

A CASE FOR TARGET VALUE DESIGN TOWARDS EFFECTIVE LOW-COST HOUSING PROJECT COST MANAGEMENT AND PERFORMANCE IN SOUTH-EAST ZONE NIGERIA

Obi, L.I.¹ and Arif, M.²

Abstract:

Reports over the past decade, reveal the trend of poor cost performances of many Low-cost Housing (LcH) projects. This have apparently resulted in huge monetary losses to the government as the client, declining housing supply and undermined affordability of many Low and Low-medium incomes particularly in developing countries like Nigeria. In spite of the changes with contemporary trends in Nigeria, it would appear that the techniques employed in the management of the delivery costs of the LcH projects particularly in the South-east zone are yet similar to those used over a century ago. This necessitates urgent and appropriate sustainable intervention strategies adopting cost-effective techniques. Prior studies affirms the implications of modern cost management techniques such as Target Value Design (TVD) in improving delivery cost performances on construction projects. For this reason this paper which forms an integral part of an ongoing doctoral study, aim to identify the efficacy and applicability of TVD in the context of LcH project delivery cost management. A review of relevant and extant literature identifies peculiarities on the concept of TVD and LcH projects. Findings from literature and data collected via questionnaires further identify constraints on current LcH project delivery cost management system and clearly indicates the possible applicability and integration of TVD in the system. These findings provide a platform for the next phase of the research towards developing an improved delivery cost management model for LcH projects. This is expected to engender effective government-led LcH projects delivery particularly in in South-East zone Nigeria.

KEYWORDS COST MANAGEMENT, LOW-COST HOUSING, PROJECT COST PERFORMANCE, SUSTAINABILITY, TARGET VALUE DESIGN.

1. INTRODUCTION

The problem of housing is universal but apparently more critical in the developing countries (Olotuah & Bobadoye, 2011). The prevailing housing situations evident in many developing countries, has attracted considerable attention given the declining quantity, quality and high costs of Low- cost Housing (LcH) supplied to target beneficiaries (United Nations Human Settlements Programme (Un-Habitat), 2012; Assaf, Bubshaitr, & Al-Muwasheer, 2010). Nowadays, with the prevailing situations of housing inadequacies, governments particularly in many developing countries have recognised the need for sustainable supply of LcH, affordable to the low and low-middle incomes population.

Nigeria as a developing country is apparently geared towards such achievements though, several efforts which are yet to yield appreciable result. Trends of previous Government-

¹ School of the Built Environment, University of Salford England United Kingdom. L.i.Obi@edu.salford.ac.uk

² School of the Built Environment, University of Salford England United Kingdom. M.Arif@salford.ac.uk

led LcH schemes in Nigeria have been characterised with inadequate supply, abandoned projects, high supply cost, and poor quality houses (Akinde, 2012; FMLHUD, 2012; Olotuah, 2010 cited in Akinde, 2012; Balogun, 2005; Ogu 1999). Consequently, such impact are presumed to ripple inadvertently on declining housing stock, high sale prices of available stock, undermining affordability of the low and low-middle incomes and growing slums (Ogu, 1999; UN-Habitat, 2011). One of such identified drivers to this situation is the poor delivery cost performances experienced at the LcH project delivery level (Obi , Arif, Awuzie, 2015; Ubani, Okorochoa, & Emeribe, 2013; Akinde, 2012). This challenge have been identified to apparently lead to colossal loss of scarce resources, affecting client (government) budget projections impacting on project delay and abandonment resulting in declining supply (Smith, 2014). It's no wonder improving the delivery cost performances of LcH projects has attracted considerable attention across the globe. This will in no doubt, facilitate the realisation of FMLHUD, 2012 policy objective on sustainable LcH housing supply and affordability and particularly in South-East zone Nigeria (Obi et al., 2015;FMLHUD, 2012).

With the ongoing and future projections towards improving sustainable LcH supply, the construction and housing industry key players seek several survival rather than sustainable and effective strategies that can deliver effective LcH project cost performances (Urbani, et al., 2013). Therefore it has become imperative that urgent intervention be proffered by investigating cost effective techniques that can be adapted to deliver expected cost performances of LcH projects. Owing to the affirmed benefits of a modern cost-effective technique TVD that can facilitate improved delivery cost performances on LcH projects (Jacomit & Granja 2011), this paper aim to identify the efficacy and applicability of TVD in the delivery cost management of LcH project in South-East zone Nigeria. Thus the paper is based on findings from a questionnaire survey and literature based case studies that examines the efficacy of current delivery cost management techniques on LcH projects cost performances. Furthermore, a systematic review of literature exploring the concept and identifying possible benefits of TVD. Thereby making a case for integrating TVD technique in current cost management system for improved delivery cost performances towards the sustainable LcH supply particularly in South-east zone Nigeria.

2. LITERATURE REVIEW

Low-cost Housing (LcH)

Housing a fundamental need to human existence which no government can ignore (UN-HABITAT, 2011). However a vast majority particularly within the low and middle incomes in many countries without any form of assistance cannot live in adequate housing. Therefore LcH apparently evolved as an intervention strategy by many governments to address the housing needs of the portion of the population who without assistance cannot afford the cost of adequate housing at prevailing market rates in developed and developing countries (Assaf et. al., 2010; Davis, 1997). LcH is defined by the UN-HABITAT (2011) and World Bank (1975) as housing developed within

adequate or basic standard quality and target costs affordable to the poor and low income group in the country. However, since the concept of income group classification is not presumed to have a universal definition as contextualised in different countries reflecting differing national economies thus, the concept of LcH (Ogbu & Adindu, 2012). Jingchun, (2011) revealed some peculiarities of Low-cost Housing which makes it differ from market housing. In same vein McNelis (2014) espoused that considerations on government involvement, production cost and the capability to afford by the beneficiaries are very important peculiarities characterising the concept of LcH.

Low cost housing in Nigeria is targeted at the low and low-middle incomes (FMLHUD, 2012). Extant records reveals that many LcH supply schemes focused on new-build LcH projects seem not to meet government projections because of varying challenges.

Table 1: Trajectory of Low-cost Housing Supply in Nigeria

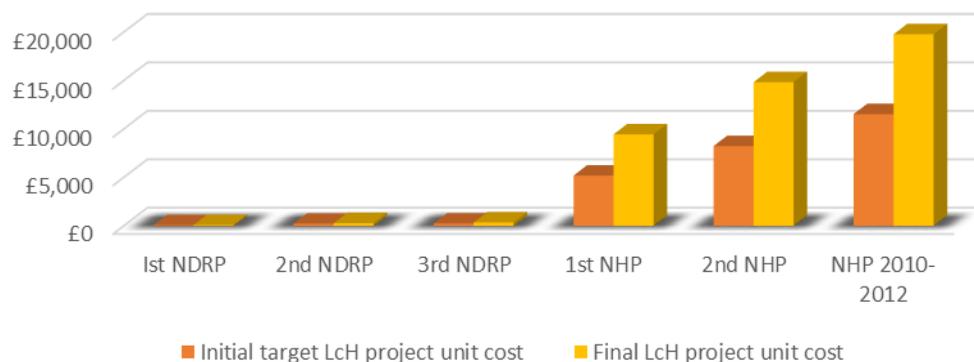
LcH Schemes	Scheme Location	Proposed Number of Units	Number of units Produced and supplied
First NDRP 1961 -1970	Housing estates in Lagos	61,000	500
Second NDRP 1971- 1975	LcH across the country	120,000	7,080
Third NDRP 1976- 1980	LcH across the country	202,000	28,500
NHP 1986-1999	LcH across the country	121,000	1014
NHP 1999- 2007	LcH across the country	148,000	8585
NHP 2010- 2014	LcH across the country	700,000	43,126

*NDRP= National development Rolling Plan, NHP= National Housing Programme

Source: Adapted from FMLHUD (2012) and Akinde (2012)

One of such main challenges is the poor cost performances experienced on many LcH projects (See Table 1). Akinde (2012) further compiled a trajectory of poor cost performances of LcH projects in previous schemes as shown in Fig. 1. (Where NDRP= National development Rolling Plan; NHP= National housing programme; Using £1= N303.00 at April, 2015 exchange rate). Yet this challenge has not been given considerable attention.

Fig. 1: Low-cost Housing Project Delivery Cost Performance in Nigeria



Source: Adapted from FMLHUD (2012) and Akinde (2012)

As a result, the unsuccessful realisation of many LcH schemes in Nigeria, given rise to prevailing housing deficit estimated at 17 million units with ripple effects on unaffordability by target beneficiaries (Obi et al., 2015; Akinde, 2012; FMLHUD, 2012; Ogu, 1999). This situation is most critical in the South-east zone where the severe poor cost performances of LcH projects have given rise to the prevailing housing crisis situation (Urbani et al., 2013). However to improve LcH supply, the projections are that an annual average production of 1.5 million units need to be sustainably supplied from 2015- 2025 in following rapid population growth and existing housing dearth (Global construction perspective & Oxford economics report, 2013; FMLHUD, 2012). To this effect, the Nigerian government seek strategies to sustainably improve LcH supply for the populace which in no doubt is a salient feature of achieving its quest to become one of the top 20 economies by 2020 (FMLHUD, 2012). This is given that the income group which depend on LcH for adequate housing constitute a vast majority of the population particularly in South-East zone Nigeria.

Sustainability

The pragmatic term ‘sustainability’ has many definitions, adaptations and applications, however, the most common and widely accepted meaning was first conceptualised in the World Commission on Environment and Development (WCED) summit (Un-Habitat, 2008; Bruntland, 1987 in Un-Habitat, 2008). It provided that a sustainability in the context 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 Iwuah et al. 2014). Sustainability is conceived predominantly in the classical context of environmental, social and economic development (Ding, 2008). In simple terms the general goal is to meet the essential needs of the world’s poor while ensuring that future

generations have adequate resources base to meet theirs (Adedeji et al 2011 cited in Taiwo & Adeboye 2013).

Sustainability in the context of housing as defined in relation to the quality of construction embracing social factors as regards psychological impact, economic factors as regards to affordability and eco-efficiency such as efficient use of non-renewable resources in the built environment (VROM, 2005 in Ihuah, et al., 2014). The understanding and implementation of Sustainability in housing takes a different approach in developing countries. Shelter initiative for climatic change (2008), argue that the concept of sustainability in most developing countries is limited to an understanding of economic sustainability. This is because the approach to sustainability in many developing countries owe to the background of improving existing trend of housing dearth and unaffordability particularly for the vast majority of the Low and Middle incomes (Taiwo & Abeboye, 2013). Therefore, sustainability in the context of LcH from a developing country perspective will refer to the gradual, continual and replicable process of supplying housing that is affordable and that meet the needs of the populace (Adedeji et al., 2011).

It is then no surprise that the goals and objectives of National Housing policy (Federal Ministry of Lands Housing and Urban Development (FMLHUD), 2012) in Nigeria have remained emphatically focussed on improving sustainable production and supply of LcH to meet the housing need of many low and low- middle incomes in Nigeria. As a result, incorporating sustainable strategies at the LcH project level will not only make a significant contribution to the achievement of general sustainability objectives, but will also provide important advances in achieving cost effective LcH project delivery towards improved supply within the confines of beneficiary affordability.

Poor Cost Performances and Effective Cost Management

Poor cost performances on construction projects have become a global concern affecting client budgets, and end-user affordability and project team level of competency (Obi et al., 2015; Memon et al., 2014; Smith, 2014; Mbachu & Nkado 2002). The incidences of this challenge have been reported in various studies across several countries around the globe. However, the trend is more severe in developing countries (Odediran & Windapo, 2012; Reina & Angelo, 2002). The construction and Low-cost housing sector in Nigeria is severely faced with this problem as earlier highlighted (Obi et al., 2015; Odediran & Windapo, 2012; Balogun, 2005).

Dell'Isola (2002), has argued that poor delivery cost performances can be mitigated by effective cost management. However, in achieving effective cost management He espoused that emphasis should be at the early stages before the end of design development. Hence, suggesting the need for effective cost management techniques employed particularly at the pre-design and design stages of LcH project delivery. Studies by Akintoye (1992 in Iroegbu, et al., 2010) have revealed that cost estimating methods are to a large extent mainly employed at these stages. According to Iroegbu et al. (2010) effective project cost planning despite it very important role is highly neglected in many construction project cost management in Nigeria. Thus planning the project

delivery cost become an outcome of estimates most often found to be greater than what the client is willing to pay nor target beneficiaries able to afford. Such lack of effective technique could be considered a main factor challenging the efficacy of the project cost management system employed towards expected project cost performances (Iroegbu et al., 2010).

Apparently, studies by Zimina, Ballard, & Pasquire (2012) and Langston (2002) have argued the inefficiency and inadequacy of traditional cost planning for effective cost management and to deliver value for money. This is their view is due to initial decision making, solely dependent on the architect rather than the project team is one of the main challenges. Rather they promulgate the need for more effective techniques as Target value design (TVD) towards achieving the desired output. Thus, it is presumed that the poor cost performances experienced on LcH projects could be as a result of the lack of adequate techniques employed that can serve as criteria for acceptable cost effective design development and control. To this regards, devising and adopting appropriate techniques such as TVD could facilitate improved delivery cost performances of LcH project towards sustainable LcH supply at affordable costs.

Target Value design (TVD)

TVD is a modern technique originating from target costing and adapted into the construction industry (Zimina et al., 2012). It is a technique employed to make a client's value (specific design criteria, cost, schedule) a driver of design, thereby reducing waste and satisfying or even exceeding the client's expectations. It is viewed as a waste elimination technique most suitable at the pre design and design stage during cost setting and planning in the project. By assisting in design and constructing to what is within the client capability to afford (Do, et al., 2014; Zimina, et al., 2012). It could also be view as a technique driving achievement of affordability while improving quality towards effective project performance (Jacomit & Granja, 2011) Given financial budget constraints for LcH projects, and economic recessions challenging many countries across the globe including Nigeria, the less amount spent on each unit means a greater number of units can be built and supplied at affordable costs (Smith, 2014; Jacomit & Granja 2011). To this regards target value design has been identified as a technique particularly effective at the early stages and can be used to deliver effective project cost performance in both large and small construction projects (Do et al., 2014; Zimina et al. 2012). Ballard and Reiser (2004) and Robert and Granja (2006) have reported its successful implementations on various construction projects while Jacomit and Granja (2011) have also espoused its possible application in the context of LcH project delivery. Thus, exploring the benefits TVD could be a positive direction to improve project delivery cost management and cost performances in view of sustainable supply and affordability.

3. RESEARCH METHODOLOGY

This study employed an explanatory sequential mixed method strategy carried out in two stages (Creswell, 2014). However, it adopted, purposive sampling strategy in both stages. This was mainly due to the nature of issues to be investigated that required respondents

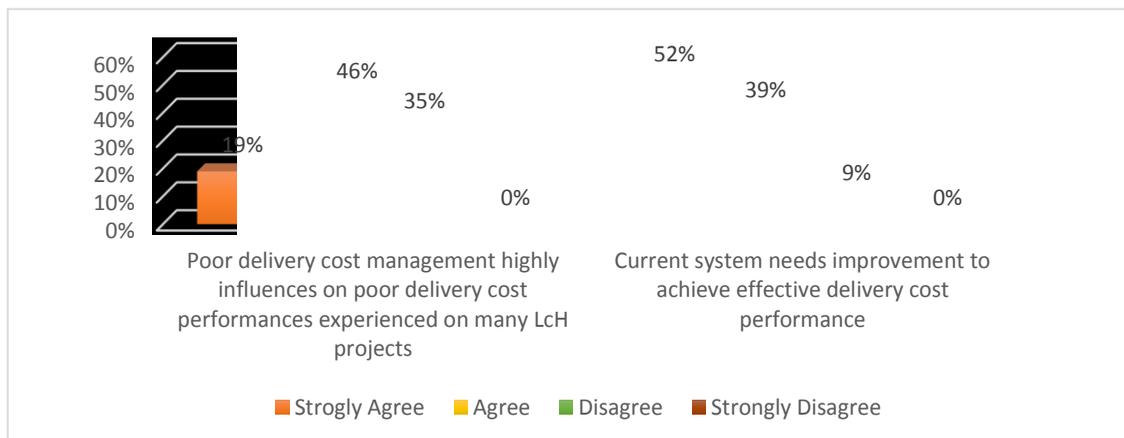
who have knowledge and experience related cost management of LcH projects and investigating cases where TVD has been applied or espoused for potential benefits. In order to collect such necessary information, in the first stage, a 254 questionnaire survey was administered to purposively selected eighty three (83 Nr) project team organisations with direct managerial influence on the cost management practice on LcH project in South-East Zone. The project team members comprised of consultancy, contracting and client organisations. The researcher identified the organisations who have been involved in ongoing and completed LCH projects situated in the South-East zone of Nigeria within the past five years from a list of registered organisations available with the housing agencies. Respondents were required to identify the influence of poor cost management on poor cost performances. In addition, identify the frequency of use of a list of techniques at the predesign and design stages of LcH project delivery. The frequency and percentage and Kendall's W test used to rank the frequency of their use. Thus, the first stage involved the identification of the current system and main techniques employed on the delivery cost performances of LcH projects. In the second stage, an exploratory literature based case study of two studies that have examined TVD application in construction projects including LcH projects were investigated. This is to identify the benefit and impact of TVD on the project cost performance.

4. DATA ANALYSIS

Analysis from questionnaire data

From the data analysis, from a total of 245 questionnaires distributed and 144 (Client 26, Consultancy 57 and contracting 61) were returned representing a total response rate of 59 percent. A Cronbach alpha test was conducted which yielded an acceptable co-efficient of 0.808 showing the data was reliable and can therefore be used to conduct further analysis. The analysis of the questionnaires are further presented:

Fig 2: Extent of agreement on influence of poor delivery cost management and efficacy of current cost management system.



Findings from the responses documented in Fig 2 above 19 % and 43% have a level of agreement that poor delivery cost management is one of the main factor influencing poor delivery cost performances experienced on many LcH projects while 35% disagrees to this. It was also revealed that there is a need to improve on the current cost management system with 52% and 39% in a level of agreement and only 9% of the respondents in disagreement. From the findings, the cost management system poses a challenges towards the achievement of effective delivery cost performance of LcH project corroborating previous studies.

Drawing from views by Dell'Isola (2002) on achieving effective cost management, techniques employed particularly at the predesign and design stage was investigated and findings presented in Table 2.

Table 2: Frequency of current techniques used particularly in the predesign and design stages of Low-cost Housing project cost management

Techniques	Kendall W Mean rank	Interpreted Ranks
Traditional cost estimating	7.95	1
Cash flow forecasting	7.10	2
Cost scheduling	6.93	3
Cost budgeting	5.95	4
Traditional cost Planning	4.89	5
Cost reporting	4.73	6
Target Value Design	2.53	7

From Table 2, Cost estimating, cash flow forecasting and cost scheduling techniques with means 7.95, 7.10 and 6.93 ranking 1st, 2nd and 3rd are frequently employed while TVD of mean 2.53 ranking 7th, is least employed in the delivery cost management system of LcH projects in the zone. This corroborates previous findings by Iroegbu et al., (2010). As such, the techniques employed are not sufficient to facilitate effective delivery cost management on the project.

Case analysis

This section presents a case study of a case A and B on TVD implementation in construction projects that cut across large and small projects in the USA and applicability in LcH projects in Brazil. Case A is a study from the findings cost performances on 47 projects in the United States of America (USA). Case A identified the demand for improved cost performances on construction projects (Large and small) owing to clients budget constraints and where possible cost reduction and improved value. In order to achieve such, case A came to the conclusion that implementation of TVD reduces the likelihood of poor project cost performances with delivery at 25-42% below client budget. Furthermore Case A concluded that TVD can be applied to projects of all sizes. Hence a cost effective technique particularly when applied from early stages of project delivery.

Case B is a study from the findings on possible applications of TVD in LcH projects a developing country- Brazil. Case B identified the demand for improved LcH. However, in order to develop and supply LcH at affordable costs to the Low incomes responsive in terms of cost and quality effectiveness, case B came to the conclusion that TVD could be more successful in an LcH project delivery context adopting the design-build delivery system. Further findings revealed that TVD can also promote an increase in LcH project cost performances, quality and value delivery to end-users and clients.

5. DISCUSSIONS AND CONCLUSION

Given that the less amount spent in the production on each LcH unit means a greater number of units can be built and supplied to the target beneficiaries (Jacomit & Granja 2011), effective LcH project delivery cost performances is a strategic approach to facilitating improved LcH supply. This is a positioning paper which establishes the feasibility of target value design in delivery cost management of LcH projects towards a sustainable LcH supply particularly in South- East zone Nigeria. Delivery cost performances experienced on the LcH projects in the zone have been identified to challenge effective supply and affordability. One of the reasons for such occurrences is traceable to the choice of techniques employed at the predesign and design stages of the project. Analysis from the questionnaires show that traditional cost estimating is mostly employed whereas TVD is least employed techniques at the pre-design and design stages of the LcH project delivery process. Findings from case analysis further demonstrates how the integration of TVD have improved the performances of projects including expected outcomes on LcH projects. It reveals TVD can be applied to projects of all sizes, however identified to be more successful when adopted with the design-build delivery system. It further reveals that TVD provides a platform to deliver effective value for money meeting cost budgets within the confines of affordability at improved quality.

From this discourse, implementing techniques strategic for cost effective performances at the project level will help deliver value for money both to government as the client and target beneficiaries alike and promote sustainable LcH production and supply. The move towards sustainable LcH supply at affordable costs can be achieved by integrating cost effective planning techniques particularly at the early stages of LcH project delivery process. This creates an opportunity for TVD to be integrated in the LcH cost management system to meet such expectations. Indeed, integrating TVD in the cost management system for LcH project delivery in particularly South-East zone Nigeria seems to be an idea whose time has come. Following espoused benefits offered by TVD towards the realisation of sustainability objectives it is clear that this technique if employed in the LcH project cost management system, particularly at the early stages, can drive the achievement of affordability, value enhancement, resource efficient use and cost effectiveness, improving delivery cost performances. The feasibility of its expected outcomes points towards the realisation of improvement at the project level, to facilitate effective LcH production and supply across the zone. (Zamin a et al, 2012; Jacomit & Granja, 2011). This will call for the strong strategic involvement of the LcH project cost management team members; client, consultant and contractor teams alike. This study

findings provide the needed platform to for developing a LcH delivery cost management model integrating TVD which is the next phase of the research. However, its integration will require examination of contextual peculiarities, a shift in the process and procurement system that may be currently adopted on such projects. This is expected to engender effective project delivery cost performance of LcH projects towards sustainable production and supply in the South-East zone Nigeria.

6. REFERENCES

- AKINDE, S. B. (2012). Lean Implementation towards Effective Low cost Housing Design and Construction Delivery in Nigeria. BSc. Diss. Unpublished. Salford Uni.
- ASSAF, S. A., BUBSHAITR, A. A., AND AL-MUWASHEER, F. (2010). Factors Affecting Affordable Housing Cost in Saudi Arabia. *International Journal of Housing Markets and Analysis*, 3(4), 290-307.
- BALLARD, G., AND REISER, P. (2004). The St. Olaf College Fieldhouse Project: A Case Study in Designing to Target Cost. In 12th Annual Conference of the International Group for Lean Construction. 234-249.
- BALOGUN, O. M. (2005). Clients' Perception on Measure of Indigenous Contractors Performance in the Construction Industry. *The Professional Builders, Journal of Nigerian Institute of Building*, July edition, 42-48.
- DAVIS, S. (1997). *The Architecture of Affordable Housing*: London. Univ. of California Press Ltd.
- DELL'ISOLA, M. D. (2002). *Architect's Essentials of Cost Management (Vol. 8)*: New York. John Wiley and Sons.
- DING, G. K. (2008). Sustainable Construction - the Role of Environmental Assessment Tools. *Journal of Environmental Management*, 86(3), 451-464.
- DO, D., CHEN, C., BALLARD, G., AND TOMMELEIN, D. (2014). Target value Design as a Method for Controlling Project Cost Overruns. In Proceedings of 22nd Annual Conference of the International Group for Lean Construction Oslo.
- FEDERAL MINISTRY OF LANDS HOUSING AND URBAN DEVELOPMENT (FMLHUD). (2012). *National Housing Policy*. Nigeria.
- GLOBAL FORECAST FOR THE CONSTRUCTION INDUSTRY TO 2025 Report. (2013) (Online). Available at http://www.arcadis.com/Content/ArcadisGlobal/docs/publications/Research/Global_Perspectives_2025_Exec_Summary.pdf(Accessed 10th March, 2015)
- IHUAH, P. W., KAKULU, I. I., AND EATON, D. (2014). A review of Critical Project Management Success Factors (CPMSF) for Sustainable Social Housing in Nigeria. *International Journal of Sustainable Built Environment*, 3(1), 62-71.
- IROGBU, A., NWAFO, K., WOGU, C., AND OGBA, S. I. (2010). Application of Project Cost Planning Techniques in the Nigeria Project Cost Management System. *The Coconut: A Multidisciplinary Journal of Environment, Agriculture, Science and Technology*, 2(1), 1-8.
- JACOMIT, A. M., & GRANJA, A. D. (2011). An Investigation into the Adoption of Target Costing on Brazilian Public Social Housing Projects. *Architectural Engineering and Design Management*, 7(2), 113-127.
- JINGCHUN, L. (2011). *The Development of Affordable Housing A case Study in Guangzhou, China*. MSc. Diss. KTH Architecture and Built Environment..
- LANGSTON, C. (2002). *A New Era in Cost Planning*. In *Design and Construction: Building in Value*. Oxford, Elsevier Science Ltd, 59-74.
- MBACHU, J., AND NKADO, R. (2004). Reducing Building Construction Costs; the Views of Consultants and Contractors. Paper presented at the Proceedings of the International

Construction Research Conference of the Royal Institution of Chartered Surveyors, Leeds Metropolitan University.

- McNELIS, S. (2014). *Making Progress in Housing: A Framework for Collaborative Research*: London. Routledge.
- MEMON, A. H., RAHMAN, I. A., ABDULLAH, M. R., AND AZIS, A. A. (2014). Factors Affecting Construction Cost Performance In Project Management Projects: Case of MARA large projects. *International Journal of Civil Engineering and Built Environment*, 1(1).
- OBI, L.I., ARIF, M. AND AWUZIE, B. (2015). Waste Factors Impacting on Delivery Cost Performance of Design and Build Low-cost Housing Projects in Nigeria. In proceedings of 12th International Post graduate Conference University of Salford, Manchester, 10-12th June.
- ODEDIRAN, S. J., AND WINDAPO, A. O. (2014). Systematic Review of Factors Influencing the Cost Performance of Building Projects. Paper Presented at the Postgraduate Conference.
- OGU, V. I. (1999). Housing Enablement in a Developing World City: The Case Study of Benin City, Nigeria. *Habitat International*, 23(2), 231-248.
- OLADAPO, M. A. (2001, October). A framework for cost management of low cost housing. In *International Conference on Spatial Information for Sustainable Development*, Nairobi, Kenya 2-5.
- OLOTUAH, A. O., BOBADOYE, S. A. (2011). Sustainable housing provision for the urban poor: a review of public sector intervention in Nigeria. *The Built & Human Environment Review*, 2.
- OZURUMBA, B. A. (2011). Urban Housing Financing in the South-Eastern States of Nigeria: Problems and Prospects. *Journal of Sustainable Development in Africa*, 13(8), 268--282.
- REINA, P., AND ANGELO, W. J. (2002). Megaprojects Need More Study upfront to avoid cost overruns. *ENR*, 249(3). New York. McGraw-Hill, Incorporated
- ROBERT, G. T., AND GRANJA, A. D. (2006). Target And Kaizen Costing Implementation In Construction. In *Annual Conference of the International Group for Lean Construction* (Vol. 14).
- SMITH, P. (2014). Project Cost Management – Global Issues and Challenges. *Procedia - Social and Behavioral Sciences*, 119, 485--494.
- UBANI, E., OKOROCHA, K., AND EMERIBE, S. (2013). Analysis of Factors Influencing Time and Cost Overruns on Construction Projects in South-Eastern Nigeria. *International Journal of Mgt Sciences and Business Research*, 2(2), 73.
- UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME (UN-HABITAT), (2012). *Affordable land and housing in Africa*. (Online) Available at <http://mirror.unhabitat.org/pms/listItemDetails.aspx?publicationID=3376> (Accessed 28th June, 2014).
- UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME (UN-HABITAT), (2008). *Low-cost Sustainable Housing in Developing Countries* 1–35.
- ZIMINA, D., BALLARD, G., AND PASQUIRE, C. (2012). Target value design: using collaboration and a lean approach to reduce construction cost. *Construction Management and Economics*, 30(5), 383-398.