatic policies but all these come to nothing when there is no committed leadership to see to it that they are implemented" (Participant T).

Also, the issue of local expertise arises in connection with the use of local materials on projects in general. Projects funded by international agencies often require local content. In relation to this one interviewee said:

“Our artisans are only used to building with sandcrete blocks. They are not very good in the use of bricks and bamboo as building materials. So there is the need to train artisans on the use of such locally available materials so that higher standards of workmanship can be achieved in order to ensure that buildings or houses constructed using these materials can last longer” (Participant Y).

Urban Cultures that Constrain Sustainable Housing Development

The Kumasi Metropolis being an urban centre, second to Accra the capital city of Ghana is made up of many people of varied socio-cultural backgrounds. Some of these urban dwellers come with responsible attitudes but others that are handicapped in one way or the other, be it educational background or psychological make up do not come with positive

attitudes compatible with principles of sustainable development as espoused by designers of the urban centre. One participant opined that even though as architects they try to be robust in their designs in anticipation for the destructive tendencies of the ‘urban man’ towards those facilities provided to complement housing in the urban space, they are unable to fully mitigate for the negative effects over the entire life cycle of the infrastructure

“We are constantly mindful of the concept of the ‘urban man’ in designs that are reclusive to the city. Consider providing waste bins for garbage collection for example, in the next moment, it is being used for something else. More or less he dictates the use of it, in ways different from the purpose for which it was provided” (Participant V).

In exploring the meanings of the evidences marshalled as participants’ perspectives of challenges to sustainable development that are of relevance to sustainable housing development, the emerging themes and key challenges discernable from the narratives are summarized in Table 1.

Table 1: summary of themes emerging from the interviews

Emerging themes	Evidence	Discerning/perceptive Challenges
Client-architect relationship	• Preferences for other methods of fenestration design. • Existence of poorly ventilated buildings.	• Lack of awareness of design principles leading to clients experiencing some sort of shock and difficulties leading to delays. • Ignorance of sustainable building principles and inability to access professional service.
Regulatory institutions	• Lack of compliance with building regulations and laws. • Collapse of buildings. • Construction of unauthorized buildings. • Building without permits.	Weak regulatory institutions with weak institutional capacity as well as poorly structured institutions resulting in a lack of enabling institutional environment for sustainable housing development.
Informal construction practice	• Old building stock is better from the viewpoint of sustainability. • Fewer certification programmes	Informal house building practices with little regard for regulations.
Local building materials and sustainable technologies.	• Less use of locally available materials • Local materials not durable.	Low level of commitment to formulating policies that will promote research and use of local materials.
Urban culture	• Attitudes that are contra sustainability.	Culturally disenabling environment.

DISCUSSION

The results provide evidence of six main challenges militating against SHD in the Kumasi Metropolis as can be inferred from the summary of themes emerging from the study and the survey results. The challenges deriving from the results include; clients’ lack of awareness or ignorance of design principles relating to SHD, culturally disenabling environment characterised by attitudes that hinder SHD, inadequate capacity of local expertise in relation to the use of local materials and technology to promote SHD, inability of regulatory institutions to ensure

housing is delivered sustainably, low level of commitment to funding research and development to promote SHD and informal house building practices with little regard for regulatory compliance. A discussion of the stated challenges is presented as well as ways of overcoming them suggested in the sections that follow.

Clients’ Lack of Awareness or Ignorance of Design Principles Relating to SHD

The relation between a client and consultant is contractual and the latter tries to meet the former’s expectations so that he/she obtains satisfaction from

the services provided. However, clients may not have broad and adequate understanding of building design, construction activities and construction materials or concepts such as sustainability (Tzortzopoulos et al., 2006). On the one hand consultants possess specialist knowledge, skills and education, socially acquired through experience and practice. In terms of architectural services, this specialist knowledge has been more appropriately coined by Siva and London (2011) as 'architectural habitus'. On the other hand a client is a complex being that possesses values, needs and behavior (similarly coined as 'client habitus' by Siva and London (2011)) which may change as a project progresses. Undoubtedly, a project brings about a change in a client as experiences outside his/her domain are encountered and plausibly a mismatch can occur leading to a shock of some sort similar to a culture shock. The change process involves a learning process by the client which must be managed by the architect and other design consultants. The consequence of the client learning process is delays in the completion of the project if the relationship is not managed appropriately by the architect or other consultants as observed in this study. These stated findings of the study support Siva and London's (2011) study of the dynamics of client/consultant relationship.

The relationship between client and qualified consultants can also break down when the client becomes unwilling to go through any learning process and is frustrated over failure to get his or her ideas implemented no matter how ill-informed they are. The presence of quack practitioners in the building industry accepting lesser consultancy fees also confound the client's dilemma and ignorance of client and thereby leading to procurement of houses that are not consonant with SHD. In conducting a post occupancy evaluation of some gated communities in urban Ghana, Danquah et al. (2015) observed how the ignorance of some upper-class families in Accra was taken advantage of by some estate developers to procure homes that turned out to be providing insufficient lighting and ventilation and therefore failing to meet requirements of SHD.

Culturally Disenabling Environment Characterised by Attitudes that Hinder SHD

Cities or urban areas have a culture, one in which city-dwellers are seen in comparison to nonurban dwellers to be possessing unfriendly, unhelpful, competitive and selfish traits (See Amato 1983; Korte 1980; Ambrosius and Gilderbloom 2014). In the present study, it was observed that interviewees and respondents expressed concern about attitudes of dwellers of the Kumasi Metropolis (study area) that do not promote SHD. Such a concern, in a way is cautionary and implies forethought by designers, city planners and other consultants that consider the behaviours of city-dwellers in the processes of SHD.

From the perspective of the participants/respondents, most urban-dwellers' behaviours tend to be irresponsible notwithstanding the fact that sustainability as a concept demands from everyone to behave responsibly so as to attain sustainability in our development. Factoring behaviours that characterize urban culture into SHD requires proactive and innovative efforts by consultants in the provision of the urban space/form that sets out to change or mitigate for behaviours that are contradictory to SHD principles. Such an approach to urban planning and architecture, as noted by Niedderer et al. (2016) presents a challenge in built environment professionals' understanding of the approach.

Inadequate Capacity of Local Expertise in Local Materials and Technology

Construction artisans are directly involved in the use of material resources and technology to achieve the desired end products of the housing sector of the construction industry. Bridging the knowledge gap that exists in relation to sustainable local building materials and technology is key to SHD. Improving local expertise in SHD will require adequate training of artisans and other key personnel in SHD. Construction skills training is inadequate in quantity and quality and will remain so in the foreseeable future unless strategic measures such as construction industry council, construction industry training board as has been proposed are implemented (Ghanaweb 2009; Barnes 2015). Construction skills development in Ghana is carried out by traditional universities (public and private), technical universities, polytechnics and technical/vocational education and training institutions. The prevailing curricula in use in many of these technical/vocation education providers do not reflect industry standards which consider sustainable local materials and technologies. Industry innovations in local and sustainable building materials include; compressed earth blocks, pozzolana, burnt clay bricks and tiles, micro roofing tiles and bamboo require competent artisans to these stated materials in the right and efficient manner. This finding is consistent with the literature findings on the low productivity of the construction industry, particularly the private sector which is partly due to low skill levels of artisans and construction professionals (Ibem et al. 2011; Kwofie et al. 2011).

Besides the low level of artisan skill development militating against promotion of locally available materials for SHD, Lilly et al. (2001) as cited in Adzraku et al. (2016) observed the inclusion of expensive imported material components in the cost of procurement of housing contributing to the shortfall in its supply. Their study further suggested that more locally available materials be used for housing in order to cut down on cost and in this way make available housing units more sustainable. Adzraku et al. (2016) also argued that the lack of

recognition for locally available materials as identified by this study by statutory authorities in Ghana coupled with denial of permits for their use constitute a serious incapacitating factor in promoting them in order to cut down costs and make housing available in a more sustainable way.

Inability of Regulatory Institutions to Ensure SHD

The enforcement of regulations was observed to be lax because of many problems confronting regulatory institutions. Even though attempts have been made at incorporating sustainable development principles into Ghana's building regulations and land laws, not much has been achieved through implementation. One key reason for the laxity in implementation is corrupt practices involving officials of enforcement agencies. The endemic nature of corruption in Ghana is a problem well explored in construction literature relating to land use, procurement processes and construction process (Osei-Tutu et al. 2010; Ameyaw & Mensah 2013; Osei-Tutu et al. 2014; Osei-Assibey et al. 2018).

Disparities in enforcement activities are widespread and partly attributable to lack of adequate resources available to enforcing agencies. Staff turnover within enforcement agencies is very high leaving very few officials to oversee implementation over large areas of cities under their jurisdiction. This situation makes it impossible to enforce strict compliance with laws and regulations in the absence of incentives to motivate staff and logistics such as vehicles to facilitate movement (Ameyaw & Mensah 2013). The annual budgetary allocations to Ministries, Departments and Agencies (MDAs) are inadequate. In some public institutions where the laws establishing them incorporate funding mechanisms such as the metropolitan, municipal and district assemblies, revenue mobilization by such public institutions is generally poor.

Low Level of Commitment to Funding Research and Development to Promote SHD

Ghana's constitution provide for economic and social development planning and as a result, a forty-year development plan has been drawn and launched followed by a medium term seven-year coordinated programme for economic and social development policies to catapult the country into a sustainable development path. However, there is the need for a strong commitment to formulating developmental policies by both government and the sector ministries to ensure that sustainable development goals are met including sustainable housing development. Adequate funding of research into SHD is fundamental to the development of sustainable local materials and technologies to support the implementation of sustainable agendas. However, this is a challenge confronting research institutions as can be observed from the results of the study.

Government's efforts in achieving a sustainable economic growth which engenders the accomplishment of sustainable development goals including SHD can be fully realised through good planning as noted by Abubakari et al. (2018) complemented by commitment.

Informal House Building Practices with Little Regard for Regulations

Increasingly, private individuals adopt informal building practice which is an offshoot of informal building system which has been documented in the building construction literature relating to Sub-Saharan African countries (Wells 2007; Wells & Wall 2003; Mashamba 1997). Informal house building system is characterized by little to non-involvement of building professionals (contractors and design consultants), close relationship between building owner and building workers and an incremental building process. Although, some few cases of informal house building projects, may involve professionals such as architects, engineers, quantity surveyors, it invariably does not involve the stated professional expertise from commencement through to completion of projects. Such a system may therefore be less receptive to new and evolving concepts such as sustainable housing development.

It can be argued that houses constructed through informal ways may not be structurally sound or provide the desired comfort level or withstand natural disasters because of low level of involvement of expertise. Whereas it may be argued that the compliance of building regulations by such owners can help address the problems of low quality housing, it is true, at least partly, that regulatory burden unless reduced to the minimum, is often a disincentive for compliance (Chitengi 2018). It is unlikely that informal housing building practices would be sustainable in terms of the physical environment, sociocultural and economic sense. Lifting regulatory burdens is helpful in securing compliance and where building regulations incorporate sustainable development principles, attainment of standards of sustainable housing could be made possible.

Suggestions for Overcoming Key Challenges to SHD

The study highlights clients' lack of awareness or ignorance of design principles relating to SHD, culturally disabling environment characterised by attitudes that hinder SHD, inadequate capacity of local expertise in relation to the use of local materials and technology to promote SHD, inability of regulatory institutions to ensure housing is delivered sustainably, low level of commitment to funding research and development to promote SHD and informal house building practices with little regard for regulatory compliance as the key challenges to

SHD. Implicitly, the recommendations for overcoming these challenges are given in Table 23.

Table 2. Recommendations for overcoming challenges to SHD in Kumasi Metropolis

Discerning/perceptive Challenges	Recommendations	Remarks
• Clients' lack of awareness of design principles leading to 'shock' and delays. • Clients' ignorance of sustainable building principles and inability to access professional service.	Strengthening CPDs for Architects on effective management of client-architect relationship.	The essence is to improve professional practice in the area of client-architect relationship.
Lack of enabling institutional environment for sustainable housing development.	Provide incentives for regulatory officers	Sector ministries have the power to and adequately resource regulatory make proposals on revision of existing institutions. Also revise the laws and acts and new laws under their ministries to establishing institutions to make well parliament. structured.
Informal house building practices with little regard for regulations.	• Develop an enabling regulatory framework to secure compliance with requirements of SHD and involvement of expertise. • Train artisans and builders on sustainable materials and construction technology.	Informal construction practices needs to be sustained because of its importance. The essence is to boost the capacity in so far as concerns SHD.
Inadequate capacity of local expertise in relation to the use of local materials and technology to promote SHD.	• Train artisans and builders on sustainable materials and construction technology.	
Low level of commitment to formulating policies that will promote research and development in SHD.	Provide adequate funding for R&D	Many research institutions that carry particularly research institutions and out research on housing and SHD are individuals with innovative ideas on SHD. located in the Kumasi Metropolis.
Culturally disenabling environment.	Sponsor and create awareness at durbars	Traditional leaders are custodians of organised by traditional rulers in Kumasi land, an important resource for housing Metropolis and assemblies in the Ashanti and they need to be supportive of SHD. Region. Also, more research on SHD and urban cultural dynamism.

CONCLUSION

The findings of the study on the one hand provide a foundation for finding solutions to challenges in the implementation of sustainable housing development which have been highlighted in this study and on the other hand help illuminate the course of implementation of sustainable housing development by helping to disentangle challenges confronting the housing building sector from the broader complexities of issues confronting sustainable development. The findings have implications for policy directives as well as professional practice. The findings by no means are limited in scope since they represent a view of one stakeholder group (consultants) in sustainable housing development in a specific geographical location of Ghana.

REFERENCES

Abubakari, M., Asamoah, P.K.B. and Agyemang, F.O. (2018) Ghana and Sustainable Development: The 40-Year National Development Plan in Retrospective. *Journal of Human Resource and Sustainability Studies*, 6, 24-36
<https://doi.org/10.4236/jhrss.2018.61024>.

Abdul-Aziz, A. R., & Kassim, P. J. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International*, 35(1), 150-157.

Ademiluyi, I.A. (2010). Public Housing Delivery Strategies in Nigeria: A Historical Perspective of Policies and Programmes. *Journal of Sustainable Development in Africa*. 12 (6) 153-161.

Adzraku, W.D., Yalley, P.P., Akubah, T.J. & Bonney, S.O. (2016). Prospects for sustainable housing in Northern Ghana with the use of local walling materials. *Journal of Economics and Sustainable Development*, Vol. 7(20), pp. 5-13.

Afrane, E., Bujang, A. A. B., Liman, H. S. & Kasim, I. (2016). Major Factors Causing Housing Deficit in Ghana. *Developing Country Studies*, 6(2), 139-147.

Amato, P.R. (1983). Helping behavior in urban and rural environments: field studies based on a taxonomic organization of Helping Episodes. *Journal of Personality and Social Psychology*, Vol. 45(3), pp. 571-586.

- Ambrosius, J.D. & Gilderbloom, J.I. (2014). Who's greener? Comparing urban and suburban residents' environmental behaviour and concern. *The International Journal of Justice and Sustainability*, Vol. 20(7) pp.836-849 <https://doi.org/10.1080/13549839.2014.926870>
- Ameyaw, C. & Mensah, S. (2013). Curbing Corruption in the public procurement process in Ghana, *Public Policy and Administration Research* Vol.3(5), pp.44-53.
- Amo, M., Bih, F.K., Agyeman, A., Adu-Gyamfi T. & Mensah, T. (2017). Investigation into the acquisition and development of Wetlands built environment industry: A case study in Kumasi Metropolis. *International Journal of Civil Engineering Construction and Estate Management*, Vol. 5(4), pp. 1-20.
- Barnes, R. (2015). Towards establishing the "Construction Industry Development Authority" in Ghana. *Construction Review Online*. Accessed on March 24, 2018 from: <https://constructionreviewonline.com/2015/03/towards-establishing-the-construction-industry-development-authority-in-ghana/>
- Chitengi, H.S. (2018) Regulations and housing informality in African cities: appropriating regulatory frameworks to factors that influence resilience, *Housing and Society*, 45:1, 14-41, DOI: 10.1080/08882746.2018.1453721
- Collier, P. (2014). Private sector crucial to resolve housing challenges. Private Sector and Development -Proparcon's Magazine; page 1-15.
- Daily Graphic (2018a). CSOs face dwindling donor support. Saturday April 07, pp.18 & 21, columns1-4.
- Daily Graphic (2018b). See Newspapers on 10th & 11th April, pages 26 & 61 respectively.
- Daily Graphic (2018c). Ghana united against corruption: The National Anti-Corruption Action Plan. Tuesday April 24, pp.7.
- Daily Graphic (2018d). Forum to solicit inputs into land bill held in Accra. Tuesday April 24, pp.24 & 41, columns1-4.
- Danquah, J.A., Afram, S.O. & Ofori, P.A. (2015). Evaluating the level of physical transformation of houses in gated communities in Ghana. *Journal of Science and Technology*, Vol. 35(3), pp. 84-97.
- Ghanaweb (2009). Ghana in need of construction industry development agenda. Tuesday, October 20, 2009. Retrieved on March 23, 2018 from: <https://www.ghanaweb.com/GhanaHomePage/features/Ghana-In-Need-Of-Construction-Industry-Development-Agenda-170462>.
- Government of Ghana, Ministry of Water Resources, Works and Housing (2015). National Housing Policy.
- Gumede, W. (2014) Comparative Country Long Term Development Planning: Lessons for South Africa. Wits School of Governance, University of the Witwatersrand, Johannesburg.
- Häkkinen, T. & Belloni, K. (2011): Barriers and drivers for sustainable building, *Building Research & Information*, 39:3, 239-255. <http://dx.doi.org/10.1080/09613218.2011.561948>
- Henderson, J., Hulme, D., Phillips, R., and Kim, E.M. (2002), Economic governance and poverty reduction in South Korea. August 2002, pp.44.
- Huong, N.V. and Soebarto, V. (2003). Gaps in Understanding Sustainable Housing: Case study in Adelaide and Hanoi. *Architectural Science Review*. Vol. 46, pp.369-374.
- Ibem, E. O, Anosike, N. M, and Azuh, D. E. (2011) Challenges in public housing provision in the post-independence era in Nigeria. *International Journal of Human Sciences*, 8 (2). pp. 421-443. ISSN 1303-5134.
- Inclusive Business Action Network (IBAN) (2016). Affordable housing in Ghana. Sector Study, Inclusive Business Action Network, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- Jiboye, A.D. (2011). Achieving Sustainable Housing Development in Nigeria: A Critical Challenge to Governance. *International Journal of Humanities and Social Science*, Vol.1(9), pp. 121-127.
- Korte, C. (1980). Urban-Nonurban differences in social behaviour and social psychological models of urban impact. *Journal of the Society for the Psychological Study of Social Issues*, Vol. 36 (3), pp. 29-51. <https://doi.org/10.1111/j.1540-4560.1980.tb02034.x>
- Kwofie, T.E., Adinyira, E. and Botchway, E. (2011) Historical overview of housing provision in pre and post independence Ghana In: Laryea, S., Leiringer, R. and Hughes, W. (Eds) Procs West Africa Built Environment Research (WABER) Conference, 19-21 July 2011, Accra, Ghana, 541-557.
- Lanrewaju, A.F. (2012). Urbanization, housing quality and environmental degeneration in Nigeria. *Journal of Geography and Regional Planning* Vol. 5(16), pp. 422-429.
- Lilly, M.T. & Wai, J.J. (2001). Development and manufacture of roofing tiles using locally available raw materials. *The Quantity Surveyor*, Vol. 35, pp. 14-19.

- Mashamba, S. (1997) The construction industry in Zambia: opportunities and constraints under structural adjustment programmes and enabling shelter strategy. Unpublished PhD dissertation, University of Newcastle, UK.
- Mukiibi, S. (2011) The effect of urbanisation on the housing conditions of the urban poor in Kampala, Uganda, pp.37-42. Paper presented at the *Second International Conference on Advances in Engineering and Technology* (AET 2011), held at Imperial Resort Beach Hotel Entebbe, Uganda on January 30 – February 1, pp 37-42.
- Niedderer, K., Ludden, G., Clune, S. J., Lockton, D., Mackrill, J., Morris, A., Cain, R., Gardiner, E., Evans, M., Gutteridge, R., Hekkert, P. P. (2016). 'Design for behaviour change as a driver for sustainable innovation: Challenges and opportunities for implementation in the private and public sectors'. *International Journal of Design*, Vol. 10 No. 2, pp. 67-85.
- Nii-Moi, T (2017).40-year development plan flexible - NiiMoi. General News of Tuesday, 7 February 2017. Accessed on April 21, 2018 from:<https://www.ghanaweb.com/GhanaHomePage/NewsArchive/40-year-development-plan-flexible-Nii-Moi-507496>.
- Okeyinka, Y.R. (2014). Housing in The Third World Cities And Sustainable Urban Developments. *Developing Country Studies* www.iiste.org ISSN 2224-607X (Paper) ISSN 2225-0565 (Online) Vol.4, No.8, pp112-120. Accessed on April 16, 2018 from <http://iiste.org/Journals/index.php/DCS/article/viewFile/12204/12557>
- Olotuah, A.O. and Bobadoye, S.A (2009). Sustainable Housing Provision for the Urban Poor: A Review of Public Sector Intervention in Nigeria. *The Built & Human Environment Review*. (2)51-63.
- Omoniyi O. and Jiboye A.D. (2009). Effective housing policy and sustainable development in Nigeria. *Proceedings of International Conference on Research and Development*. Cotonou, Benin. 2(15). 87-93. November 24-27.
- Osei-Assibey, E., Domfeh, K.O. & Danquah, M. (2018). Corruption, institutions and capital flight: evidence from Sub-Saharan Africa, *Journal of Economic Studies*, Vol. 45(1), pp.59-76, <https://doi.org/10.1108/JES-10-2016-0212>
- Osei-Tutu, E., Badum, E. & Owusu-Manu, D. (2010) Exploring corruption practices in public procurement of infrastructural projects in Ghana, *International Journal of Managing Projects in Business*, Vol. 3(2), pp.236-256, <https://doi.org/10.1108/17538371011036563> .
- Osei-Tutu, E., Offei-Nyako, K., Ameyaw, C. & Ampofo, K.T.(2014). Conflict of interest and related corrupt practices in public procurement in Ghana, *International Journal of Civil Engineering Construction and Estate Management* Vol.1, No.2, pp.1-15, September 2014.
- Poku-Boansi, M. (2011). The plan approval process and unauthorized housing development in Ghanaian cities: The case of the Kumasi Metropolis. *Journal of Building and Road Research*, Vol. 13(1) pp. 13-23.
- Schmidt, G.A. and Frank, A. (2018). The Silurian Hypothesis: Would it be possible to detect an industrial civilization in the geological record? (in press *Int. J. Astrobio*) doi: 10.1017/S1473550418000095.
- Schneider, A., Friedl, M. A., & Potere, D. 2009, *Environmental Research Letters*, 4, 044003
- Seager, S. 2013, *Science*, 340, 577
- Siva, J.P.S. & London, K.(2011) Investigating the role of client learning for successful architect–client relationships on private single dwelling projects, *Architectural Engineering and Design Management*, Vol.7(3), pp177-189, DOI:10.1080/17452007.2011.594570
- Tzortzopoulos, P., Cooper, R., Chan, P., Kagioglou, M. (2006). Clients' activities at the design front end, *Design Studies* 27(6), pp.657–683.
- United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, Highlights (ST/ESA/SER.A/352. Accessed on April 15, 2018 from: <https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf>
- United Nations Human Settlements Programme (UN-Habitat) (2012). Sustainable housing for sustainable cities: A policy framework for Developing Countries, UN-Habitat. Accessed on March 22, 2018 from: <https://unhabitat.org/books/sustainable-housing-for-sustainable-cities-a-policy-framework-for-developing-cities/>
- UN-Habitat (2011). Ghana Housing Profile. United Nations Human Settlements Programme (UN-HABITAT), Nairobi, Kenya. Accessed on April 05, 2018 from at <http://www.unhabitat.org>
- Well, J. (2007). Informality in the construction sector in developing countries, *Construction Management and Economics*, 25:1, 87-93, DOI: 10.1080/01446190600601339
- Wells, J. and Wall, D. (2003) The expansion of employment opportunities in the building construction sector in the context of structural adjustment: some evidence from Kenya and Tanzania. *Habitat International*, 27, 325–37, World Bank.

- World Bank (2004), Republic of Korea: Four decades of equitable growth. A case study from: Scaling up poverty reduction: *A global learning process and conference*, Shanghai, May 25-27, 2004.
- World Commission on Environment and Development (WCED) (1987). *Our Common Future*, Oxford University Press, Oxford.
- World Health Organisation (WHO) (1961). Public health aspects of housing. Geneva, WHO Expert Committee Report Series, No. 225.
- Yalley, P. P. & Ofori-Darko, J. (2012) The effects of Ghana's oil discovery on land and House prices on communities nearest to the oil field in Ghana (Case Study: Kumasi And Sekondi Takoradi). Paper presented at the 4th West Africa Built Environment Research (WABER) Conference, 24-26 July 2012, Abuja, Nigeria.
- Zimm, C.; Sperling, F.; Busch, S. (2018). Identifying Sustainability and Knowledge Gaps in Socio-Economic Pathways Vis-à-Vis the Sustainable Development Goals. *Economies* Vol.6(20), pp. 1-22.