

Causes of Slum Emergence from Decently Built Government's Affordable Housing Projects in Enugu, Nigeria: The Experts' Perspectives

Anthony Ikechukwu Agboeze, Walter Timo de Vries, Pamela Durán-Díaz

Abstract—Since attaining urban status, the population of Enugu, Nigeria, has continued to grow rapidly, leading to growing demands for housing by the teeming population which is predominantly low income. Several government dispensations have developed various affordable housing projects to help deliver decent housing to the Enugu populace. However, over a long period of usage, some of those housing projects in Enugu are unabatedly deteriorating into slums alongside rising housing deficits which has remained problematic for most Nigerian urban centers to address. Emerging from a literature review, this research posits that the link between slum and affordable housing is that both the seekers of affordable housing and slum housing are the low-income earners. This research further investigated the possible causalities of slum emergence from decently built affordable housing projects in Enugu, Nigeria. To do so, we first analyzed the Nigerian housing policy to examine how the policy addresses slum prevention. We further conducted semi-structured expert interviews (qualitative) to sample the views of private housing developers on the degeneration of government housing projects into slums in Enugu, Nigeria. Findings from the housing policy analysis suggest that the housing policy itself is not legally binding on anybody to implement. Sequel to this non-compulsory nature of the housing policy is the poor/non-implementation of the Nigerian housing policy, leading to a constant tendency by the government developers (contractors) to deliver potential slums. The expert respondents corroborated this viewpoint by suggesting that poor planning (including designs of the housing units and the master plan) and poor management (including non-maintenance, poor documentation, and inaccurate housing inventory) are germane to the emergence of slums from affordable housings. This research recommends periodic auditing of delivered housing projects to evaluate the developers' adherence to the housing policy guidelines – it proposes incentives to policy adherents since the housing policy is not legally binding. We also recommend a participatory management to engage the occupants in the monitoring and reporting of breakdowns in the housing properties – to help improve the quality of management and maintenance to have slum-free settlements.

Keywords—Affordable housing, Enugu, low income, Nigeria, slum.

I. INTRODUCTION

IN most African cities and towns today, a twin development process is occurring wherein formal and informal cities are developing in parallel [1]. In Nigeria, most of the urban population lives in a dehumanizing housing environment while those that have access to average decent housing do so at an exorbitant cost [2]. Most of the Nigerian population belongs to

the middle income (lower middle income) economy on a global scale [3]. Thus, to help deliver decent and affordable housing to this lower middle-income population, both past and present governments in Nigeria often embark on affordable housing projects targeting the prevailing middle-income population. Reference [4] recorded several of Nigeria's government affordable housing projects and showed how the various government regimes could not achieve the target housing demands in each case (Table I).

TABLE I
VARIOUS GOVERNMENT HOUSING PROGRAMS IN NIGERIA AND THEIR EVALUATED ACHIEVEMENTS [4]

Period	Target	Achievement
1962-1968	61,000 housing units.	Only 500 (< 1%) units built.
1971-1974	59,000 low-cost housing units.	7,080 (12%) housing units built
1975-1980	202,000 low-cost housing units.	30,000 (< 15%) housing units completed
1981- 1985	Phase 1: 160,000 low-income housing units. Phase 2: 20,000 housing units across the country	Phase 1: 47,234 (23.6%) housing units built. Phase 2: cut short by the 1983 military coup.
1986-1999	121,000 housing units	5,500 (< 5%) housing units built.
1999-2010	Phase 1: 10,271 housing units. Phase 2: 500 housing units	Phase 1: 2,000 serviced plots and 4,440 housing units. Phase 2: 100 (20%) housing units built.

Alongside these recorded failures to achieve a target number of housing units in each housing project, some of the already delivered housing projects seem to be decaying and turning into slums. Hence, housing unaffordability and increasing housing shortage seem yet unsolved while the third dilemma, slum emergence, is rapidly rising. Although slum emergence from decently built housing projects is quickly increasing in government housing properties within Enugu, not much scholastic attention has been paid to it especially regarding research and publications. The few existing studies that tried to address slum emergence from decently built housing projects in Enugu include [5], [6] and [7]. While [5] focused on government-owned housing projects, [6] and [7] focused on privately-owned housing projects. The findings of [5] seem to affirm that their sampled government housing projects exhibit signs of slum while the findings of [6] and [7], which focused on private housing properties, suggest that their sampled

A. I. Agboeze*, W.T. de Vries, and P. Durán-Díaz are with the Technical University of Munich (TUM), Germany (*corresponding author, e-mail: anthonyagboeze@ymail.com).

housing units are well maintained and show no signs of becoming a slum. Hence, the government-owned affordable housing projects require urgent attention to rescue them from subsumption by progressive slum growth. However, owing to this scarcity of scholastic attention to slum emergence from decently built housing projects in Enugu, photos of the study area were taken on the ground to buttress the claim of slum emergence therein (Figs. 1-3).



Fig. 1 A residential housing in the Abakpa housing property in Enugu with decaying roof, windows and weakening fence walls



Fig. 2 A household using an overhead water tank connected to a borehole due to non-access to the central water supply

II. STUDY AREA: ENUGU, NIGERIA

Nigeria is split into federal (highest tier), state (middle tier), and local governments (lowest tier). Enugu is an urban and rural state in the southeastern part of Nigeria (Fig. 4). The capital city of Enugu state is also named Enugu. This study focused on Enugu as an (urban) city only because the government affordable housing projects are concentrated there. The city of Enugu has three local government areas (LGAs) – Enugu north,

Enugu east, and Enugu south LGAs (Fig. 5). Therefore, government housing projects in Enugu are distributed across the three LGAs which make up Enugu city.



Fig. 3 A street in a government housing property in Enugu with unpaved access road and no drainage channels

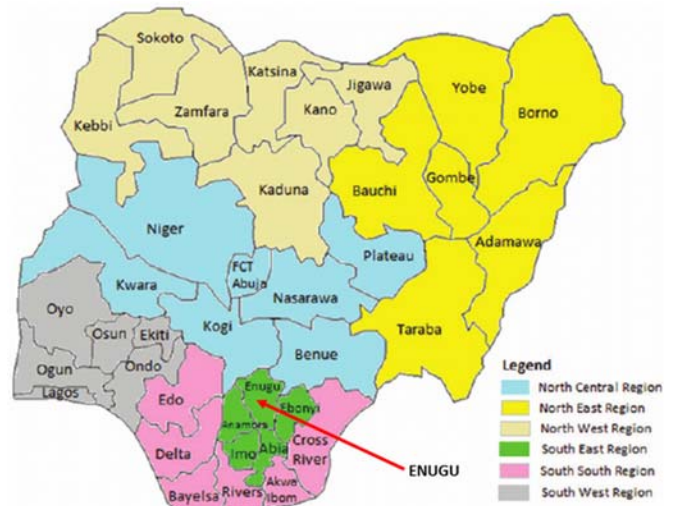


Fig. 4 Map of Nigeria showing Enugu state

III. LITERATURE REVIEW

Two important keywords in this discourse are “slum” and “affordable housing”. Defining them through existing literature can help build a contextual underpinning for understanding this discourse.

A. Slums

Slums can be perceived as illegal urban settlements on public land and usually grow constantly and sporadically over a period of time. They are considered as an integral part of urbanization and manifestation of overall socio economic policies and planning in the urban sector [8]. Most slums are dominated by the low-income earners and the poor [9]. Slums can also be defined as “an area, either legally or illegally occupied by a diverse group of people without access to safe water, adequate sanitation, secured tenure, and durable houses of permanent nature” [10]. While [8] suggests that slums are illegal, [10]

argues that slums can also occur on legal settlements. This paper, however, focuses on slums occurring in legal settlements (government affordable housing projects in Enugu). Hence, it addresses the decay of residential areas that were once formally planned and built [11]. Therefore, whether legal or illegal, the “parameters used for urban slum classification are water source, accessibility types, wall materials, conditions and types of waste disposal, types of roofs and roof trusses, and the cluster nature of the areas” [12], [13]. Therefore, based on these identified attributes of a slum, this paper posits that some of the affordable housing projects delivered by the government in Enugu are turning into slums.

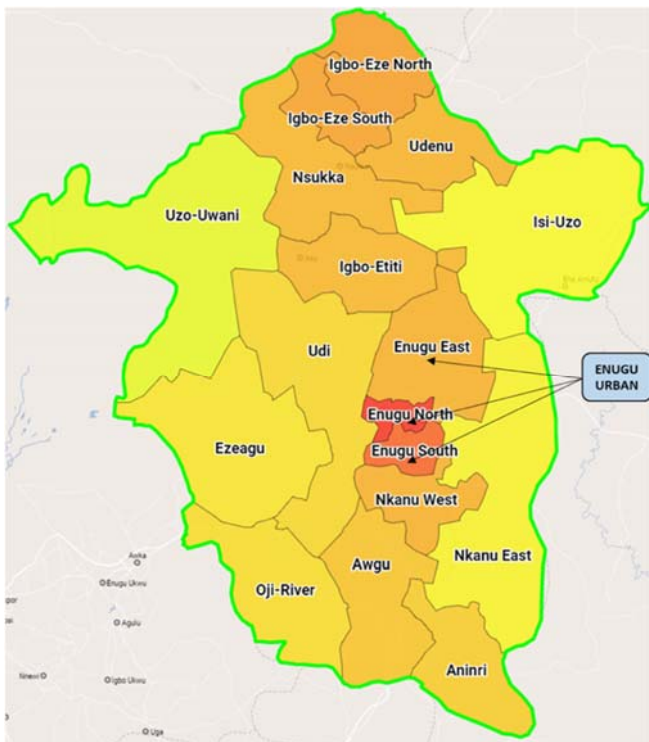


Fig. 5 Map of Enugu state showing urban Enugu

B. Affordable Housing

The standard definition for affordability is that households should pay no more than 30% of their income for housing, including utilities [14], [15]. However, “for some people, all housing is affordable, no matter how expensive, while for others, no housing is affordable unless it is free” [16]. This definition exposes the weakness in determining affordability using 30% of the peoples’ incomes. This is because those who earn so little may need more than 30% of their income to acquire housing. Thus, affordability swings towards the people’s willingness to pay a given cost to acquire housing. Therefore, an affordable housing is a dwelling whose cost is appropriate for the low and moderate income households such that they can spare some money to be able to provide their other needs [17].

C. In Summary: Slums and Affordable Housing

A place is a slum when it lacks a safe water supply, good

access to roads, good sanitation, durable building materials, and adequate space. On the other hand, a housing unit is affordable if low-and middle-income people can afford it and yet have enough money to cater for their other needs. The commonality between slum and affordable housing is that both are preferred by low-income earners because they are cheaper and affordable to them (Fig. 6). Also, a slum can be rebuilt into decent housing. On the other hand, decent housing can decay and turn into a slum.

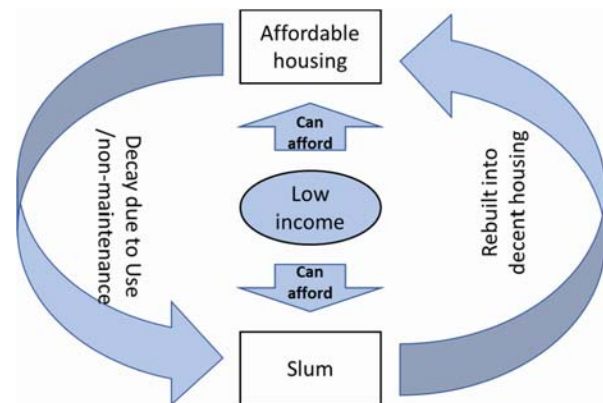


Fig. 6 Conceptual relationship between slum and affordable housing

IV. MATERIALS AND METHODS

Having established that decently built affordable housing projects in Enugu are increasingly turning into slums, the various timelines of each of these housing projects as recorded in Table I align with a certain housing policy timeline. In other words, despite developing those housing projects with housing policies in place, they still failed. Hence, this paper analyzed the Nigerian Housing Policy to see how it affects affordable housing delivery and slum emergence in Enugu. On the other hand, the experts or housing developers (including government developers) work using the policy as a guide. Thus, alongside the policy analysis, expert interviews were conducted with a selection of government and private developers in urban Enugu to sample their opinions on the causes of slum emergence from affordable government housing projects.

A. Analysis of the 2012 Nigerian Housing Policy

A policy typically has a vision statement (plan) and an action statement (implementation). The vision statement of the 2012 Nigerian Housing Policy is that “housing would be achieved through a private sector led housing delivery system anchored on mass construction of houses and strong mortgage finance” [18]. The corresponding action statement is that: “.....10 million new houses to the national housing stock should be added by building an average of 1 million new homes every year; and ensure that at least 50 percent of the new homes are built in the urban centres and the remaining in the rural areas; and provide incentives to encourage Public Private Partnership (PPP) in mass housing development” [18].

To have a vision statement backed with an implementation statement (as above) shows that the writers of the Nigerian housing policy understood the problem and considered ways to

tackle it. However, examining one aspect of the policy action statement, namely to achieve 10 million housing units means that the Nigerian housing deficit, which stood at 17 million units in the early 2000s [19], [20] would have been reduced to 7 million by 2020. However, even if the construction were to begin from 2012 (immediately after adopting the housing policy), by complying with the annual target of 1 million new houses, only 8 million new houses would have been built by 2020. This is because 2012 and 2020 are only 8 years apart. This further implies that even the policy action statement was faulty as it was founded on a wrong calculation, which has a major planning loophole in the housing policy. The other aspect, namely the policy recommendation that 50% of the housing stock be built in the rural areas to control rural-to-urban migration – was never done. This is because out of the 61 completed government housing properties in Enugu state, 55 of them are in the urban area (see Appendix 1). Hence, the urban housing projects get overcrowded due to the influx of endless rural-to-urban migrants whose overuse of the limited facilities break down the housing developments into slums [21]. This failure to allot 50% of the housing stock to the rural area is a major indicator of poor or no implementation of the housing policy. This initial suspicion that there are two loopholes in the housing policy and poor or no implementation of the policy itself led to a further analysis of the entire policy document. Thus, this policy analysis focused on searching for the keywords “affordable housing” and “slum” in the Nigerian housing policy using word mining in the soft copy of the Nigerian housing policy. Table II summarizes the results of the word search.

TABLE II
 WORD SEARCH FOR “AFFORDABLE HOUSING” AND “SLUM” IN THE NIGERIAN HOUSING POLICY

Key Terms and Synonyms	Number of Occurrences
Search by table of contents	
AFFORDABLE HOUSING	0
Housing affordability	0
Social housing	1
Low-income housing	0
SLUMS	0
Informal settlement	0
Search by the entire policy volume	
AFFORDABLE HOUSING	12
Housing affordability	0
Social housing	17
Low-income housing	6
SLUMS	5
Informal settlement	0

The number of times (12 and 5) in which the keywords “affordable housing” and “slums” appeared in the Nigerian housing policy seems infinitesimal. It further supports the suspicion that the housing policy might not have addressed slums and affordable housing adequately, leaving some loopholes which make way for poor or no implementation of the Nigerian housing policy [22], see Fig. 7. Therefore, the housing deficit, rather than being significantly reduced after the

target period in view by the Nigerian housing policy, has remained high. Because of this high housing scarcity, there is the influx of more people than were planned for in the delivered housing projects [23]. This influx of people in the housing properties and their overuse stresses the limited housing supply and could lead to a rapid breakdown of the facilities such as roads, walls, roofs, and sanitary systems. Overcrowding implies insufficient space – these, blended with the other types of breakdowns mentioned, are all attributes of a slum as earlier indicated in Section III B of this paper. The presence of these slum attributes in the government housing projects casts some doubts whether the current Nigerian housing policy effectively addressed affordability slum prevention.

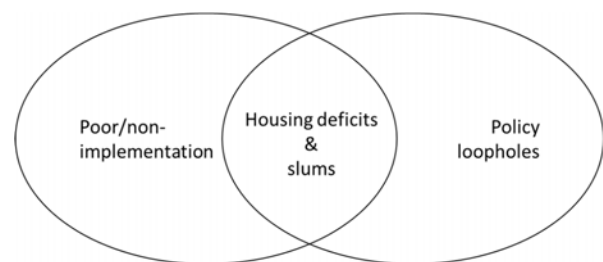


Fig. 7 Policy loopholes and poor implementation breed housing deficits and slums

B. Expert Interviews

To augment the results of the policy analysis, this paper further sampled the opinions of selected residential housing developers in Enugu on slum emergence. The solely qualitative data were collected through semi-structured interviews only. The framework for the data collection, analysis, and interpretation was based on [24] as in Fig. 8.

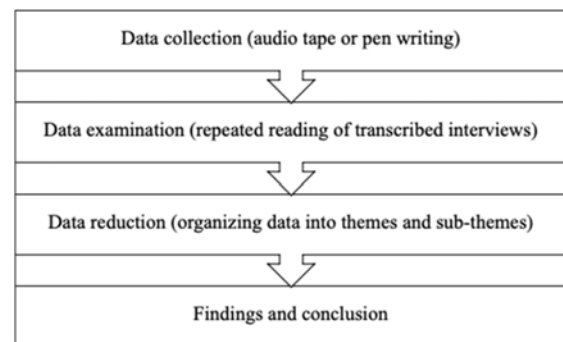


Fig. 8 Data analysis framework [24]

Since the housing properties in focus were developed by the government, one respondent was selected from the government department in charge of housing development and supply. To balance the perspectives, three other private housing developers active in the three LGAs of urban Enugu were selected. Thus, there were four expert respondents to the semi-structured interview.

As a semi-structured interview, the respondents answered the same set of questions but were allowed the flexibility to answer them as they perceived the answers. The set of questions used were as follows:

1. Dependent variables – investigated the presence of active policies on affordable housing through the following questions:
 - a. Does your company build low-income houses? (To know if a company builds or does not build low-income housing)
 - b. Does your company build social housing? (To know if a company offers houses to no-income people)
 - c. How long has your company been in business? (To understand historical and contingent factors contributing to motivation for low-income housing)
2. Dependent variables – investigated the manifestations of slum emergence through the following questions:
 - a. Have some of your existing housing developments turned into slums? (To address durability factors)
 - b. Does your company have records of incomplete/abandoned housing developments? (To discuss the role of strategic and operational planning)
 - c. Does your company have records of not achieving the target number of housing units? (To investigate the degree of uncompleted/abandoned housing projects)
 - d. Respondents were further given a chance to talk about any aspects they felt that were not covered in the discussion.

Table III summarizes the answers to the main interview questions by the expert respondents. To maintain the anonymity requested by the respondents, they were represented by aliases (A, B, C, and D).

TABLE III

EXPERTS' OPINIONS ON SLUM AND AFFORDABLE HOUSING

	A	B	C	D
Build low-income housing	Yes	Yes	Yes	No
Build social housing	No	No	No	No
In business 11+ years	Yes	Yes	Yes	Yes
Housing-turned slums	No	No	No	No
Uncompleted/abandoned housing developments	No	No	No	No
Unachieved target housing units	No	No	No	No

Each respondent was allowed to give further reasons for their respective answers.

C. Building/Not Building Low-Income Housing

Respondent A builds low-income housing because Enugu is predominantly a low-to middle-income area. Therefore, they build what the population can afford. They also build low-income housing to be able to deliver more housing units using less capital than it could cost for building high-income housing.

Respondent B builds low-income housing because it is the only viable housing category in a low- to middle-income population (Enugu).

Respondent C builds low-income housing because of their passion to help low-income people quit the slums and access decent affordable housings.

Respondent D does not build low-income housing because they feel it yields low profits.

D. Building/Not Building Social Housing.

Respondent A does not build social housing because it yields no profit at all. The rest – respondents B, C, and D do not build

social housing either because of the same reason.

E. Age of Company

Among the age intervals, 1-5 years, 6-10 years, and 11+ years, all respondents have built for at least 11 years. This suggests that all respondents have survived, at least, three policy timelines. This is because housing policies are supposed to be reviewed every four years.

Respondent A explained that they learned to manage limited funding prudently to deliver projects successfully knowing that their profits after sales of the low-income housing units are low. Through their experiences over a long period of being in business, they have established a good reputation which has earned them public trust, leading to their access to more clients whose patronages sustain their business.

Respondent B explained that violation of construction ordinances or breach of contract with clients could mean higher costs to them. But adhering to the contractual terms and delivering high quality housing saved them the cost of either rebuilding failed structures or servicing litigations. Hence, they manage their limited funds well to deliver housing units without incurring avoidable waste. Respondent B emphasized that changes in housing policy do not affect their operations as a private company.

Respondent C explained that they evolved from providing different services to other established housing developers to becoming a full-fledged developer. First, they supplied materials. Later, they installed fittings to houses. Subsequently, they became subcontractors of construction companies; and later established their own company. Thus, respondent C indicated that they have understood how different aspects of housing development projects work while engaging as service providers. This has enabled them to manage their own company well and sustain it against collapse.

Respondent D explained that they do not always execute all their construction projects directly, but they rather outsource some of them. Respondent D explained that when they outsource, they stand a better chance to inspect the sub-contractors by playing the role of a quality control body. Hence, they compel their subcontractors to adhere to specifications while delivering their projects. Thus, they delivered durable housing projects that often attract new clients to them.

In summary, all the interviewed respondents prioritized two things – minimizing resource waste owing to limited funding and having a concern for durability to satisfy home buyers/users. Ensuring durability further saves the developers/buyer/users' repair costs which may arise from constant breakdowns. This durability further attracts new costumers to the developers because of the high quality of delivered buildings.

F. Housing Developments Turned into Slums

All the respondents, A, B, C, and D (including the government developer) indicated that they had no records of their housing developments that had turned into slums. However, discussions with the private developers suggested that some of the government housing projects had turned into slums. By suggesting that, they explained how they managed to

prevent slums from occurring in their properties.

Respondent A explained that they sell their housing units but retain the management of their properties. This is to ensure the proper maintenance of the properties to prevent them from decaying into slums. They monitor their properties to ensure that occupants comply with sanitations and not alter the designs without approval. Also, they collaborate with the occupants to report damages and the abuse of facilities in the property for an instant solution.

Respondent B indicated that they analyzed other failed government housing projects and developed their property management model to improve on those lapses. They ensure that people do not alter designs, or change use of space (residential to commercial, for instance) without approval.

Respondent C indicated that they tried to avoid the mistakes made in the older government housing projects which later turned slums. They did not explain the mistakes in detail though. They also engage the occupants to monitor and report damages in the property for instant response and repair.

Respondent D explained that they fund the maintenance of their properties through the ground rents they collect from their home buyers. Therefore, occupants do not need to pay extra maintenance fees, yet the developer will never run out of funds to finance the property maintenance.

In summary, the central approach to averting slums applied by all the developers is management. However, each developer has their unique management approaches. Two important management approaches favored by the developers are participatory monitoring by the occupants and regulation of the change of use and design alterations (Fig. 9).

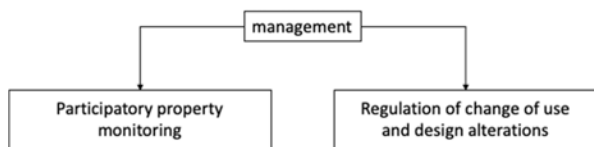


Fig. 9 Two approaches to property management

G. Uncompleted/Abandoned Housing Developments

All respondents, A, B, C, and D (including government developer) indicated that they do not have uncompleted or abandoned housing projects.

Respondent A explained that they plan well before they start any housing project and have never abandoned any project or left it uncompleted. They often break their property layout into phases and develop them in bits till all are accomplished.

Respondent B acknowledged that some abandoned or uncompleted government housing projects were affected by poor planning, government interference or political instability. They noted that they plan well before executing their project; and they are not affected by external factors such as government interference or political instability since they are a private entity.

Respondent C simply explained that they only build within their budgets.

In summary, all respondents agree that housing development requires proper planning to avoid non-completion or

abandonment.

H. Unachieved Target Number of Housing Units

All respondents indicated that they always achieve their target number of housing units proposed for development.

Respondent A explained that they achieve their targets by planning them in phases and building slowly till they meet their target number of units. They can finance the next phase from income generated from the sales of the units already completed.

Respondent B explained that they rather target the number of units that their available funds can deliver.

Respondent C also explained that they only plan with the funds they have and can never target more than they can achieve.

Respondent D explained that they design, advertise, and sell their proposed housing units before commencement of construction. They, then use the money generated from interested buyers to construct their housing units for interested buyers. Therefore, they only build on demand and do not build below or above target.

In summary, all respondents agree that proper planning is required to ensure that developers achieve their target number of housing units. One group favors planning in phases while the other group favors planning within the available funds only (Fig. 10).

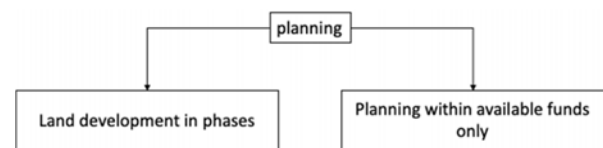


Fig. 10 Two types of planning applied by developers to achieve their targets

V. SUMMARY OF FINDINGS

In short:

1. All respondents agree that low-income housing yield low profits, but those who build it do so because it is what the low-income population can afford. The others build it because of their passion for removing people from the slums.
2. All respondents do not build social housing because there is no profit at all; rather, it requires subsidies, and private companies cannot subsidize.
3. All respondents have survived at least three government regimes and still operate. They focused on minimizing resource waste owing to limited funding; the other is concern for durability to satisfy home buyers/users and save on the cost of constant repairs of breakdowns.
4. All respondents agree that proper management is important to avert the breaking down of housing projects into slums. Two major management approaches applied by the respondents are participatory monitoring by the occupants and regulation of change of use and design alterations.
5. All respondents agree that proper planning is important for ensuring that a developer achieves their target number of housing units. Two aspects of planning that the respondents

prioritized are planning in phases and only planning within the available funds.

VI. CONCLUSION AND RECOMMENDATIONS

The policy analysis shows that there are loopholes which aid poor or no implementation of the Nigerian housing policy. One instance of non-implementation noted in the analysis is that all the government housing projects in Enugu (55 housing projects), except few (5 housing projects), are in the urban areas only. A major loophole is that the policy is not legally binding on anyone since it is just a set of voluntary guidelines. On the other hand, results of the expert interviews show that the government housing projects that turn into slums lack either good planning or good management (or maintenance) or both. These noted problems guided our recommendations.

It is recommended that henceforth, the government housing projects in Enugu should prioritize rural housing to reduce pressure on urban housing and curb rapid rural-to-urban migration. Since adherence to the housing policy is not legally binding, there should be incentives such as tax waivers or discounts for those developers who comply with the policy stipulations.

Secondly, this research recommends that the government should outsource the management of their delivered properties to competent private companies and then play monitoring roles over them. The importance of using more than one management company is to introduce competition among them so that each contractor would be mindful of offering the best management/maintenance services. This way, the government department in charge of housing development and delivery would not be overwhelmed by the enormous number of properties to care for using just a limited number of staff. Side-by-side with the outsourcing of management, let there be a participatory monitoring whereby the occupants are engaged in the monitoring and reporting of damages and in the abuse of usage in the housing properties.

ACKNOWLEDGMENTS

We thank the Technical University of Munich, Germany, for providing the workspace and other logistics support towards successfully conducting this research.

We thank the Enugu State Housing Development Corporation (ESHDC) for providing the materials which helped in compiling the list of government-owned housing properties in Enugu.

APPENDIX

TABLE III

LIST OF GOVERNMENT-OWNED HOUSING PROPERTIES IN ENUGU STATE, NIGERIA

Sn	Name of Estate	Location
1	Victory Estate	Old Airport Road
2	Trinity Estate	Old Airport Road
3	Sunrise Estate Area A	Emene
4	Sunrise Estate Es	Emene
5	Riverside Housing Estate Phase 1	Abakpa
6	Riverside Housing Estate Phase 2	Abakpa
7	Lake Side Estate	Abakpa

8	Harmony Estate Phase 1	Abakpa
9	Harmony Estate Phase 2	Abakpa
10	Harmony Estate Phase 3	Abakpa
11	Harmony Estate Phase 2 Extension	Abakpa
12	Greenland Estate 1	RCC
13	Greenland Estate 2	RCC
14	Greenland Estate 3	RCC
15	Trans Ekulu Phase 1	Trans Ekulu
16	Trans Ekulu Phase 2	Trans Ekulu
17	Trans Ekulu Phase 3	Trans Ekulu
18	Trans Ekulu Phase 4	Trans Ekulu
19	Trans Ekulu Phase 5	Trans Ekulu
20	Trans Ekulu Phase 6	Trans Ekulu
21	Ivory Estate Parcel A (CBN)	Trans Ekulu
22	Ivory Estate Parcel B (CBN)	Trans Ekulu
23	Ivory Estate Parcel C (CBN)	Trans Ekulu
24	Coal City Garden	GRA
25	Golf Course Estate Phase 1	GRA
26	Golf Course Estate Phase 2	GRA
27	Golf Course Estate Phase 4	GRA
28	Golf Course Estate Phase 5	GRA
29	Golf Course Estate Phase 1 Extension	GRA
30	Golf Course Estate Phase 1 Commercial Plots	GRA
31	Ekulu East Estate (Zoo)	GRA
32	Valley Estate Phase 1 Extension	GRA
33	Heritage Estate	GRA
34	Valley Estate Phase 1	GRA
35	Fidelity Estate	GRA
36	Fidelity Estate (Terrace Building)	GRA
37	WTC Estate	Ogui
38	Citadel Estate Phase 2	Ogui
39	Divine Estate 9 th Mile	Ngwo
40	Valley Estate Phase 2	Iva Valley
41	Citadel Estate Phase 1	Independence Layout
42	Citadel Estate Phase 1 Extension	Independence Layout
43	Republic Layout (By EHOCOL) Phase 1	Independence Layout
44	Republic Layout (By EHOCOL) Phase 2	Independence Layout
45	Republic Layout (By EHOCOL) Phase 3	Independence Layout
46	Liberty Estate Phase 1	Independence Layout
47	Liberty Estate Phase 2	Independence Layout
48	Independence Pocket Layout (Ebeano)	Independence Layout
49	Q Series Estate	Independence Layout
50	Transparency Estate	Uwani
51	Real Estate (Terrace Building)	Uwani
52	Maryland Estate (Block A-I)	Uwani
53	Maryland Estate (Block 1-10)	Uwani
54	Maryland Estate (Extension)	Uwani
55	Sand View Estate	Akwuke
Rural Areas		
56	Network Estate	Ibagwa
57	Rangers Estate Phase 1	Akegbe
58	Rangers Estate Phase 2	Akegbe
59	Palm Beach Estate	Nsukka (Obukpa)
60	Old GRA	Nsukka
61	Wuse Abuja Estate	Abuja
Uncompleted		
62	Himalaya Estate	Ibagwa
63	ESUT	Agbani
64	Ugwuoba Estate	Oji River
65	Coal City View Estate	
66	Trans Ekulu (Off Phase 6)	Trans Ekulu

REFERENCES

- [1] E. M. Bah, I. Faye, Z. F. Geh, E. M. Bah, I. Faye, and Z. F. Geh, *Unlocking Land Markets and Infrastructure Provision*. 2018. doi: 10.1057/978-1-137-59792-2_4.
- [2] B. U. Iwuagwu, I. Onyegiri, and B. C. Iwuagwu, "Unaffordable Low-Cost Housing as an Agent of Urban Slum Formation in Nigeria: How the

- Architect Can Help,” 2016. https://www.researchgate.net/publication/330910087_Unaffordable_Low_Cost_Housing_as_an_Agent_of_Urban_Slum_Formation_in_Nigeria_How_the_Architect_Can_Help (accessed Jun. 10, 2020).
- [3] A. Fumnanya, “UNIDO classifies Nigeria as a lower middle-income country, but here are other things you need to know - Ventures Africa,” 2016. <http://venturesafrica.com/unido-classifies-nigeria-as-a-lower-middle-income-country-but-here-are-other-things-you-need-to-know/>
- [4] B. U. Iwuagwu and B. C. Iwuagwu, “Local Building Materials: Affordable Strategy for Housing the Urban Poor in Nigeria,” *Procedia Eng.*, vol. 118, pp. 42–49, 2015, doi: 10.1016/j.proeng.2015.08.402.
- [5] K. Efobi and C. Anierobi, “Urban Housing Issues in Nigerian Cities: A Case for Real Estate Maintenance as a Sustainable Option for Trans-Ekulu Housing Estate, Enugu, Nigeria,” *Arts Des. Stud.*, vol. 16, no. September, pp. 1–5, 2014.
- [6] O. C. Umeora, “Examination of state of repair of buildings in private housing estates in Enugu metropolis, Enugu state Nigeria,” vol. 12, no. 1, 2020.
- [7] O. C. Umeora, A. O. Olotuah, and K. E. Ezeji, “Average Monthly Income of Residents as a Predictor of Residents’ Satisfaction in Private Housing Estates in Enugu, Nigeria,” *Researchgate.Net*, no. February, 2020, (Online). Available: https://www.researchgate.net/profile/Chukwunonso-Umeora/publication/339643270_Average_Monthly_Income_Of_Residents_As_A_Predictor_Of_Residents'_Satisfaction_In_Private_Housing_Estates_In_Enugu_Nigeria/links/5e5e00934585152ce8013b79/Average-Monthly-Income-O
- [8] A. K. Singh and K. Raj, “Urban Slums: An Enquiry into Concept, Characteristics and Policy Interventions,” 2014.
- [9] E. H. M. Bah, I. Faye, and Z. F. Geh, *Slum Upgrading and Housing Alternatives for the Poor*. 2018. doi: 10.1057/978-1-137-59792-2.
- [10] B. E. Oppong, “Slum or Sustainable Development? A Case Study of Sodom and Gomorrah in Accra, Ghana Part of the Inequality and Stratification Commons, Place and Environment Commons, and the Urban Studies and Planning Commons,” 2016. Accessed: Jul. 06, 2020. (Online). Available: <http://cornerstone.lib.mnsu.edu/etds>
- [11] Bbareui, “Creation of Slums: A Discussion,” 2015. <https://bbareui.wordpress.com/2015/03/17/creation-of-slums-a-discussion/> (accessed Jul. 20, 2020).
- [12] Y. Usman Badaru, A. Sadauki Abubakar, O. Spencer, A. O. Adejoke, and S. O. Salihu, “Assessment of Housing Conditions for a Developing Urban Slum using Geospatial Analysis: A Case Study of Durumi, Garki-2, Gishiri and Jabi of the City of Abuja, Federal Capital Territory of Nigeria,” vol. 4, 2014, Accessed: Jul. 20, 2020. (Online). Available: www.iiste.org
- [13] Un-Habitat, “Slums: Some Definitions,” 2006. Accessed: Jun. 13, 2020. (Online). Available: www.unhabitat.org.
- [14] M. Danko, “Designing Affordable Housing for Adaptability: Principles, Practices, & Application,” *Pitzer Sr. Theses*, vol. Paper 35, p. 42, 2013, (Online). Available: https://scholarship.claremont.edu/pitzer_theses/35
- [15] G. Pivo, “The Definition of Affordable Housing: Concerns and Related Evidence,” 2013.
- [16] S. Bergenstrahle, “How to define, achieve and measure affordability in rental housing,” 2018. Accessed: Jun. 14, 2020. (Online). Available: <http://www.oecd.org/social/affordable-housing-database.htm>
- [17] P. O’Neill, E. Sliogeris, L. Crabtree, P. Phibbs, and K. Johnston, “Housing Affordability Literature Review and Affordable Housing Program Audit,” 2008.
- [18] Federal Republic of Nigeria, “National Housing Policy.pdf,” 2012.
- [19] World Bank, “Nigeria: Developing Housing Finance,” no. June, pp. 1–54, 2016, (Online). Available: <https://elibrary.worldbank.org/doi/pdf/10.1596/25780>
- [20] Center for Affordable Housing Finance in Africa, *Housing Finance in Africa: a review of Africa’s housing finance markets*, vol. 816. 2020. [Online]. Available: <http://housingfinanceafrica.org/resources/yearbook/>
- [21] R. Mahabir, A. Crooks, A. Croitoru, and P. Agouris, “The study of slums as social and physical constructs: Challenges and emerging research opportunities,” *Reg. Stud. Reg. Sci.*, vol. 3, no. 1, pp. 399–419, 2016, doi: 10.1080/21681376.2016.1229130.
- [22] O. Ojerinola, P. M. Ormerod, and M. Shepherd, “Affordable Housing Provision in Nigeria from a Policy Perspective: Literature review and synthesis,” pp. 213–221, 2007.
- [23] National Coalition for the Homeless, “Why Are People Homeless?,” *Natl. Coalit. Homeless*, vol. 1979, no. 202, pp. 1–7, 2007 (Online). Available: <http://www.nationalhomeless.org/factsheets/Why.pdf%5Cpapers2%2Fpublication/uuid/22849114-133C-4D10-BC9C-7DC7F6EF0089>
- [24] S. Wurdinger, “How project-based learning is helping change the status quo,” *Chart. Sch. Res. J.*, vol. 12, no. 2, pp. 38–56, 2018 (Online). Available: <http://faculty.mnsu.edu/scottwurdinger/wp-content/uploads/sites/83/2018/05/Draft-Spring-2018-TCSRJ.pdf>