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A review of Critical Project Management Success Factors (CPMSF) for sustainable social housing in Nigeria

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Abstract

Purpose: The purpose of the study is to investigate and establish the Critical Project Management Success Factors (CPMSF) for the sustainable social (public) housing estates' delivery/provision in Nigeria. The current housing estate deficit faced in the country is credited to poor and inadequate housing delivery and provision by various agencies. **Method/design:** Documentary analysis of data collection was used in the study which involved an extensive and investigative theoretical review of online and visual document resources, followed by an interpretative identification of categories and limits of various materials and information considered vital to the phenomenon in the study. The documents were analysed with a content analysis approach under four criteria of how: authentic; credible; representative; and meaningful. **Findings/results:** The study reveals that 22 Critical Project Management Success Factors (CPMSF) are essential for the achievement of sustainable social (public) housing estates' delivery/provision in Nigeria. These relate to: the project managers' performance; the organisation that owns the development project; the characteristics of the team members; and the external project environment. At the same time, the study reveals that these are social, economic, and environmental factors that are associated with the triple objectives of sustainable development. **Originality/value:** This study reflection aims to resolve or reduce to a minimum the acknowledged housing estate delivery and provision inadequacy problems in the country, and by exploring this phenomenon, best practise project management techniques will be understood and used to provide sustainable social (public) housing estate units for the Nigerian populace.

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Keywords: Critical success factors; Project management; Housing delivery and provision; Social/public housing estates; Sustainable development

1. Introduction

Housing is not only the edifice of sustainable communities, but concerns the renovation of communities and creating places where people would continually live and work

for present and future generations (Kabir and Bustani, 2012). Housing also provides the essential amenities and infrastructural facilities of necessity among the indispensable human needs for a safe, secure and comfortable life and living in the built environment. Effective and efficient social housing estate provision provides evidence of the social and economic contribution towards the growth and development of a country; as well as providing a link between the corporeal growth of an urban built environment, and its social and economic outcomes. Housing in

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terms of the built environment *inter alia* provides: accommodation; jobs; education; and health services; which in the research context must be: accessible; safe; hygienic; aesthetically pleasing; and also sustainable (Jiboye, 2011). Housing estates' successful delivery and the provision of such housing will avert housing estate shortages and deficits that have remained one of the major challenges facing developed and developing countries of the world today.

The present level of housing estate delivery and the current provision deficits and challenges in Nigeria run contrary to the achievement of the objectives of the United Nation Habitat Agenda 21 (UN-Habitat, 2006) which provides for the provision and delivery of adequate housing that is safe, secure, accessible, affordable and sanitary as a fundamental human right. This indicates that everyone should have access to housing and the infrastructural facilities as the absence of any of the essential facilities and amenities makes the housing estates provision uncomfortable for human life and living in the built environment.

In Nigeria, the government after acknowledging the universally accepted human rights has (since the period of colonialism (up to 1960) to the present civilian administration) engaged in several initiatives and programmes of housing. These were aimed to sustainably deliver and provide ample housing/housing estates for the citizens (FMLHUD, 2011). Despite all these efforts, sustainable housing and housing estates' delivery and provision when compared to the increasing population remain a major problem facing the country. Housing according to the NHP (2011) is defined as the process of providing safe, comfortable, attractive, functional, affordable and identified shelter in a proper setting within a neighbourhood. This is expected to be, supported by continuous maintenance of the built environment for the daily living activities of individuals/families within the community while reflecting their socio-economic, cultural aspirations and preferences.

Irrespective of how good and elaborate this definition is, the sustainable development or sustainability characteristics such as energy efficiency and resource conservation for enhanced quality of the housing estates' units and human life is completely omitted. Hence, the achievement of sustainable housing estate units' delivery becomes a philosophy to question within Nigerian housing policy, initiatives and programmes. Again, if the universally accepted human rights on housing for all must be achieved, then the housing definition within the ambit of the national housing policy must change to incorporate the sustainability features earlier highlighted. However, this manifest itself in delayed completion, poor quality production and a lack of the needed infrastructure such as good road access, water and electricity.

For example, the five hundred (500) housing estate units earmarked to be provided in all the 36 states during the last civilian dispensation (2003–2007) have mostly been abandoned; such as those located in Elele Alimini (Emohua Local Government Area), Isiokpo (Ikwerre Local Government area) in the Rivers State. Another example is that of

approximately 582,000 housing units from 1971 to 1995 expected to be produced under these programmes, only 84,000 (representing a total percent of 15%) of these units were actually built (Ademiluyi, 2010). Many of these programmes did not move beyond their initial first phase.

The second 5-year housing programme implemented during the Third Development Plan period (1975–1980) proposed a total of 202,000 units. Of these, 50,000 units were to be built in Lagos and about 8000 units in each of the (then) other 19 states of the country. At the end of the programme, only 8500 units were built in Lagos while only 20,000 of the proposed total of 152,000 were provided in the rest of the country (Ademiluyi, 2010). These housing estates have become white elephants in the community while people are homeless and the government has not returned to these housing projects for the past 10 years.

Therefore, it becomes imperative to begin to identify issues that need tackling and integrating into the project management practise of the housing estates' delivery for sustainable housing provision in Nigeria.

Sustainability was first conceptualised in the World Commission on Environment and Development (WCED) summit (Bruntland, 1987). It provided that a sustainable development is “*development that meets the needs of the present without compromising the ability of the future generations to meet their own needs*” (Bruntland (1987), cited in Cooper and Jones (2008) and Brandon and Lombardi, 2011). In this sense, sustainable development provides a frame to help ensure long-term ecological, social, and economic growth in society (Ding, 2008) and to ensure a better quality of life for everyone, now and for generations to come. Brandon and Lombardi (2011), Edum-Fotwe and Price (2009) and Worika (2002) suggest that sustainable development is conceived in many different ways; and predominantly in the context of: environmental issues (Bruntland, 1987); economic (Ding, 2008); social (Ding, 2008); political developments (Worika, 2002); and sustaining created assets benefits (Franks, 2006).

This divergence depends on the interest (Worika, 2002); the assessment and evaluation strategy for sustainability (Brandon and Lombardi, 2011); as well as cultural variation, ideological preference, and the development purpose (Worika, 2002).

As a result, there are today over 300 definitions of sustainable development published which represent the products of diverse world views and competing vested interests in the field (De Vries and Peterson, 2008; Moles and Kelly, 2000). However, the problem today is deducing from the definitions to establish a difference and whether the alignment of the features in social housing estate sustainability has been fully utilised in line with the goal of its general objectives. It is in this light that Franks (2006) opined that understanding what represents sustainable and unsustainable development is essential in project management. However, it is largely a matter of prejudiced views which may express public preferences. Boothroyd's (1991) work specified that it is sustainable development

when it reduces the disparities between the poor and the rich. While in the same manner, the environmentalists, planners, surveyors and engineers opine that it is sustainable when nature's ability to replenish is less challenged and unsustainable when nature's ability to replenish is more challenged.

In sustainable social housing, various definitions exist; the EU defined sustainable social housing in terms relative to: the quality of construction; social and economic factors as regards to affordability and psychological impacts; and eco-efficiency such as efficient use of non-renewable resources in the built environment (VROM, 2005). Sustainable social housing estates' delivery should have a housing estate post-development management practise, which strives for integral quality such as: social; economic; and environmental preferences in a broad way. Lutzkendorf and Lorenz (2005) assert that to classify sustainable social housing estates, it is possible to start with the general area of protection, which is part of the three dimensions of sustainable development and as such includes: "*protection of the natural environment; protection of the basic natural resources; protection of human health and well-being; protection of social values and of public goods; and protection and preservation of capital and material goods*".

Moreover, Lutzkendorf and Lorenz's (2005) study concluded that the following should be the basis of such a classification: minimisation of life cycle costs; reduction of land use and use of hard surfaces; reduction of raw material; and the closing of material flows. They would equally consider: avoidance of hazardous substances; reduction of CO₂ emissions and other pollutants; reduction of impacts on the environment; protection of health and comfort of social (public) housing estate occupants; and the preservation of public housing estates' cultural values.

Regarding the project construction, it is sustainable when the entire break down of work activities are directed in such a way that it provides for the reduction of the environmental and health impacts resulting from the project, buildings and the external built environment. This, Langston and Ding (2001) opine enhances green-house reliability, social consciousness and cost-effective richness intents.

In this context and within this study, it can be argued that it is fundamental to provide a problem-free housing estate project management process which permits the housing to become sustainable.

2. Rationale of the study

The rationale of the study is to theoretically explore the critical project management success factors that determine best practise for project management of social housing projects and use them to identify and establish a framework of the factors that would successfully be implemented as best practise for public housing estate units delivery and provision in Nigeria.

While this paper acknowledges that the country is moving forward to industrialisation in all its sectors, it observes

that the housing sector requires a rapid sustainable delivery and provision (FMLHUD, 2011). This is particularly significant now that there are prevalent housing estates' needs because of the ever increasing population and urbanisation in the country. There is the need to provide a quality housing estate that would fulfil the health, safety and secure tenure aspects of the building, drainage, safe water supply, ventilation, waste management, and of socially, economically and environmental preference of sustainable development (Abu Baker et al., 2009).

Today, the ineffective and insufficient implementation of project management processes in the social (public) housing estates' delivery affects the housing estate completion on time, with poor quality and poor service provision. The results of these circumstances are expected to impact on the comfort, tenure, safety and security of life and properties that people should receive if living in such housing estate units, and diminution of the aesthetic values of the built environment.

It is therefore imperative to propose a better approach where these success factors when considered, will bring sustainable adequate housing estates which can minimise the housing stock deficits.

The concern for sustainable housing estate delivery and provision is still in its infancy in developing countries such as Nigeria. Again, while the paper acknowledges that the application of project management tools in other construction projects has made improvements, Franks (2006) and Cusworth and Frank (1993) opine that many problems have been prevalent in the business case implementation. Hence, the requirement for identifying the critical project management success factors which would help to develop a new set of successful factors for project management of social (public) housing estate project delivery in Nigeria and in other developing countries.

It is expected that deploying these critical factors within the current project management approach should help to resolve housing estate non-completion, abandonment, poor quality finishing's and the lack of adequate services provision. At the same time, it should reduce capital waste, reduce the total housing maintenance management costs after construction and provide for the sustainability of the housing estates within the Nigerian economy.

3. Methodology of the paper

The overall approach to the design process of conducting research includes phases from the theoretical underpinning to the collection and analysis of data (Creswell, 2009). This paper utilises the document method of data collection to gather relevant narrative documents used in this study. This helped to strengthen the validity of the paper findings (Mogalakwe, 2006), as well as, to categorise, investigate, interpret and identify the limitations of the various materials and the information as it relates to the phenomenon under investigation. The study reviewed different forms of documents such as: printed online and visual resources.

At the same time, formal and non-formal documents from the national housing policy and others were used and analysed.

In the analysis as Bryman (2008), Macdonald (2006), Mogalakwe (2006) and Scott (1990) suggest, this data collection instrument utilises criteria such as: authenticity; credibility; representativeness; and meaning; to appraise and elicit the eminence of the documents. Therefore, this paper used content analysis tools for qualitatively generated data, utilising the four criteria of how: authentic; credible; representative; and meaningful; the various documents are in this study specific. This approach has been utilised in Malaysia to identify the project management critical success factors for sustainable housing development (Abu Bakar et al., 2009).

4. Critical factors affecting project management accomplishment

The current project delivery and provision environment requires a proactive and innovative strategy in order to deliver project objectives. At same time, every project development organisation must strive to achieve effectiveness since the world is aligned to competition and the best practise approach for business case aspects of successful implementation. It also requires the project development organisation to put into action the corporate strategies of their project management style; and it is in this circumstance that Baccarini (2003) suggested that for an organisation, it is crucial for projects to be successful.

It should be recognised that certain factors that were critical to swaying the project development success are of significance at or before the beginning of the project development. In this sense, the critical success factors are those conditions, or evidence that would add to the project development success (Abu Bakar et al., 2009).

The critical project management success factors were first studied by Rubin and Seeling (1967). Their study concluded that technical performance was a measure of success in development projects and that the project development manager's previous experience has minimal impact on the development return performance; the size of the previously managed project may not affect the managers' performance. Avots (1969) argued that the wrong choice of development manager; unplanned project termination and unresponsive top-management were the main causes of development project failures. Baker et al. (1983) suggested that instead of using cost, time and performance as measures of project success, perceived performance should be the measure. Hughes (1986) argued that the improper focus of a management system by rewarding the wrong actions and the lack of communication of project goals were the major reasons for the failure of any development project such as housing estates' development projects.

Consequently, Schultz et al. (1987) suggested that two groups of factors were responsible for the success of project

development. The first set is the strategic factors including: project mission; top management support; and project scheduling; whereas the second is the tactical factors consisting of: client consultation; personnel selection; and training. Gow et al. (1988) opine that the success of any development project consists of: political, economic, and environmental factors; institutional realities, personnel constraints and technical assistance shortcomings factors; decentralisation and participation factors; timing; information systems; and differing agendas factors; and sustaining project benefits constraints. Nwanekezie (1996) suggests that space; the physical characteristics of the sites; public utilities; service availability; location; legal issues; project ownership; and cost for the project development; are the factors that determine development success.

According to Pinto and Slevin (1987), these success factors are theoretically based rather than empirically based, which may suggest some of the success factors to be generic in scope while others are to address specific issues of interest in individual project developments. Belassi and Tukel (1996) identified and grouped the success factors that determine the successfulness of project developments into four groups including: the development project factors; the project manager and team members' factors; the organisation factors; and the external environment factors. In a similar philosophy, Chan et al. (2002) argued that the project management success factors are: project team promise; contractor's competencies; risk and liability assessments; client's competencies; end users' needs; and end users imposed restrictions.

In all of the literature reviewed, Pinto and Slevin's (1987) twelve success factors remain the basis for project management success factors today. However, these success factors are generalisable to all projects and organisations. Also, a single set of these success factors may not yield project development success and may not be appropriate for other project construction industries (Lim et al., 1999). This is based on the premise that project development environments are different and every organisation operates differently. However, a set of the critical success factors may be transferred from one project development environment to another and then be used as broad guidelines for that subsequent project development.

This paper proposes a list of the critical success factors listed against the various authors and their comments on each, as indicated in Table 4.1 below. It is the frequency of each factors occurrence in the various author's framework that this paper prioritised and ranked as shown in Table 4.2. The prioritisation and ranking assisted this paper to make a conceptual judgement that a particular or set of factors is/are to be made more critical in project management.

The conceptual findings from the frequency analysis in Tables 4.1 and 4.2 confirmed that there are 15 Critical Success Factors (CSF) that influence the successfulness of the project. The Tables reveal that a competent project team occurred in all of the identified author's frameworks and

Table 4.1

Summarised critical project management success factors based on various authors' perspectives.

S. No. (CSF)	Critical Success Factors	Author's							
		Pinto and Slevin (1987, 1989)	Belassi and Tukel (1996)	Cooke-Davis, (2002)	Baccarini (1999, 2003)	Andersen and Jessen (2006)	Hyväri (2006)	Müller and Turner (2007)	Khang and Moe (2008)
1	Project understanding	✓	✓		✓	✓			✓
2	Top management support	✓	✓					✓	✓
3	Information/communication	✓	✓			✓		✓	
4	Client involvement/participation	✓	✓			✓		✓	✓
5	Competent project team	✓	✓	✓	✓	✓		✓	✓
6	Project manager/leader authority	✓	✓		✓			✓	✓
7	Realistic cost and time estimates	✓		✓	✓	✓			
8	Adequate project control	✓				✓			
9	Problem solving abilities	✓							✓
10	Project risk management	✓		✓	✓				
11	Adequate resources for project		✓		✓				✓
12	Adequate project planning	✓							✓
13	Project monitoring recital and feedback			✓				✓	✓
14	Project mission/common goal	✓		✓	✓	✓		✓	
15	Project ownership			✓					✓

Source: Abu Baker et al. (2009).

The '✓' indicates the critical project management success factors as adopted by the authors.

Table 4.2

Critical project management success factors prioritisation.

Serial No.	Critical Project Management Success Factors (CSF)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Frequency of occurrence	5	5	4	5	8	6	4	2	2	3	4	3	3	5	3
Prioritised rank	3rd	3rd	4th	3rd	1st	2nd	4th	6th	6th	5th	4th	5th	5th	3rd	5th

Source: Abu Baker et al. (2009).

as such is prioritised and ranked 1st as the most critical success factor. This is followed closely by the project manager authority/leadership which appears in six out of the eight identified author's frameworks in the literature, thereafter prioritised and ranked 2nd. At the same time, the study results indicate that of the eight author's frameworks, four out of the fifteen critical success factors appear common in five of the author's frameworks such as: project understanding; top management support; client involvement; and project mission/common goal. While critical success factors as: information/communication; realistic cost and time estimates; and adequate resources for project are identified as common in four of the frameworks and ranked as 4th in the set of the critical success factors for project success.

The results also specified that there are five other critical success factors which appear less frequently in the litera-

ture frameworks as indicated in Tables 4.1 and 4.2 such as: project risk management; project monitoring recital and feedback; adequate project planning; and project ownership. These were ranked as the 5th most critical success factors to project management success.

Adequate project control and problem solving abilities are rarely identified as they only appeared in two out of the eight frameworks presented in the Tables above, hence ranked 6th in the critical success factors.

5. Critical project success factors affecting sustainable social (public) housing estates' delivery and provision in Nigeria

Several critical success factors currently influence the sustainable social (public) housing estates' project delivery and provision in Nigeria. Their identification can be compared with those critical success factors mentioned earlier

in Table 4.1. The body of literature on sustainable development as it relates to sustainable housing and its adequacy has at the moment presented several contentions and definitions such as those by: Winston and Pareja (2007) and Cooper and Jones (2008) by using certain criteria measuring instruments to define sustainable housing. Sustainable housing delivery is the steady, incessant and replicable process of meeting the housing needs of the populace, of which the vast majority of whom are poor and are unable to provide for themselves (Olotuah and Bobadoye, 2009).

Sustainable housing estate delivery must ensure that the housing delivery approach is stable and not subject to bottlenecks in the socio-political situation of a nation like Nigeria. For this to be attained, it requires a proper definition of the housing needs and the full inclusion and involvement of the end users which aim to justify their satisfactions in line to meeting the global sustainable

development objectives on housing accessibility, adequacy, safety, tenure and comfort.

This study has drawn from various authors on the philosophy of housing provision in Nigeria and has identified several critical success factors that influence the sustainable housing estates' delivery and provision in Nigeria as indicated in Table 5.1. These critical success factors are prioritised based on the frequency of occurrence in the various author's frameworks and ranked in Table 5.2. The tables particularly (Table 5.1) indicate the critical success factors for the sustainable social (public) housing estates' project delivery and provisions in Nigeria, though Olotuah and Bobadoye (2009) opined that achieving sustainable housing provision requires major societal changes, restructuring of institutions and management approaches.

There are 19 critical factors which sway and enhance the sustainable housing estates' delivery and provision in

Table 5.1
Summarised critical project success factors affecting sustainable social (public) housing estates' delivery and provision in Nigeria.

S. No.	Critical Success Factors (CSF)	Author's							
		FMLHUD (2011)	Olotuah and Bobadoye (2009)	Aluko (2012)	Jiboye (2011)	Ibem and Amole (2011)	Oyebanji et al. (2011)	Ajanlekoko (2001)	
1	Land issues	✓	✓	✓	✓	✓	✓	✓	✓
2	Effective housing policy implementation	✓	✓	✓	✓	✓	✓	✓	✓
3	Housing project ownership	✓	✓	✓	✓	✓	✓	✓	✓
4	Project team composition	✓	✓			✓			✓
5	Weather condition	✓	✓				✓		
6	Cultural difference	✓	✓						
7	End users involvement and other issues	✓	✓		✓	✓	✓		✓
8	Project site condition	✓							✓
9	Top management support	✓	✓	✓	✓	✓	✓	✓	✓
10	Adequate project fund and resources	✓	✓	✓	✓	✓	✓	✓	✓
11	Project team competency	✓	✓		✓	✓	✓	✓	✓
12	Project leader stability	✓	✓			✓	✓	✓	✓
13	Realist project cost and time estimates	✓	✓		✓	✓	✓	✓	✓
14	Local building materials and increasing cost	✓		✓	✓	✓	✓	✓	✓
15	Adequate project planning	✓	✓					✓	✓
16	Adequate project monitoring and feedback	✓	✓	✓	✓	✓	✓	✓	✓
17	Project information and communication	✓	✓		✓	✓			✓
18	Project mission/common goal	✓	✓		✓		✓	✓	✓
19	Project risk management	✓							✓

The remark '✓' indicates the critical project management success factors as determined by the authors.

Table 5.2
Prioritisation of the critical project management success factors for sustainable social (public) housing estates' delivery in Nigeria.

CSF S. No.	Critical project success factors for sustainable social (public) housing estates delivery in Nigeria																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Frequency of occurrence	7	7	7	4	3	2	6	2	7	7	7	5	6	6	4	7	5	5	2	
Prioritised rank	1st	1st	1st	4th	5th	6th	2nd	6th	1st	1st	1st	3rd	2nd	2nd	4th	1st	3rd	3rd	6th	

Nigeria. The analysis of the findings indicates that of the 19 critical factors, which includes: land issues; effective housing policy implementation; housing project ownership; top management support; adequate project fund and resources; project team competency; and adequate project monitoring and feedback are unanimously identified as critical success factors, hence they are ranked 1st after prioritisation. At the same time, the results reveal that: end users involvement and other related issues; realistic project cost and time estimates; and local building materials and its increasing cost; are ranked 2nd as the next prominent set of critical success factors in sustainable housing estates' delivery and provision. Project information and communication and project mission and/or common goal, ranked 3rd were critical success factors in five of the seven author's frameworks. The tables further reveal that project team composition and adequate project planning, ranked 4th were critical success factors represented in four out of the seven author's frameworks. Only the weather condition critical success factor appears negligibly critical and is represented only in three of the seven author's philosophy and frameworks and prioritised and ranked 5th in [Table 5.2](#). The tables in addition show that: cultural differences; project site conditions; and project risk management, ranked 6th appearing less frequently in various authors' frameworks as only two out of the seven authors' showed these factors.

The fifteen (15) factors provided in [Table 4.1](#) and the nineteen (19) factors in [Table 5.1](#) above represent the generic project management critical success factors that had been suggested as applicable to all project developments in the literature. Seven (7) factors are in the study circumstance that are argued to be Nigerian context specific. These include: effective housing policy implementation; land issues; weather conditions; local building material and increasing cost; cultural differences; housing project site conditions; and end users involvement/inclusion.

The implementation of the housing policy should be effective and supported by regular monitoring, evaluating and reporting on housing situations ([Ihuah and Eaton, 2013](#); [FMLHUD, 2011](#)). This approach will help to track the performance and will measure the progress so far made in the housing sector. However, this requires the collaboration of all concerned and should be supported by the best practise project management.

Another critical factor is land issues and that include: the problem of ownership; land availability/accessibility; land litigations; the difficulties in obtaining the certificate of occupancy; lack of adequate land registrar system; and the problems of implementing the Land Use Act. These issues combine in Nigeria to make it difficult to access land for housing estate provision even when the Land Use Act ([Cap L5, LFN, 2004](#)) has vested all land in the territory of each state into the hands of that state governor to administer for the people and to issue certificate of occupancy where it is justified to do so. But, this has not yielded

the much expected benefits ([Aluko, 2012](#)) since difficulties perpetuate in the way people are holding land back from housing estate provision and other economic development in the country. For sustainable housing estate development, these difficulties need to be removed for successful project management.

The weather conditions are such that it cannot easily be predicted and when it rains, the heaviness is such that it causes differential settlement and other defects in buildings, as well as wasting material resources at the project site. As a result, most housing development contractors prefer to carry out construction only during the dry season since it should offer maximisation of profits. This agrees with [Patton \(1988\)](#) who opined that weather conditions are often responsible for chemical actions on building materials, causing the rapid deterioration of some materials and components of houses. This must be addressed for sustainable housing estate provision in Nigeria during the project management phase.

Successful project management for sustainable social housing provision requires the use of locally produce building materials that are readily available ([NHP, 2011](#)), and should be explored by the project managers and governments for sustainability. The cost of the materials should be cheap since import duties are expected to be excluded. The selection and use of materials in compliance with the local weather conditions plus the cost-in-use and durability assessment should be encouraged to ensure the sustainability of the housing estate.

Another critical factor is the cultural differences existing in Nigeria. The cultural differences in Nigeria are so many that this also influences the choice of housing type specific to the localities. The government in most cases builds uniform housing estates irrespective of the peoples' need. Therefore, for successful social housing estate project management, the housing estate design and types should be those reflecting the local housing philosophy and with this, it is expected that the housing provision strategy would be supported and sustained in the economy.

The project site conditions are another critical factor for the successful sustainable project management of social (public) housing estate provision. This relates to the geological nature of the area. It is expected to incorporate a design that supports the use of locally available building materials and other materials or instruments to be utilised in the project management of the housing estates.

Finally, the end users involvement/inclusion is another critical factor for sustainable social (public) housing estate project management. This group directly benefits from the social (public) housing estate units and the facilities if provided. The inclusion/involvement of this group in the sustainable project management of the social housing estate units' provision is vital. The participants should expect to assist the project management team to achieve the best design and facilities for the particular social housing estate units and should promote its sustainability.

6. Findings and discussion

Following the theoretical review and investigations into the critical success factors in the project management and sustainable housing delivery/provision philosophy in Nigeria, as indicated in Tables 4.1, 4.2, 5.1 and 5.2; the critical success factors for sustainable social (public) housing estates in Nigeria emerged after triangulation of both Tables 4.1 and 5.1. It is presented in Table 6.1 and the suggested order of magnitude from high critical success factors to the lowest critical success factor are shown in descending order. However, these CPMSF are context specific to Nigeria as some of the factors may vary in other developing and developed countries when investigated in a similar manner.

Table 6.1 indicates that 22 factors are critical project management success factors for sustainable social (public) housing estates' delivery/provision in Nigeria. The results further reveal that the critical success factors relate to: the project managers' performance; the organisation that owns the development project; the characteristic of the team members; and to the external project environment.

At the same time, revealing that these critical success factors can be combined as social, economic, and environment factors which are the triple objectives of sustainable development as earlier mentioned.

Sustainable housing estates' delivery and provision requires competent project team members who have the experience and developmental capacity in delivering projects rather than basing the deployment of project team members on federal character representation. The effective and efficient implementation of the national housing policy with its entire ramifications, for instance, the National Housing Policy (2011) decreed that in order to have sustainable housing delivery and provision in the country, the effective implementation, coordination, monitoring and evaluation are critical, as well as ensuring a mechanism which is underpinned by strong partnership and collaboration with all stakeholders in the housing sectors.

While these issues are critical, land issues cannot be overlooked if sustainable housing estates' delivery and provision for adequacy is to be met. Land availability for housing provision is constrained by the nature of how

the Land Use Act (1978) is structured and included in the constitution of the country, making it inflexible and difficult to effect even minor amendments. It also slows the process of acquiring the Certificate of Occupancy of land, and the bureaucratic bottlenecks and financial costs involved in the processes remain a frustration in an attempt to achieve sustainable housing estates' delivery and provision in Nigeria through land is ready available (Aluko, 2012). While many of the generic critical success factors enumerated in Table 4.1 are not discussed in this paper, it is significant that they are recognised and combined into project management for a successful social (public) housing estates' delivery and provision.

This study draws attention to the issue of housing project funds and resources which the National Housing Policy (2011) described as '*the engine that drives the housing sector*'. This refers to the financial resources required for adequate housing estate development and housing estates' infrastructural provision, which cannot be attained without a strong and efficient housing finance system being in place. For the housing finance institution to mobilise funds, it is recommended that these funds should be transferred to the Federal Mortgage Bank of Nigeria (FMBN) to sustain continuous liquidity in the national housing fund scheme. Misfortune has remained the prevalent fact in this scheme (FMLHUD, 2011).

The lack of commitment by all tiers of the government towards the housing sector, the cumbersome procedures and the persistent high cost of acquisition and transfer of land for housing in the country as earlier mentioned and the bureaucratic (*difficult*) bottlenecks in the procedure to accessing loans for adequate housing delivery and provision from the financial institutions in Nigeria are prevalent today and require sustainable changes.

7. Conclusions

The study demonstrates that there are challenging issues in the housing estate delivery and provision in Nigeria for which Federal and State Governments have demonstrated concern in several ways and approaches in the past and in the present dispensations.

Table 6.1

The Critical Project Management Success Factors (CPMSF) for Sustainable Social (Public) housing estates' delivery and provision in Nigeria.

Rank	Critical Success Factors (CSF)	Rank	Critical Success Factors (CSF)
1	Competent project team	12	Project understanding
2	Land issues	13	Project mission/common goal
3	Effective housing policy implementation	14	Project information/communication
4	Housing project ownership	15	Project team composition
5	Top management support	16	Adequate project planning
6	Adequate project fund and resources	17	Weather condition
7	Adequate project monitoring and feedback	18	Project risk management
8	End users involvement/inclusion	19	Cultural difference
9	Project manager/leader authority	20	Adequate project control
10	Realistic project cost and time estimates	21	Project site condition
11	Building materials and its increasing cost	22	Project problem solving abilities

This has had limited success in delivering and providing adequate housing estates to ameliorate the inadequacy of housing because the various critical success factors (identified in Table 6.1) for project management in sustainable social (public) housing estates' delivery and provision are not implemented.

It is important to understand and implement these factors for sustainable public housing estates' project management success in Nigeria and other developing countries since it is recognised that sustainable social housing estates' delivery and provision is a key contributor to the socio-economic growth and development of the country.

At the same time, the critical success factors implementation in the project management for sustainable social (public) housing estates' delivery and provision should be supported by government policies based on the people's real needs and not for selfish political and financial motives. These policies should be sustained with all stakeholders to the housing sector included and which changes in government do not affect. The government bodies that own these housing estate units should implement capacity development programmes to enlighten the practitioners, policy makers, and other agencies on what these factors expect to provide in social (public) housing estate provision sustainability. Since the establishment of these critical factors utilised only documentary evidence, the study recommends that further empirical investigation through an instrument of qualitative and quantitative sources (interviews and questionnaire field survey) should be carried out with the identified important stakeholders in this area.

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References

- Abu Bakar, A.H., Razak, A.A., Abdullah, S., Awang, A., 2009. Project Management Success Factors for Sustainable Housing: A Framework. University Saints Malaysia, Pulau.
- Ademiluyi, I.A., 2010. Public housing delivery strategies in Nigeria: a historical perspective of policies and programmes. *J. Sustainable Dev. Afr.* 12 (6), 153–161.
- Ajanlekoko, J.S., 2001. Sustainable Housing Development in Nigeria – The financial and Infrastructural Implication International Conference on Spatial Information for Sustainable Development, Nairobi, Kenya, October, Available at: www.fig.net/pub/proceedings/nairobi_abs/ajanlekoko-CMWS1-1.htm. (accessed on 20/11/2013).
- Aluko, O., 2012. The effect of land use act on sustainable housing provision in Nigeria: the Lagos state experience. *J. Sustain. Dev.* 5 (1), 114–122.
- Andersen, E.S., Jessen, S.A., 2006. Project evaluation scheme. *Project Manage.* 6 (1), 61–69.
- Avots, I., 1969. Why does projects management full?. *Calif. Manage. Rev.* 77–82.
- Baccarini, D., 2003. Critical Success Factors for Projects. Faculty of the Built Environment, Art and Design, Curtin University of Technology, Australia.
- Baker, B.N., Muphy, D.C., Fisher, D., 1983. Factors Affecting Project Success. Project Management Handbook. Van Nostrand Reinhold CO, New York.
- Belassi, W., Tukel, O.I., 1996. A new framework for determining critical success/failure factors in projects. *Int. J. Project Manage.* 14 (3), 141–151.
- Boothroyd, P., 1991. Distribution principles for compassionate sustainable development. In: Perspectives on Water in Sustainable Development. In: Docey, A. (Ed.), . Towards Agreement in the Fraser River Basin. University of British Columbia West Water Research Centre, Vancouver.
- Brandon, P., Lombardi, S., 2011. Evaluating Sustainable Development in the Built Environment, 2nd ed. Wiley-Blackwell Publication, UK.
- Bruntland, H., 1987. Our Common Future. Report for the World Commission on Environment and Development. Oxford University Press, New York.
- Bryman, A., 2008. Social Research Methods, 2nd ed. Oxford University Press, New York.
- Chan, A.P.C., Scott, D., Lam, E.W.M., 2002. Framework of success criteria for design/build projects. *J. Manage. Eng.* 18 (3), 122–128.
- Cooke-Davis, T., 2002. The real success factors on project. *Int. J. Manage.* 20 (3), 185–190.
- Cooper, J., Jones, K., 2008. Routine Maintenance and Sustainability of Existing Social Housing. Conference paper presented at CIB W070 Conference in Facilities Management. Heriot Watt University, Edinburgh, UK.
- Creswell, J.W., 2009. Research Design: Qualitative, Quantitative and Mixed Methods Approaches., Sage Publication, London.
- Cusworth, J.W., Franks, T.R., 1993. Managing Projects in Developing Countries. Pearson Education Limited, Edinburgh Gate, England.
- De Vries, B.J.M., Peterson, A.C., 2008. Conceptualizing sustainable development: an assessment methodology connecting values, knowledge, worldviews and scenarios. *J. Ecol. Econ.* 68, 1006–1019. Available at: www.sciencedirect.com.
- Ding, G.K.C., 2008. Sustainable construction: the role of environmental assessment tools. *J. Environ. Manage.* 86, 451–464.
- Edum-Fotwe, F.T., Price, A.D.F., 2009. A social ontology for appraising sustainability of construction projects and development. *Int. J. Project Manage.* 27, 313–322.
- Federal Ministry of Lands, Housing and Urban Development, 2011. National Housing and Urban Development Policies Draft. Available at: http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0CD0oQFjAD&url=http%3A%2F%2Fwww.socialhousingnigeria.com%2Fdocuments%2FNational%2520Housing%2520Policy%2520-%2520adpoted%25202012.doc&ei=j60aVOv6BIL-POLNgVg&usg=AFQjCNH_ZcPe7Q-zoCUqwHapFG4-jriXAQ&bvm=bv.75097201.d.ZWU (accessed on 10/11/2013).
- Franks, T.R., 2006. Sustaining Projects Benefits: Masters Course Manual. University of Bradford, UK, Centre for International Development.
- Gow, D.D., Morse, E.R., 1988. The Notorious Nine, Critical Problems in Projects Implementation World Development, vol. 16, No. 12, pp. 1399–1418.
- Hughes, M.W., 1986. Why Projects Fail: The Effects of Ignoring the Obvious Ind Eng, vol. 18, pp. 14–18.
- Hyväri, I., 2006. Project management effectiveness in project-oriented business organizations. *Int. J. Project Manage.* 24 (3), 216–225.
- Ibem, E.O., Amole, O.O., 2011. Assessment of the qualitative adequacy of newly constructed public housing in Ogun State, Nigeria. *J. Prop. Manage.* 29 (3), 285–304.
- Ihuah, P.W., Eaton, D., 2013. A Framework for the Sustainable Management of Social (Public) Housing Estates in Nigeria: a pilot study. A Paper Presented at RICS – COBRA Research Conference, University of Ulster, New Delhi, India. Available at: <http://www.rics.org/uk/knowledge/research/conference-papers/cobra-2013—a-framework-for-the-sustainable-management-of-social-public-housing/> (accessed on 15/12/2013).
- Jiboye, A.D., 2011. Achieving sustainable housing delivery in nigeria: a critical challenge to governance. *Int. J. Humanit. Soc. Sci.*, vol. 9, Special Issue, pp 121–127.

- Kabir, B., Bustani, S.A., 2012. A Review of Housing Delivery Efforts in Nigeria. Available at: www.gla.ac.uk/media/media_129767_en.pdf (accessed on 05/07/2012).
- Kelly, R., Moles, R., 2000. Towards sustainable development in the Mid-West Region of Ireland. *J. Environ. Manage. Health.* 11 (5), 422–432.
- Khang, D.B., Moe, T.L., 2008. Success criteria and factors for international development projects: a life cycle-based framework. *Project Manage. J.* 39 (1), 72–84.
- Langston, C.A., Ding, G.K., 2001. Sustainable Practices in the Built Environment (Eds.), Langston, Butterworth-Heinemann, Oxford.
- LFN (CAP L5, 2004), The Land Use Act. Federal Government of Nigeria Official Extraordinary Gazette. No.14, Iss 65, March.
- Lim, C.A., Mohamed, M.Z., 1999. Criteria of project success: an exploratory re-examination. *Int. J. Project Manage.* 17 (4), 234–238.
- Lutzkendorf, T., Lorenz, D., 2005. Sustainable property investment: valuing sustainable buildings through property performance assessment. *J. Building Res. Inf.* 33 (3), 212–234.
- Macdonald, K., 2006. Using Documents. In: Gilbert, N. (Ed.) *Researching Social Life*. London, UK: Sage Publication.
- Mogalakwe, M., 2006. Research report: the use of documentary research methods in social research. *J. Afr. Sociol. Rev.* 10 (1), 221–230.
- Müller, R., Turner, R., 2007. The Influence of Project Managers on Project Success Criteria and Project Success by Type of Project. *Eur. Manage. J.* 25 (4), 298–309.
- Nwanekezie, O.F., 1996. *Principles and Practice of Estate Management*. Avan Global Publications, Owerri, Nigeria.
- Olotuah, A.O., Bobadoye, S.A., 2009. Sustainable housing provision for the urban poor: a review of public sector intervention in Nigeria. *J. Built Hum. Environ.* 2, 51–62.
- Oyebanji, A.O., Akintoye, A., Liyanage, C., 2011. Public-Private Partnerships Approach: A Panacea to Urban Housing Inequalities in Developing Countries: A Case of Nigeria. III Proceedings of the CIB TG72/ARCOM Doctorial Research Workshop. Preston, UK: University of Lancashire, School of Built and Natural Environment. Available at: [http://www.google.com/search?ie=UTF-8&oe=UTF-8&sourceid=navclient&gfns=1&q=Oyebanji%2C+A.O.%2C+Akintoye%2C+A.%2C+and+Liyanage%2C+C.+\(2011\)%2C+Public-Private+Partnerships+Approach%3A+A+Panacea+to+Urban+Housing+Inequalities+in+Developing+Countries](http://www.google.com/search?ie=UTF-8&oe=UTF-8&sourceid=navclient&gfns=1&q=Oyebanji%2C+A.O.%2C+Akintoye%2C+A.%2C+and+Liyanage%2C+C.+(2011)%2C+Public-Private+Partnerships+Approach%3A+A+Panacea+to+Urban+Housing+Inequalities+in+Developing+Countries).
- Patton Jr., J.D., 1988. *Maintainability and Maintenance Management*. Instrument Society of America, U.S.A.: North Carolina.
- Pinto, J.K., Slevin, D.P., 1989. Critical success factors in R&D projects, *Res. Technol. Manage.*, pp 31–35.
- Pinto, J.K., Slevin, D.P., 1987. Critical factors in successful project implementation. *IEEE Trans. Eng. Manage.* 34 (1), 22–27.
- Rubin, I.M., Seeling, W., 1967. Experience as a factor in the selection and performance of project managers. *IEEE Trans. Eng. Manage.* 14 (3), 131–134.
- Schultz, R.L.S., Slevin, D.P., Pinto, J.K., 1987. Strategy and tactics in a process model of project implementation. *Interface* 17 (3), 34–46.
- Scott, J., 1990. *A Matter of Record*. Polity Press, Cambridge.
- UN-HABITAT, 2006. *Shelter for All: The Potential of Housing Policy in the Implementation of the Habitat Agenda*, UN-HABITAT Information Services, Nairobi.
- VROM (Ministry of Housing, Spatial Planning and Environment, 2005), *The 2005 Sustainable Refurbishment of High-Rise Residential Buildings and of Surrounding Areas in Europe*. Report of European Housing Ministry held in Czech Republic: Prague, March.
- Winston, N., Pareja, M., 2007. Sustainable housing in the urban context: international sustainable development indicator sets and housing. *Soc. Indicators Res.* 87 (2), 211–221.
- Worika, I.L., 2002. *Environmental Law and Policy of Petroleum Development, Strategies and Mechanism for Sustainable Management in Africa*. Gift-Prints Associates, Benin City, Nigeria.