

Assessing factors militating against affordable housing delivery in developing countries

Owolabi James¹, Aigbavboa Clinton², Ogunbayo Babatunde² and Ogundipe Kunle²

¹Department of Building Technology, College of Science and Technology,
Covenant University, Nigeria.

James.owolabi@covenantuniversity.edu.ng

²cidb Centre of Excellence & Sustainable Human Settlement and Construction
Research Centre,

Department of Construction Management & Quantity Surveying,
Faculty of Engineering and the Built Environment,
University of Johannesburg, South Africa.

caigbavboa@uj.ac.za; babatundeo@uj.ac.za; kunleogundipe1029@gmail.com

Abstract:

The increase in population in the urban centers and the inability of these individual migrants to have access to shelter have made the need for housing a continuous subject of discourse. The housing deficit in most developing countries has been an issue of concern despite all efforts to make housing affordable, available, and accessible. The study examined the factors militating against housing affordability in developing countries using Nigeria as a case study. The study employed purposive quota sampling of low-income earners in Lagos, Nigeria. Through questionnaire administration, one hundred and thirteen respondents were sampled. The exploratory factors analysis findings identified seven major factors militating against affordable housing delivery as: 'external influence'; 'problem with utilisation of conventional materials and technologies'; 'financial constraints'; 'problems of affordable land and security of tenure'; 'absent of innovative framework and housing regulations'; 'un-predictable return on investment'; and 'poor infrastructural management service'. The study recommends that a successful implementation of affordable housing delivery hinged on an innovative housing framework and affordable supply chain (innovative design, cohousing, community support and health service scheme, social inclusion, and affordability) that will stimulate the provision and distribution of affordable housing in developing countries. The study concluded that there is a need for the government to improve its infrastructure provision for the easy take-off of affordable housing delivery.

Keywords:

Affordable housing; developing countries; housing deficit; low-income earners

1 Introduction

Housing needs and population growth are becoming the primary concern in most developing countries like Nigeria (Adeshina & Idaeho, 2019) because the housing shortage is already hitting the urban dwellers. Ajayi (2019) noted that the standard of living in urban cities is becoming a major problem with the population growth rate. Additionally, Adeshina and Idaeho (2019) posit that population growth, politics, industrialisation, urban migration, and the high cost of building materials have made

housing inaccessible and unaffordable in Nigeria. Ezeigwe (2015) noticed that the main challenge of housing in Nigeria is affordability because the available housing stocks cannot be accessible by the low and middle-income earners.

Similarly, the United States Department of Housing and Urban Development (2006) stated that housing affordability is measured on the indices that the annual mortgage or rental cost is within 30-40 % of the household income. Herbert *et al.* (2018) argued that 40 % should be the baseline of the indices to measure the household expenses on housing. Winston and Montserrat (2007) described housing affordability as housing stock affordable for the class of low-income citizens with access to their houses. Azevedo *et al.*, (2010) opined that the goal of housing affordability is for the government to make housing stock available and accessible for all the lower classes of citizens. Ogunbayo *et al.*, (2018) argued that the delivery of affordable housing must start with the government making provisions for the essential facilities such as roads, electricity, school, market, and health care services.

Conversely, Olanrewaju, Anavhe, and Hai (2016) argued that Nigeria's housing stock shortage is leading the populace to a crisis. Thereby results in low living standards, unaffordable rented and buying costs of housing commodities, abandonment, an outbreak of diseases, dilapidation, high maintenance costs, and incremental mortgage fees (Olanrewaju, Anavhe & Hai 2016). Ezeigwe (2015) noted that the lack of affordable housing is not just a Nigerian problem. Likewise, Ugochukwu and Chioma (2015) stated that low-income earners in developing continents (Asia, South America, and Africa) also need housing intervention to access or live in the houses of their choice. Housing affordability is a common experience in developed and developing countries (Ibimilua & Ibitoye, 2015). Ajayi (2019) opined that access to affordable housing among the middle and the lower-income earners in Nigeria remained an unfulfilled dream. Based on this background, the study examined the factors militating against housing affordability in developing countries, using Nigeria as a case study. Firstly, an extant literature review identified factors militating against housing affordability in developing countries. Secondly, exploratory factors analysis explored the categories of factors militating against affordable housing delivery in developing countries.

2 Literature Review

Globally, several factors are militating against affordable housing provision. Ajayi (2019) opined that the Nigerian housing policy had not addressed the housing needs of the populace because the housing policy placed absolute responsibility on the government to provide housing for all the citizens. Likewise, Ibem and Azuh (2011) noted that a weak socio-political climate and failed institutional frameworks make Nigerian housing policies ineffective. Olanrewaju, Anavhe, and Hai (2016) argued that economic instability, housing policies, legislations, legal crises, market conditions, and the construction industry are the major factors affecting housing affordability in Nigeria.

According to National Housing Policy (1991); Gulghane and Khandve (2015), building materials account for more than half of the total costs of housing production. Owing to this fact, Ugochukwu and Chioma (2015) argued that the unacceptance of local materials and technologies affects affordable housing delivery. Ogundipe *et al.*, (2021)

noted that most end users lack adequate information about the performance and management of alternative building materials. Shen *et al.*, (2019) opined that lack of financial will, poor economic incentives, and ineffective legislation enforcement hindered housing affordability. Ogunbayo *et al.*, (2021) argued that end users' facilities' needs are imperative in meeting the goals and quality delivery of affordable housing.

Olotuah (2010) asserted the housing affordability problem includes high urbanisation rates and population growth. Iwuagwu and Eme-anele (2012) noted the high cost of conventional building materials. Gulghane and Khandve (2015) indicated that building materials account for more than half of the total cost of housing production. Thus, Ugochukwu and Chioma (2015) argued that most housing developers insist on using conventional building materials and technologies. The government policy on the land use act contributes to the lack of access to land and other housing inputs (UN-HABITAT National Trends in Housing Production Practices, 2006).

Oyewole (2010) noted that in Nigeria, high-interest rates and delays in allocating cooperative multipurpose society loans also limit the cooperative member's access to the required housing fund. Oyewole (2010) study finding showed that flexible access to funds would increase access to affordable housing production more than the National housing fund (NHF). In Malaysia, Baqutaya, Ariffin and Raji (2016) noted that housing policy, the high-interest rate on housing loans, and the high cost of housing are the major factors militating against affordable housing provision. Ghaedrahmati and Shahsavari (2019) study highlighted some of the housing problems in Iran: lack of affordable housing, transportation, Tehran's air pollution, lack of health services, and increasing land prices and rent. Patel and Padhya (2021) opined that faulty housing regulation, inadequate low-cost green technologies, short supply chain, inadequate information, faulty construction process, and high cost of sustainable practice affect housing affordability in India.

Ugochukwu and Chioma (2015) argued that choice of building materials, technologies, poor promotion of security of tenure, insufficient affordable land, and poor infrastructural and service militate against affordable housing in Nigeria. Saidu and Yeom (2020) opined that Nigeria must adopt innovative design techniques, materials quality performance, energy conservation consideration, building orientation, and positioning to improve the housing situation. Ihuah, Kakulu, and Eaton (2014) attributed the failure of affordable housing to low quality, ineffective housing management, time and cost overruns, poor estate, project management, and corruption in housing delivery. Hence, these and many other factors have limited the Nigerian government's effort and stakeholders' effort in affordable housing production, distribution, and administration. Therefore, from the extant literature, this study identified thirty-seven variables on factors militating against affordable housing delivery in developing countries like Nigeria.

3 Research Methodology

The research study examined factors militating against housing affordability in developing countries, using Nigeria as a case study. Lagos was considered for the survey to be a commercial hub for industrialisation that has led to an increase urban migration (Ogunde *et al.*, 2017). The survey study originally targeted 150 respondents

using purposive quota sampling techniques among 50 Government workers on (levels 1-6), 20 entrepreneurs, 35 private workers, and 45 other individuals (10 domestic workers, 10 drivers, 15 artisans, 10 labourers) in the study area with an annual income of $\geq$ one million. However, due to the Covid-19 pandemic restriction on mobility and the temporary closure of most workplaces in 2020, the number of participants in the survey were 113. The survey questionnaire was administered physically and through emails. The data obtained from the study were analysed using Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics such as percentages, mean, standard deviation, and ranking in analysing the study's objectives. Also, exploratory factor analyses (EFA) were employed to reduce the identified thirty-seven factors militating against affordable housing. Paallant (2011) stated that EFA helps research explore the relationship between the response and variables tested.

4 Findings and Discussion

Figure 1 presents the occupation description of the respondent. The largest 31.9% (36) of the respondents are other individuals (domestic workers, drivers, artisans, and labourers). Followed by 26.5% (30) private workers, 23.9% (27) entrepreneurs, and 17.7% (20) government workers.

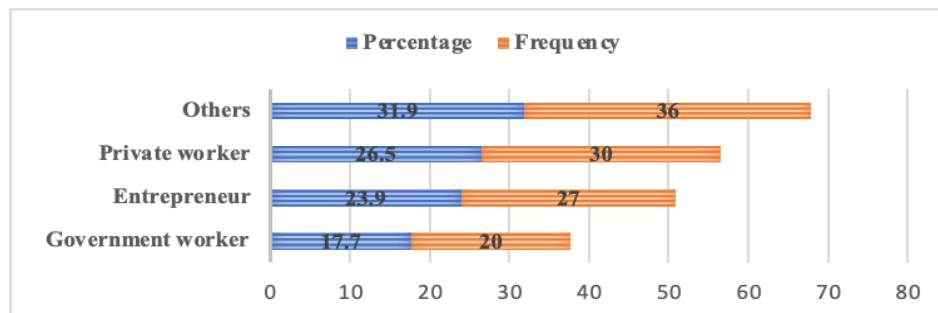


Figure 1: Occupational description of the respondents

Figure 2 presents the average annual income of the respondent. 76.1% (86) of the respondents earn between ₦250,000 - ₦500,000 annually. This is followed by 13.3% (15) who earn an annual income of less than ₦250,000. Also, 9.7% (11) earns between ₦750,000-₦1,000,000 annually, while 0.9% (1) earns between ₦500,000-₦750,000 annually income. None of the respondents earns above ₦1,000,000 annually.

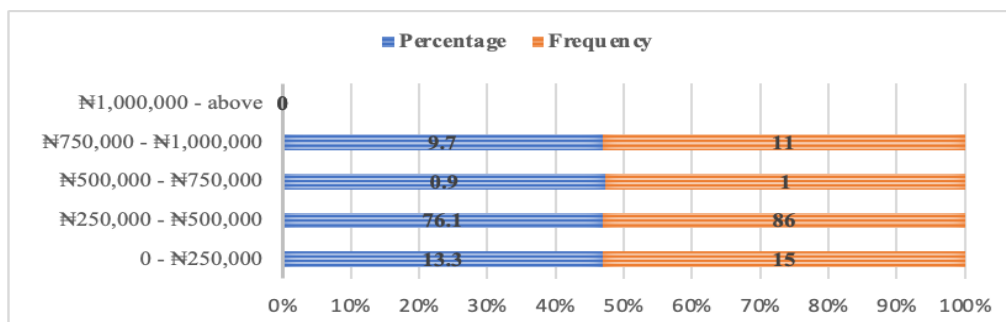


Figure 2: Average annual income of the respondents

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were conducted on the data to ascertain its suitability for EFA. Eiselen *et al.* (2007) noted that data is suitable for factor analysis if the KMO measure of sampling adequacy returned a value of 0.887 more than the prescribed value of 0.6, while Bartlett's test of sphericity returned a significant value of 0.000, which is below 0.5 sets as standard.

Table 1: KMO and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.887
Bartlett's Test of Sphericity	Approx. Chi-Square	3157.601
	Df	666
	Sig.	0.000

Source: Researcher's Field Survey (2020)

Table 2 reveals that all the factors have extraction values greater than 0.1, implying that the data are suitable for factor analysis. In addition, Table 2 presents the analysis of factors militating against affordable housing delivery and their eigenvalues greater than 1.0. The top ten are presented. Seven clusters (in bold) with the eigenvalues exceeding 1 were retained as follows: 15.55, 2.930, 1.961, 1.686, 1.544, 1.215, and 1.095. The first component of factors militating against affordable housing delivery accounted for 42.027%. The second component accounted for 7.918 %, the third component accounted for 5.299%, the fourth component accounted for 4.559 %, the fifth component accounted for 4.166%, the sixth component accounted for 3.285 %, and the seventh component accounted for 2.966%. The components have a cumulative percentage of 70.219.

Table 2: Communalities and total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a	Communalities
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	Extraction
FMAHD 1	15.550	42.027	42.027	15.55	42.027	42.027	4.402	0.634
FMAHD 2	2.930	7.918	49.945	2.930	7.918	49.945	7.711	0.692
FMAHD 3	1.961	5.299	55.244	1.961	5.299	55.244	9.964	0.656
FMAHD 4	1.686	4.557	59.801	1.686	4.557	59.801	7.812	0.664
FMAHD 5	1.541	4.166	63.967	1.541	4.166	63.967	9.777	0.642
FMAHD 6	1.215	3.285	67.252	1.215	3.285	67.252	2.565	0.775
FMAHD 7	1.097	2.966	70.219	1.097	2.966	70.219	5.008	0.769
FMAHD 8	0.918	2.482	72.701					0.742
FMAHD 9	0.878	2.372	75.073					0.609
FMAHD10	0.803	2.170	77.243					0.589
Extraction Method: Principal Axis Factoring.								
a When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.								

Source: Researcher's Field Survey (2020)

Table 3 presents the pattern matrix, highlighting how the factors have been clustered together in the components. Table 4 shows that the exploratory factor analysis returned seven components of factors militating against affordable housing delivery in developing countries, according to their significance. After a critical study of table 3, a common name for each components factors was decided. Factor 1 is named '*External Influence*'; factor 2, '*Problem of the utilisation of conventional materials and technologies*'; factor 3, '*Financial constraints*'; factor 4, '*Problems of affordable land and security of tenure*'; factor 5, '*Absent of innovative framework and housing regulations*'; factor 6, '*Unpredictable return on investment*'; and factor 7, '*Poor infrastructural management service*'.

Cluster one: External Influence

The four variables loaded into the first component, 'lack of discount for building materials importers (52%)', 'lack of government support for the allocation of infrastructural facilities (52%)', 'ever-increasing cost of building materials (49%)', and 'lack of political will and dedication on the part of past governments in the country (44%)'. This component gathered 42.027 % total variance.

Cluster two: Problem of the utilisation of conventional materials and technologies.

The eight variables loaded into the second component, 'unacceptance of local construction materials(82%)', 'selection of technology (75%)', 'reliance on imported construction materials (64%)', 'lack of acceptance of new construction practices (64%)', 'resistance to the acceptance of new materials (64%)', 'location of the land at the outskirts of the town (54%)', 'lack of quality lands (53%)', and 'insufficient funding of local construction materials research efforts (52%)'. The total variance gathered for the component is 7.918 %.

Cluster three: Financial constraints.

The eleven variables loaded into the third component include 'inadequate and insufficient financial products of the low-income households (92%)', 'inadequate mortgage schemes (82 %)', 'insufficient financial support from the commercial banks (79%)', 'high cost of securing land in a choice area (75%)', 'high cost of securing necessary documents for the land (75%)', 'poor national minimum wage (71%)', 'profligacy, bribery and overprice of contract sums (62%)', 'inability to secure loans for housing construction (57%)', 'strong profit-driven mentality of private developers (50%)', 'the complete withdrawal of some fractions of government in the direct construction of houses (31%)', and 'strong rate of inflation (30%)'. The total variance gathered for the component is 5.229 %.

Cluster four: Problems with affordable land and security of tenure.

The four variables loaded into the fourth component include 'poor participation of communities in a housing development (83%)', 'high population increase and increasing urbanisation (71%)', 'insufficient supply of affordable infrastructure and land (69%)', and 'land rights and ownership of land (59%)'. The total variance gathered for the component is (4.557 %).

Cluster five: Absent of innovative Framework and housing regulation.

The fifth component consists of five variables' inadequate innovative housing framework and supply chain (89%)', 'inadequate standards and legislation (87%)', 'lack of adequate execution strategies (75%)', 'lack of adequate housing oversight and

regulations (68%)', 'low priority provided by successive governments (57%)', and 'impoverished promotion of tenure security (45%)'. The total variance gathered for the component is 4.160%.

Cluster six: Unpredictable return on investment.

The sixth component consists of low capital profits (63%) and a high-interest rate (37%). The total variance gathered for the component is 3.285%.

Cluster seven: Poor infrastructural management service.

The seventh component consists of two variables' low investment in infrastructure (79%)' and 'lack of properly qualified construction managers and craftsmen (56%)'. The total variance gathered for the component is 2.966 %.

Table 3: Pattern matrix^(a)

Variables	Pattern matrix ^(a) component						
	1	2	3	4	5	6	7
FMAHD 11	.519						
FMAHD 12	.517						
FMAHD 10	.493						
FMAHD 20	.435						
FMAHD 14		.842					
FMAHD 17		.749					
FMAHD 13		.641					
FMAHD 16		.637					
FMAHD 18		.636					
FMAHD 37		.540					
FMAHD 36		.528					
FMAHD 15		.522					
FMAHD 6			.921				
FMAHD 3			.822				
FMAHD 7			.789				
FMAHD 8			.751				
FMAHD 9			.745				
FMAHD 2			.712				
FMAHD 5			.623				
FMAHD 1			.571				
FMAHD 4			.498				
FMAHD 21			.308				
FMAHD 22			.302				
FMAHD 33				.833			
FMAHD 35				.709			
FMAHD 32				.688			
FMAHD 34				.590			
FMAHD 29					-.886		
FMAHD 28					-.870		
FMAHD 30					-.751		
FMAHD 27					-.680		
FMAHD 26					-.571		
FMAHD 31					-.446		
FMAHD 24						.632	
FMAHD 23						.367	
FMAHD 25							.791
FMAHD 19							.558
Extraction Method: Principal Axis Factoring.							
Rotation Method: Oblimin with Kaiser Normalisation. a Rotation converged in 20 iterations.							

Source: Researcher's Field Survey (2020)

Table 4 reveals a relationship between the factors groups in the component correlation matrix with the 0.300 values. Likewise, the reliability test conducted on the variables of each cluster, in Table 3 shows the validity of variables measured in each of the clusters.

Table 4: Component correlation matrix and reliability of the factors

Factor	1	2	3	4	5	6	7	Cronbach's alpha coefficient
component 1	1.000	.130	.272	.196	-.256	.166	.155	0.821
component 2	.130	1.000	.283	.356	-.384	.072	.294	0.896
component 3	.272	.283	1.000	.351	-.457	.136	.300	0.923
component 4	.196	.356	.351	1.000	-.420	.065	.236	0.859
component 5	-.256	-.384	-.457	-.420	1.000	-.156	-.291	0.899
component 6	.166	.072	.136	.065	-.156	1.000	.123	0.786
component 7	.155	.294	.300	.236	-.291	.123	1.000	0.623
Extraction Method: Principal Axis Factoring.								
Rotation Method: Oblimin with Kaiser Normalisation.								

Source: Researcher's Field Survey (2020)

5 Conclusion and Further Research

The study identified thirty-seven factors militating against affordable housing delivery in developing countries from the secondary data. Thus, the EFA was conducted on the factors militating against affordable housing delivery in developing countries to determine their significance level. The results of the EFA grouped the factors into seven components as follows: 'external influence'; 'problem of utilisation of conventional materials and technologies'; 'financial constraints'; 'problems of affordable land and security of tenure'; 'absent of innovative framework and housing regulations'; 'unpredictable return on investment'; and 'poor infrastructural management service'. Hence, this study concludes that the factors militating against affordable housing according to the seven components were high-interest rate, high rate of inflation, lack of government support for the distribution of infrastructural facilities, the ever-increasing costs of building materials, unacceptance of local construction materials, and inadequate innovative housing framework and supply chain.

The study recommends that a successful implementation of affordable housing delivery hinged on innovative housing framework and affordable supply chain (design, cohousing, community support and health service scheme, social inclusion, and affordability) that will stimulate the provision and distribution of affordable housing in developing countries. The government should improve the economy to attract more investors into the housing provision sector. The study has highlighted factors militating against affordable housing in developing countries like Nigeria. This will help address the high population growth rate and urban expansion attributed to these factors. The recommendations of this study will help stakeholders, government agencies, and individuals intending house owners in decision making. The study contributes to the body of knowledge by making government, professionals, and professional bodies involved in housing delivery identify factors militating against affordable housing

delivery toward reducing homelessness. However, this study's findings also make room for further research by exploring a larger sample.

6 References

- Adeshina, T., & Idaeho, R. (2019), Analysis of Nigeria's policy on housing. *JEE sector thought leadership series*.
- Ajayi, I. S. (2019), Addressing housing deficit in Nigeria: issues, challenges, and prospects. *Economic and financial Review*, 57(4), 16.
- Azevedo, N.J.D., Silva, J.J.R., Silva, P.M.W.M., 2010. Definition of indicators for sustainable social housing in search of a model. *Int. J. Hous. Sci.* 34 (2), 79e92.
- Baqutaya, S., Ariffin, A. S., & Raji, F. (2016), Affordable housing policy: Issues and challenges among middle-income groups. *International Journal of Social Science and Humanity*, 6(6), 433.
- Eiselen R, Uys T, Potgieter T (2007). Analysing survey data using SPSS13. 3rd ed. Johannesburg: STATKON, University of Johannesburg.
- Ezeigwe, P. C. (2015), Evaluation of the causes of housing problems in Nigeria: a case study of Awka the capital city of Anambra State. *Journal of Economics and Sustainable Development*, 6 (20), 87, 93.
- Federal Republic of Nigeria, National Housing Policy, Federal Government Press, Lagos, 1991.
- Ghaedrahmati, S., & Shahsavari, F. (2019), Affordable housing: elderly in Tehran and their housing problems. *Journal of Housing for the Elderly*, 33(2), 140-152.
- Gulghane, A. A., & Khandve, P. V. (2015). Management for construction materials and control of construction waste in construction industry: a review. *International Journal of Engineering Research and Applications*, 5(4), 59-64.
- Herbert, C., Hermann, A., & McCue, D. (2018), Measuring housing affordability: Assessing the 30-percent of income standard. *Joint Center for Housing Studies of Harvard University: Cambridge, MA, USA*.
- Ibem, E. O., & Azuh, D. E. (2011), Framework for evaluating the sustainability of public housing programmes in developing countries. *Journal of Sustainable Development and Environmental Protection (JSDEP)*, 1(3), 24-39.
- Ibimilua, A.F., & Ibitoye, O.A. (2015), Housing Policy in Nigeria: An Overview, *American International Journal of Contemporary Research*, 5(2), 53-58.
- Ihuah, P. W., Kakulu, I. I., & 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.
- Iwuagwu, B. U., & Eme-anele, N. (2012), Earth construction technology and design: A positive solution to mass housing in Africa. *International journal of scientific innovations and sustainable development*, 2(2), 89-92.
- Ogunbayo, B. F., Ajao, A. M., Alagbe, O. T., Ogundipe, K. E., Tunji-Olayeni, P. F., & Ogunde, A. (2018). Residents' facilities satisfaction in housing project delivered by public-private-partnership (PPP) in Ogun State, Nigeria. *International Journal of Civil Engineering and Technology (IJCIET)*, 9(1), 562-577.
- Ogunbayo, B. F., Aigbavboa, C. O., Amusan, L. M., Ogundipe, K. E., & Akinradewo, O. I. (2021), Appraisal of facility provisions in public-private partnership housing delivery in southwest Nigeria. *African Journal of Reproductive Health*, 25.

- Ogunde, A. O., Dafe, O. E., Akinola, G. A., Ogundipe, K. E., Oloke, O. C., Ademola, S. A., ... & Olaniran, H. F. (2017), Factors Militating Against Prompt Delivery of Construction Projects in Lagos Mega city, Nigeria Contractors' Perspective. *Mediterranean Journal of Social Sciences*, 8(3), 1-10.
- Ogundipe, K. E., Ogunbayo, B. F., Olofinnade, O. M., Amusan, L. M., & Aigbavboa, C. O. (2021), Affordable housing issue: Experimental investigation on properties of eco-friendly lightweight concrete produced from incorporating periwinkle and palm kernel shells. *Results in Engineering*, 9, 100193.
- Olanrewaju, A., Anavhe, P., & Hai, T. K. (2016), A framework for affordable housing governance for the Nigerian property market. *Procedia engineering*, 164, 307-314.
- Olotuah, A. O. (2010). Housing development and environmental degeneration in Nigeria. *The Built & Human Environment Review*, 3, 42-48.
- Oyewole, M. O. (2010), Housing development finance through cooperative societies: The case of Ogbomoso, Nigeria. *International Journal of Housing Markets and Analysis*.
- Pallant, J. 2013. *SPSS survival manual*. McGraw-Hill Education (UK).
- Patel, R. G., & Padhya, H. J. (2021), Challenges and Prospects of Sustainable & Affordable Housing. *International Journal of Research in Engineering and Science (IJRES)*, 9(1), 51-56.
- Saidu, A. I., & Yeom, C. (2020), Success criteria evaluation for a sustainable and affordable housing model: a case for improving household welfare in Nigeria Cities. *Sustainability*, 12(2), 656.
- Shen, L.; Yang, J.; Zhang, R.; Shao, C.; Song, X. (2019), The benefits and barriers for promoting bamboo as a green building material in China—An integrative analysis. *Sustainability*. 11, 2493.
- Ugochukwu, I. B., & Chioma, M. I. B. (2015), Local building materials: affordable strategy for housing the urban poor in Nigeria. *Procedia engineering*, 118, 42-49.
- UN-HABITAT, National Trends in Housing Production Practices Volume 4, United Nations Centre for Human Settlements, Nairobi, 2006.
- United States Department of Housing and Urban Development. Housing impact analysis. Washington, DC: U.S. Government Printing Office (2006, January)
- Winston, N., & Montserrat, P.E. (2007), Sustainable housing in the urban context: international sustainable development indicator sets and housing. *Soc. Indic. Res.* 87 (2), 211e221.