Institution and Housing Development: Mirage, Magic and Miracle of Low-Cost Housing in Nigeria

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I.   Introduction

Goal 11 of the United Nations' Sustainable Development Goals (SDGs) is on making "cities and human settlements inclusive, safe, resilient and sustainable". The world's target for 2030 is to "ensure access for all adequate, safe and affordable housing and basic services and upgrade slums and support least developed countries, through financial and technical assistances, in building sustainable and resilient buildings utilising local materials". The global body had contextualised the issue of housing in the twin challenges of population explosion and urbanisation:

"By 2050, the world's urban population is expected to nearly double, making urbanisation one of the twenty-first century's most transformative trends. Populations, economic activities, social and cultural interactions, as well as environmental and humanitarian impacts, are increasingly concentrated in cities, and this poses massive sustainability challenges in terms of housing, infrastructure, basic services, food security, health, education, decent jobs, safety and natural resources, among others" (United Nations, 2017).

Nigeria has been identified as one of the leading countries challenged by the twin problems of urbanisation and population explosion. The World Urban Forum (2015) concluded by reporting that housing is at the core of Habitat III and the New Urban Agenda. As such a paradigm shift in housing is required to address the issues of sustainable urbanisation and a global housing strategy. This requires the formulation of global and regional road maps for housing.

In Nigeria, the macro economic climate manifesting in form of double-digit inflation, unemployment, reduced inflow of foreign capital induced by the unfavourable business environment, and highly undiversified and near mono foreign exchange base have been responsible for a lot of challenges in the real sector, of which housing deficit, is a critical one. Other manifestations of these macroeconomic inefficiencies, related and associated to housing deficit, are

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the huge infrastructure deficit, as well as, inefficient, deficient, dilapidated infrastructure and a non-vibrant private sector. It is noteworthy however, that the factors that could be adduced as causing the Nigeria's housing deficit cut across economic, social and political spheres.

Despite institutional interventions from both the fiscal and monetary authorities, the Nigerian housing deficit still remains a subject of concern to the government, housing sector stakeholders and the citizen. There are still lingering issues of access to housing finance, affordability, access to land, cost of construction, rising cost of construction resources (materials and labour). As long as these challenges persist, it will be difficult for Nigeria to achieve its objective of being one of the fastest growing economies by year 2030. Furthermore, the desirable goal of providing affordable and low-cost housing to the low and middle-income class (the majority) is almost becoming an impossibility. A major reason is the cost of construction, which embodies the prices of the resource inputs and the process of production of housing in its entirety.

This paper therefore posits that the desire to achieve low cost or affordable housing must be conceptualised as reactions to weak economic fundamentals including prices. There is a mismatch in the solutions and the fundamental parameters that underpin the cost of the building as a product of construction process. It observes that the several institutional attempts to provide affordable housing has been akin to mirage and shadow chasing. Building on the fundamental economic argument and the desirable goal of ameliorating the challenging deficit, the paper advocates the adoption of a combination of fiscal and monetary approaches drawing on inclusive participation of primary suppliers (construction materials manufacturers and construction companies). To achieve these inclusive blends of stakeholders and aligning economic interests will be the miracle that can happen to the housing subsector aimed at not only reducing the deficit but providing a sustainable platform to meet the housing need of the exploding population.

The idea in the paper is encapsulated in five sections. The first section contextualises the challenges of the Nigerian housing deficit in the milieu of population explosion and urbanisation. The problem is further compounded by the theoretical issues bordering on the perspectives on how housing should be treated either as economic good or social good. The third section examines the institutional efforts and progress achieved. In the fourth section, the empirical facts that showed that housing cost is on the increase and significant progress would be made if the real sector issues bordering on the fundamentals of cost and process are squarely given sufficient space in the provision of affordable housing. The final and concluding section proposes a real sector inclusive
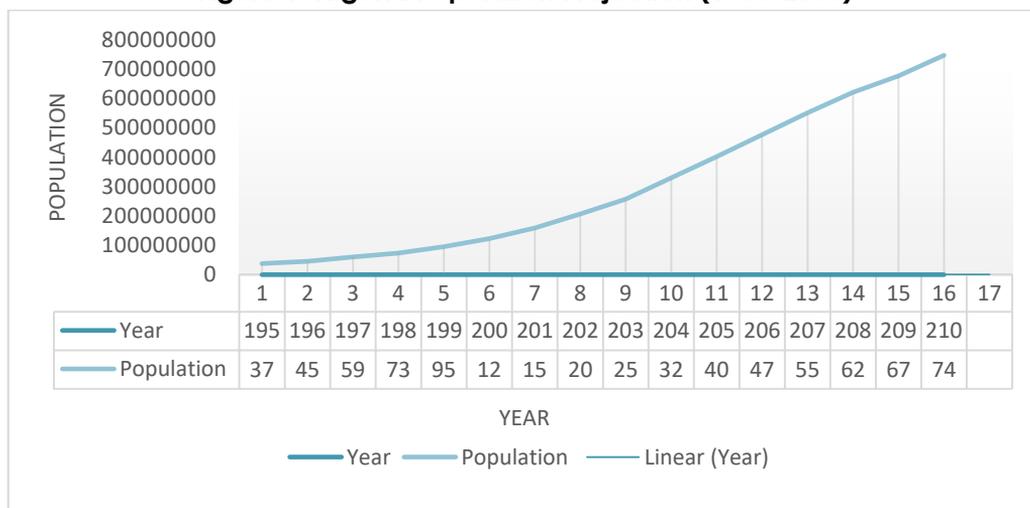
approach that will require the concerted effort of all stakeholders aimed at reducing the cost of housing construction in Nigeria.

II.   The Challenges of the Nigerian Housing Deficit

Nigeria's population is increasing at about 2.8 per cent annually. The United Nation had projected that by 2050, the population of Nigeria would be about 400 million (Figure 1). The World Bank also estimated that the population of the country is growing at 2.8 per cent year on year. The rural- urban migration has contributed significantly to underpin the rate of growth of the urban population estimated to be 4.7 per cent by the World Bank. Expectedly, in the absence of proactive strategy to curtail the implications of the exploding urbanisation, the high urban population growth rate will lead to rapid deterioration of housing and living conditions. The World Bank (2015) reported that Sub-Saharan Africa, including Nigeria, is experiencing rapid urbanisation, as well as, a growing slum population. The Report further observed that many households cannot afford basic formal housing or access mortgage loans and the cost of obtaining formal housing is high.

To the government, economic regulators, experts and all stakeholders in the real estate and construction sectors of the Nigerian economy, these estimates present warning, challenges and opportunities with respect to providing low cost and affordable housing to the hugely increasing population. This massive population must not only be sheltered, but provided with housing which must be decent and affordable or could be provided, as a social good, by the government.

Figure 1: Nigeria Population Projection (1950-2100)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Year	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	
Population	37	45	59	73	95	12	15	20	25	32	40	47	55	62	67	74	

YEAR

Source: UN Population Review (2019)

The question of how much housing units are needed for the increasing population is pertinent. There is no doubt that there has not been accurate establishment of the housing deficit. If such a huge deficit truly exists, a layman would probably inquire where the three million "houseless" citizens are sleeping. No doubt underneath of bridges, public spaces, motor garages, religious places or even bushes, among others, must have provided haven of residences for them. The balance of fact points to the high degree of informality in the housing sector and the absence of a social system to capture such "houseless" citizens. Yet data must be provided to plan with. It can be argued that it is better to overestimate the deficit than underestimate it, especially for planning and policy purposes. Overestimation, however, could come with concomitant policy mismatch. In the meantime, policy makers will be satisfied with the estimates generated from the simple equation which relates the estimated population with the average official size of a household and the existing stock of housing.

World Bank (2015) noted that there is a lack of quality housing stock and that consistent and reliable data to identify the quantity and quality of housing deficit both formal and informal is quite challenging. Various interest groups escalated the figures in proportions and statistical magnitudes so as to sound the alarm and draw attention to the need of the housing sector. It has been reported that the housing deficit in Nigeria stands at about 17 million (Adebayo and Dada, 2014; Abuja Housing Forum, 2019; Okonjo-Iweala, 2014; Alagbe, 2013; Centre for Affordable Housing Finance in Africa [CAHF], 2013)with attendant financial requirement to bridge the gap was estimated to be about ₦60 trillion (US$166 billion).On the other hand Garba, Abdullahi, Ibrahim, Ibrahim, and Adogbo (2017) believed that the Nigerian housing deficit was estimated to be between 18 and 20 million housing units and that the figures for the Federal capital territory alone could be about three million housing units. Akinradewo and Adedokun (2019) reported that recently, the managing director of the Federal Mortgage Bank of Nigeria (FMBN) estimated that the housing deficit in Nigeria to be about 22 million housing units. This deficit is worrisome despite the concerted efforts of several regimes of government at the Federal and state levels, private sector and other stakeholders in the real estate sector to ameliorate the situation.

FInA and Finmark (2010) relying on a World Bank report painted the urbanisation, household expenditure on housing and the housing production chain as follows:

> *"85.0 per cent of the urban population live in rented accommodation, spending more than 40.0 per cent of their income on rent. Of these rented houses, 90.0 per cent are built through self-financing by the owners, mainly due to lack of mortgage financing while less than 5.0 per cent of these houses have formal title registration."*

III.   The Concept of Affordable Housing

The problem of housing delivery and the associated deficit in housing stock is further compounded by the theoretical issues bordering on the perspectives on housing. A defective diagnosis cannot result in an effective prognosis. How the government, the governed, the individual home owners, the private and commercial investors, the policy makers and the researchers perceive housing is very important in the bid to provide solutions to the increasing cost of housing. It could be perceived as a social amenity or commercial good. Investors in housing subsector must be involved in the provision of housing on an ongoing basis as both population and urbanisation dynamics continue in their dynamic interplay. To an investor housing deficit is an opportunity to invest if the return is comparable with any other investment options, otherwise the investors fund will flow elsewhere. The commercial perspective is a major factor that cannot be underestimated in the housing deficit equation. This explains why investors in housing sector are more interested in the high net worth market that promises better yield than the low and middle-income end of the housing market or pushes to the market substandard housing that fail substantially in sustainability indices.

The house as fundamental concept in housing is an economic good. It evolves from interaction of other economic variables that brings about its production. As long as those economic variables become unstable, or in particular, continue to accelerate, the final product will follow the same direction, which in this context is the increase in the cost and consequently the price. The desirable goal of low-cost housing, therefore, rests on the economic fundamentals that are interacting to bring about the product. The achievement of the goal of low-cost housing is hindered as the economic variables remain on the path of increase.

It has been difficult to define affordable housing, and there is no general universal definition (Makenya, 1996). While low cost refers only to building systems and land development methods that are applicable to low-cost housing; affordable housing should generate images of "typical" housing that may be large or small, use inexpensive materials, products, and provide the amenities appropriate for or desired by the occupant. The affordability or lack of affordability is determined by the household income of the occupant rather than the cost of the house (Wallace, 1995).

The United States had adopted an apt description of what an affordable housing should be: "A decent home in a suitable living environment…with the added condition that the housing should be affordable." (Makenya (1996)

opined that although affordable housing has no official definition, a widely accepted implicit definition is that monthly housing costs should not be more than 30.0 per cent of house-hold income.

The concept of affordable housing has been measured by the income level, household size and affordability (KPMG, 2010). Affordable housing has been used to mean "public" or "social" or "low-cost" housing. For the purpose of housing affordability, Pahade and Khare (2015) categorised the citizens according to their income levels. Four categories are identified as economically weaker group (EWG), Lower income group (LIG), Middle income group (MIG), and Higher income group (HIG). The major demand in housing is for the EWS, LIG and MIG categories. A general yardstick for affordable housing is that expenditure on housing should not exceed 30.0 per cent of the income of the household. As expected, the 30.0 per cent of household income benchmark had been a subject of debate among experts. Hulchanski (2005) raised the issue of shelter poverty, a situation where a household spends 30.0 per cent of their income on housing but could not afford to meet some other essential needs for minimal comfortable living. This scenario arises, where though the cost of housing is low, the income is so low that the household could not afford non- housing needs after spending 30.0 per cent of its income on housing.

Additionally, Haas, Makarewicz, Benedict and Bernstein (2008) viewed the 30.0 per cent standard as a consideration of direct cost of housing with its utilities and the income without regard to the location or area affordability. Area affordability could be as a result of the neighbourhood standard, accessibility to job locations, accessibility to schools, hospitals and other municipal facilities. The 30.0 per cent of household income criterion discounts the housing conditions. Thus Stone, Burke and Ralston (2011) posted that the housing standard and housing deprivation must be factored into the affordability calculation. The foregoing alternative views to the common 30.0 per cent of the household income yardstick find support in the position of Hulchanski (1995) that housing expenditure-to-income rule can be used in several ways depending on the intended purpose. Thus, it could be for administrative purposes and selection by public housing sector for housing subsidies, or for definition of housing need or for prediction of a household ability to pay for mortgage or rent.

From the foregoing, housing affordability has economic, social, spatial and environmental and design implications (Halliday, 2002; Gabriel, Jacobs, Arthurson, Burke and Yales, 2005). Housing impacts on other social and economic issues and behaviours such as employment, health, transportation, age care, community sustainability, urban and regional development, economic development, among others. Housing affordability is related to the

cost of housing either as ownership or in rents. High cost of construction negatively impacts household savings, stimulation of the economy through job creation and wages, consumption capacity, property tax. The problem of sprawling slum in the urban cities is a direct consequence of high cost of construction. Thus, environmental sustainability is at risk when the cost of construction is high.

The value chain fundamentals of housing production are an important aspect in the explication of affordable or low-cost housing debate. World Bank (2015) listed the following as the characteristics of the value chain in housing delivery, in Sub- Saharan Africa, of which Nigeria is a member nation:

a) Formal housing is the product of specialised supply and demand-side value chains;
b) The value chains that support the production and consumption of formal housing in Sub-Saharan Africa are weak and oriented toward high-income groups;
c) The cost for providing formal housing, whether through private developers or through the government is prohibitively high;
d) Intervention and involvement of private sector initiatives as alternatives to providing formal housing;
e) As a result, the informal delivery of housing as a less expensive alternative has been the norm in Sub Sahara Africa (SSA), while formality is the exception;
f) Informal housing represents a spectrum, shelter, locations, conditions, and tenure status;
g) Comparing formal and informal value chains will require identifying areas for policy attention to improve the functions and overall affordability of the housing sector; and
h) The key issue is not an absolute lack of housing supply but instead a very limited provision of quality housing within the continuum of informal conditions shown above.

Table 1 shows a comparison of the formal and informal housing delivery system obtainable in Sub-Sahara Africa.

Table 1: Comparative Summary of Housing Delivery Conditions in SSA

	Housing delivery Component	Formal	Common SSA Condition	Implication on the cost of housing
Supply side of housing	Land tenure and administration	Freehold or leasehold, title or deed registry	Competing tenure system and or absence of title: squatting, land invasions, land grabbing, subdivisions and sales	As land generally appreciates, the year-on-year growth rate of urban land is high. The cost associated with land administration and physical possession is on the increase
	Planning Standards and regulations	Compliance with floor area ration, plot coverage, site setbacks, heights, building codes	Variation in site density, design and lot coverage	The cost of obtaining planning approval has been on the increase in most urban setting. Land use charge and property tax is on the increase.
	Construction Sector	Sector with professionals, licensed contractors/workers	Self- built, or use of informal unlicensed labourers	The shortage of skilled labour is pushing construction cost upward. The unskilled labour increase cost through poor workmanship and/or incidences of rework
	Building materials	Mass produced materials with standardised quality	Variation in type and quality materials: scavenged items, traditional manufacturing techniques, some make use of manufactured materials where they can be obtained.	Generally, the unabated increase in the cost of building materials translates to higher cost of the final product

	Infrastructure	Trunk lines and utilities connection	illegal wiring, pit latrines, house hold cisterns No trunk lines,	Hidden cost of infrastructure is translated to increase in other costs of quality of housing
Demand side of housing	Formal saving accounts	Savings account deposits used for mortgage lending	Little formal savings: Reduces capital available for lending to consumers or developers	The economy wide rate of increase in interest rate has been mild but is still high to support desirable low-cost housing
	Underwriting and Verification	Assessment of income and credit worthiness to create mortgage terms	Lack of formal income and land or property title for collateral: reduces eligibility for housing subsidy programmes, raises risks profile for commercial mortgage lending	The alternative sources of funding for housing does not favour low cost housing
	Mortgage loans	Long-term loans for obtaining complete, title house	Mortgages: Most household use personal savings, micro credit, savings group and /or non-commercial sources.	The interest rates may not exert unfavourable impact on the cost of housing

Sources: Based on World Bank, (2015, p.8)

There are eight components of housing delivery characterised in the housing delivery chain. Nearly all the elements in the chain exert upward price increase on the eventual final house delivered. This clearly suggests that policy formulation that does not take this component into consideration cannot achieve the desired goal of producing and delivering low cost housing.

Low cost housing is aimed at addressing the housing need of the majority of the population that fall into the category of low-income earners. In connection with housing, Lucas (2017) listed seven challenges faced by the low-income earners:

- Access to finance;
- Delays in project completion, taking between two to five years;
- Lack of access to qualified building professionals;
- Mortgages focusing on the high-end market;
- Inconsistent quality of building materials;
- Bureaucratic building approval process; and

- • The high cost of acquiring land and its tenure issues.

It is to be observed that the author missed out the cost of building as one of the problems confronting the low-income earners. The cost of providing the houses is very fundamental and should be a first consideration as essential prognosis in the spectrum of the solutions to solving acute housing shortage. Eyakenyi (2014) opined that building a house in Nigeria is very expensive because of the high cost of building materials. She advocated drastic reduction in the cost of housing construction and other associated costs. For effective affordability, there must be drastic reduction in the cost of housing construction to vulnerable section of the citizenry (low and middle-income earners). Additionally, Garba, et al (2017) suggestted that mass housing provision and delivery in Nigeria suffer from the impact of macro and micro risks. These risks must be identified and included in the management of any strategy deployed for mass housing delivery.

The cost of adequate housing is beyond the reach of most Nigerians (Olotuah, 2012). Thus, underlines the economic dimension, that is, the question of affordability of housing. Housing belongs to the real estate market. The market is highly sensitive to the economic temperature and business cycles. The construction industry, where housing belongs operates as a lagging economic indicator responding to business cycle. In the upper end of the housing market there is hardly deficit in supply. This is because of the rate of return on the upper income end of the housing market. In an FDC report of 2017 citing one of such upper end locations in Nigeria, there was surplus that created a glut that is still resulting in lower return on investment.

IV.   Institutional Efforts and Progress in confronting the Deficit and Low-cost Housing Challenge

The deficit in housing has received the concerted efforts of several regimes of government at the Federal and state levels, private sector and other stakeholders in the real estate sector. Garba, et al (2017) reported that several studies had been carried out to confront the challenges from empirical standpoint, with the aim of providing empirical benchmarks for policy directions for arresting the deficit monster. Some of these studies included addressing the challenges of: adequacy of the housing provision (Ibem, Aduwo &Uwakonye, 2012; Ibem & Amole, 2011) quality of housing provided or being constructed (Federal Republic of Nigeria, 1991; Ibem,2012); residents' satisfaction with public housing: Fatoye & Odusami, 2009; Ibem & Amole, 2011; Ilesanmi, 2010; Jiboye, 2010; Olatubara& Fatoye, 2007), among others.

There are institutions responsible for housing development in Nigeria. The following institutions have been in the forefront of housing provision:

a. Regulators: MDAS (Ministry of Works and Housing, Federal Mortgage Banks, State Mortgage Banks/Boards, for example, Lagos State Mortgage Board, etc.);

b. Facilitators: Economic institutions (Central Bank, Commercial banks, Mortgage banks, primary mortgage banks, Finance banks, Cooperatives, etc.);

c. Organised private sectors (OPS): Real Estate Developers Association of Nigeria (REDAN), Federation of Construction Industry (FOCI), Nigerian Institute of Building (NIOB), Association of Professional Bodies of Nigeria (ABPN);

d. Enabling institutions: Research institutions (Universities and other educational institutions, Nigeria Building and Road Research Institute (NBRRI), etc.; and

e. Private sector operators

IV.1 Regulators: MDAS (Ministry of Works and Housing, Federal Mortgage Banks, State Mortgage Banks/Boards)

The regulation of housing in Nigeria is through policy pronouncements, issuance of white papers and legislation dealing with the processes in the housing delivery chain. There have been several housing policy revisions by the government. The latest is the national Housing Policy 2017. In 1991, the Federal Government launched the National Housing Policy with the target of housing for all by the year 2000. The goal was not realised. The government realised this and expressed it through a white paper on the report of the presidential committee on Urban Development and Housing.

There is growing need for low cost and affordable housing in developing economies, such as Nigeria. Consequently, the quest for appropriate solutions becomes more pressing in view of the rate of urbanisation, housing deficit and incidences of sprawling slum and attendant homelessness. With increasing population, urbanisation and rising materials cost to provide affordable housing to the citizen require re-examination of the roles of relevant institutions, the receding and unaccomplished goal post of provision of housing for all, among other pressing needs on the nations scare resources.

In 2015 a 10-member high-level delegation from Nigeria comprising officials from the Federal Ministry of Lands, Housing & Urban Development, Federal Capital Development Authority (FCDA) and Federal Mortgage Bank of Nigeria (FMBN)

visited the Asian Institute of Technology (AIT) to explore the possibility of use of AIT's innovative Habitech building as well as Naturally Acceptable and Technologically Sustainable (NATS) sanitation technology solutions for affordable housing initiative in a wide-scale community-level application in Nigeria. Till date there has not been any reported progress in the adoption of the technology.

The most recent of the Federal Government approach to combating the deluge of housing deficit is an innovative "Family Homes Fund" (see Figure 2). It is a housing initiative intended to support the development of up to 500,000 homes in five years targeted at low-income earners over the next five years. Under the scheme the buyer will contribute 10.0 per cent equity, while the Family Home Fund Limited will contribute 40.0 per cent with 5 years moratorium on interest and principal (The interest starts running at the 6th year starting from 3.5 per cent per annum). An accredited Mortgage Bank or Commercial Bank will contribute 50.0 per cent. There is a development partner responsible for the provision of land and the execution of the building development.

The affordability is still a question yet to be answered. While the fund is available, other housing variables have not been specified. The question of the cost of the project is still critical. As discussed elsewhere (section 4), the cost of land is a variable.

Figure 2: Pillars of the Federal Government Social Housing Programme (SHP)
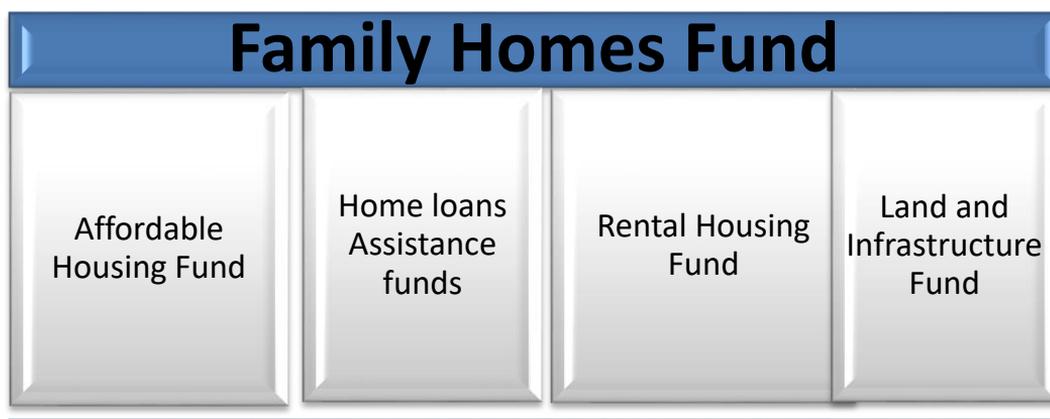
The location factor with attendant infrastructure and transportation cost are variables in the affordability equation.

As novel and promising as the Family Homes Fund appears to be, a mirage of its achievement is captured in Table 2. Less than 2000 houses had been produced

at prices ranging from ₦4 million to ₦10million for one-bedroom house to three-bedroom housing units with boys' quarter. The houses were built with conventional materials. Some already had utilities such as estate road and electricity. An average of 3.0 per cent of the houses had been taken.

It is obvious that the target of 500,000 units in five years is already a mirage going by the rate of progress indicated in this sample. Undoubtedly the momentum is bound to decrease as years come by, particularly, with the initial low rate of uptake and the attendant tying down of funds. The reasons for the low uptake are speculative but is characteristic of similar national housing programmes of past regimes. As conservative as the prices appear to be (the level of completion is not indicated), it appears it is beyond the income of the intended home buyers. The fundamental question of the cost of the project is a probable cause of the inertia. Though the intended home owners can enjoy generous mortgage rate, the 10.0 per cent equity money ranges from about four hundred thousand and one million Naira.

Table 2: FMBN Funded Estates Available for Off Takers as at 2018

STATE	Units Built	Units available	Units taken	per cent taken	1B	2 B/SD	2 B/D	3 B/D	3B&BQ
BAUCHI	153	153	0	0 per cent	On call	On call	6.2	7.7	
	250		250	100 per cent					
BORNO	100	100	0	0 per cent	4.08		7.315	9.43	
NIGER	96	87	9	9 per cent			6.5	7.2	
ENUGU	97	63	34	35 per cent	On call	On Call		9	10
OYO	100	100	0	0 per cent	4.08	7		9	
TARABA	202	202	0	0 per cent	3.2	5		7	
ABUJA	144	31	113	78 per cent		12.35			
KOGI	160	112	48	30 per cent	2.86	4		5.8	6.2
RIVERS	396	210	186	47 per cent					
ZAMFARA	220	214	6	3 per cent		3.04		4.5	
KANO	50	50	0	0 per cent	-	-	9.2	11.2	15
LAGOS			0			5.5		6.4	
Total	1968	1322.00	646.00	33 per cent	14.22	36.89	23.02	69.53	31.2
Average				3 per cent	4	6	5	6	10

Source: https://www.fmbn.gov.ng/doc/borno.html Note: 1 B means 1 bedroom flat; 2B/SD means 2 bedroom flat semidetached; 2B means 2 bedroom flat; 3 B means 3 bedroom flat and 3B&BQ means 3bedroom with Boys Quarters.

At the state level, the Lagos state government adopted the 'Rent-To-Own' policy among other innovative means of addressing the housing deficit across the State. It includes the Lagos Affordable Public Housing (LAPH) Initiative. This is

a joint venture arrangement between the State Government and the private investors aimed at constructing 20,000 housing units over a period of four years. There is also the Rental Housing Programme targeted at persons with a regular source of income but are only interested in home rental than ownership and do not have the required 5.0 per cent commitment fee for the Rent-To-Own programme.

The state, through the operations of its property development corporation (Lagos State Property and Development Corporation-LSDPC) has been very active in the provision of houses, majorly for middle to high income market, which has not reached a saturation point. The cost issue is one of the reasons why self-build thrives and peri- urban sprawling slum is characteristics of the expanding population of Lagos state.

There are other states of the Federation that provide housing through such parastatals of the government. Anecdotally, there appears to be no state of the Federation that has been able to satisfy the housing demand of the citizens. The Federal Mortgage Bank is charged with the mobilisation of funds for the provision of affordable residential houses for Nigerians. Commercial and Merchant Banks to invest 10.0 per cent of their loans and advances portfolio, while the Insurance Companies are mandated to invest 20.0 per cent of non-life and 40.0 per cent life funds in the housing sector with 50.0 per cent of these directly in the funds and the financial contributions of the Federal Government.

IV.2   Facilitators: Economic Institutions (Central Bank, Commercial Banks, Mortgage Banks, Primary Mortgage Banks, Finance Banks, Cooperatives, etc.)

Expectedly, the financial institutions led by the apex bank have been central to funding of real estate and housing. The lending rate obtainable in commercial banks has not made it a viable source of finance for housing projects, especially for the middle and low-income groups. The capital market has also not been a source of fund for the housing sector.

IV.3   Organised Private Sectors (OPS): REDAN, FOCI, NIOB, ABPN)

In the organised private sector, the following stakeholders have been operating in the housing ecosystem: the Real Estate Developers Association of Nigeria (REDAN; the Building Materials Association of Nigeria (BUMPAN), Association of Professional Bodies of Nigeria, Federation of Construction Industry (FOCI), Nigerian Institute of Building (NIOB), organisers of housing fairs such as Abuja International Housing Show, Lagos Housing Fair, among others.

REDAN's mission is "to effectively represent the members to achieve their corporate objectives and to effectively carry on their business as agents of development by ensuring public appreciation of the importance of REDAN and efforts it is making to meet the housing needs of Nigerians. Ensuring balanced national legislative, regulatory and fiscal policy to provide the enabling framework and environment for effective housing delivery." The Association claimed to have executed about 5,685 projects. REDAN also seeks to achieve positive relations with all stakeholders connected with the housing industry including organisations, producers, providers, financiers and landowners. The Association also strives to play an active role in the promotion of research and development of building materials and systems, as well as standard setting for the industry. The Federal Mortgage Bank PLC considers partnership with the association as symbiotic in the housing funding ecosystem. It is to be noted that the association has thrived more in providing high cost housing to high income and high net worth sector of the economy. REDAN also organises annual expos, the main thrust of which is to collaborate to upscale the real estate and housing sector of the Nigerian economy.

The APBN is tangential to housing. However, it has a role to play in the provision of the much-needed professional services to enhance quality of design and project management of housing project. The Expos and Fairs had been to raise awareness to the potentials of the real estate and housing sector and through this collaborate to solve the common problems. "It is a forum that brings together all real estate, mortgage, home interior, affordable housing, and construction stakeholders from public and private sector to discuss and display sector trends. Since 2005, the Show has offered real estate stakeholders an invaluable platform for networking, meeting investors and visitors who have a buying capability – face to face and sealing deals" (AIHS, 2019).

The Forum has resulted in unearthing and reinforcing some important economic realities about the Nigerian housing sector. For instance, the 2019 Abuja International Housing Show has been able to draw the attention of stakeholders in the housing sector to some Nigerian housing realities. Some of them are summarised below:

- Nigeria has one of the lowest of home ownership rates of 25.0 per cent;
- National Housing output is less than 30,000 despite the reported 17 Million housing deficit;
- No county has been able to solve the problems of affordable housing, the major factor hinged on the cost of construction;
- Disposable income, cost of land, funding and cost of materials are key to affordability;

- Low scale accessibility to funding for housing development by real estate companies; and
- Low penetration of market reach by low-income segment of the society.

The Forum noted the important roles played by the cost component of the housing parameters. However, it has not come up with the solution to the cost issue.

IV.4   Enabling Institutions: Research Institutions (Universities and Other Educational Institutions, NBRRI, etc.

Akinradewo and Adedokun (2019) suggested that the solution to housing problem is in the production of mass housing through the use of affordable local materials of which interlocking brick is one of such materials. They reported about 50.0 per cent cost reduction on walling element if local materials including interlocking brick materials, is used.

To find ways around the nagging issue of high cost of construction, researchers, as expected, have been relentless in exploring all possibilities. Olotuah, Olotuah & Olotuah (2018) reported efforts to examine the various construction materials that are readily available in abundance in Nigeria and construction techniques used in building to support housing for the urban poor. They further appraised the architectural functions and values of these materials and their potentialities as common and affordable building materials. Similarly, Gbadebo (2014) reported the researches conducted by individuals and building research institutions on alternative building materials technologies in the last 20 years. These include: a Compressed Stabilised Earth Blocks (CSEBs), Filler Slab Roofs, Containment Reinforcement for Earthquake-Resistant Masonry Structures, Lime–Pozzolana Cement, Stabilised rammed earth foundations, Stabilised rammed earth walls, Composite columns (round and hollow CSEB with reinforced concrete), Composite beams (U shape CSEB with reinforced concrete), Stabilised earth mortars and plasters, Alternative stabilisers to cement ("homeopathic" milk of lime and alum), alternative waterproofing with stabilised earth (mixes of soil, sand, cement, lime, alum and juice of a local seed (Olotuah, Olotuah & Olotuah (2018).

Saad (1992) and UNCHS (Habitat) (1992) reported that a variety of earth-based technologies is available to replace bricks and concrete blocks, but after years of researches, these technologies still remain confined to a few, often unimaginative and poorly organised demonstration projects that fail to inspire the confidence of private house builders and investors. Similarly, the Nigerian

Building and Road Research Institute (NBBRI) has been working on some local materials since its establishment. Some of the products of the Institute are Pozzolana, a Cementous material, Mardotile roofing and interlocking block making machine. The adoption of the products has largely been at small scale demonstration level. Thus, the impact of the possible contribution to reducing cost of building has not been felt at scale. Gbadebo (2014) noted that there are problems inhibiting the adoption of alternative building technologies for housing construction in Nigeria. The obstacles range included user prejudices, use of inappropriate technology, legal problems or building regulation and codes that do not recognise these materials, capital as well as unfriendly policy environment.

Some technological breakthrough for locally made materials have in several ways and forms been introduced to the real estate and housing market. Such technology as Habitech Building Technology developed by Asia Institute of Technology, Durabic promoted by Lafarge and, Hydroform- like technology promoted by Bolyn Construction are promoted but with little adoption at scale. These technologies promise reduction in cost, but in some elements or sections of the building. As observed by Oyediran (2003), it is not possible to claim to have complete local building materials. This is because the production process often involves some components which are imported and are subject to imported inflation and foreign exchange fluctuations. Consequently, by adopting such technologies, there is no guarantee of delivering housing at low cost.

As part of the effort to reduce cost components of building materials, there has been efforts within the research landscape to find alternatives. One of such is the alternative to ordinary Portland cement. It has been shown that ashes from some agricultural or other biogenic wastes when mixed with appropriate amounts of ordinary Portland cement (OPC) can be considered as low-cost. It is environmentally, more friendly binders for concrete production, than using OPC alone (Arum, Ikumapayi, & Aralepo (2013). This has the attendant sole reliance on OPC whose cost has been on the increase.

An academic research centre at the University of Lagos, the Centre for Housing and Sustainable Development (CHSD), formerly known as Centre for Housing Studies, was established to equip policy makers, law makers, housing providers and researchers with the appropriate tools for profitable, affordable housing provision. The Centre pioneers' new ways of housing provision and management, reviews current and emerging practice in the housing industry and support those who have the responsibility for proffering policies to manage the housing situation in Nigeria and Africa. The Centre coordinates researches in

housing among thirteen member African universities. Thus, research outcomes from other countries in Africa could be shared.

## IV.5 Private Sector Operators

The involvement of the private sector has been largely from the investment perspective. Organisations such as WARP development (a firm that promotes housing ownership and urbanisation) is attempting to organise Africa's urbanisation opportunities to make them attractive to large institutional investors around the world. Aziz (2019) opined that Africa can unlock US$10 trillion opportunity in housing from the advanced countries of the North. The fund can flow to the developing world where investment return is not only positive but high compared with those advanced economies where the interest rates and consequently the rates of return on investments are low. It has been advocated that investment strategies have to be structured to attract foreign investors into the housing sector.

The foregoing supports the school of thought that advocated that housing should be treated as economic good, which, subsequently, be subject to free market system. By implication, solving housing problem weighs heavily on economic side than to social side and policy should be directed to allow economic rules to lead the way.

V.   Empirical Analysis of rising Housing Cost in Nigeria

The twin problem of increasing cost of building materials and the slower rate of growth of household income show that it may be an illusion to think that housing deficit will abate. There is worsening poverty indices following the worsening economic growth the Nigerian economy is experiencing in the context of increasing population growth. The increase in housing prices is not proportionate to the rise in household incomes. Housing prices are increasing in an exponential rate as compared with people's income. This will make houses even more difficult for low- and middle-income groups to afford.

Figure 3: Trend of Prices of some selected Construction Materials
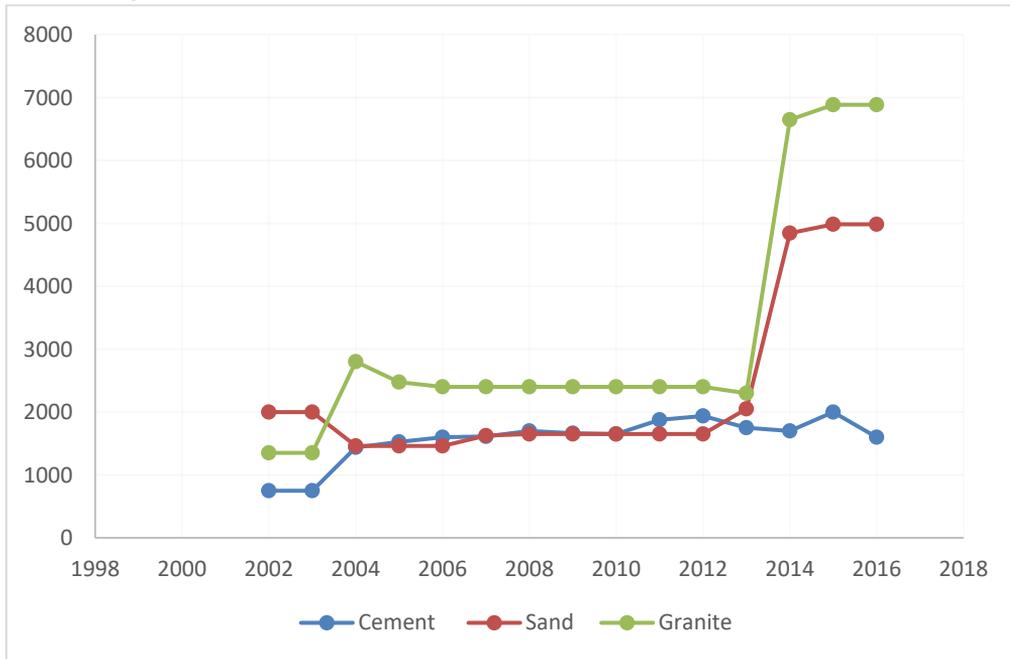
Figure 4a and b: Trend of Prices of some Selected Construction Prices
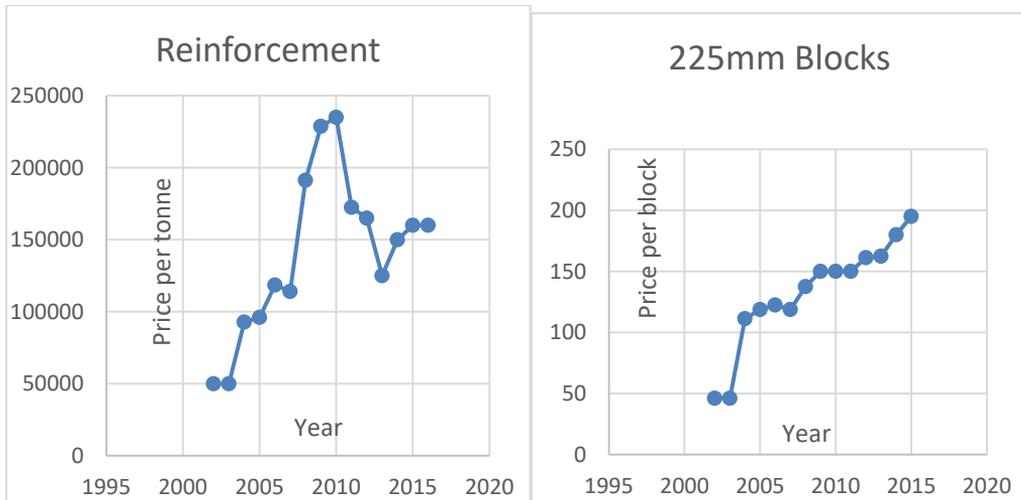

Figures 3, 4a and 4b shows the movement of prices of some selected materials that are commonly used in building construction. They are also very significant in terms of the proportional contribution to the overall cost of buildings. The average growth rate is about 13.0 per cent. This growth rate is far above the growth rate of the per capita income of Nigeria.

Figure 5: Year on Year growth rate of selected building materials (2002-2106)
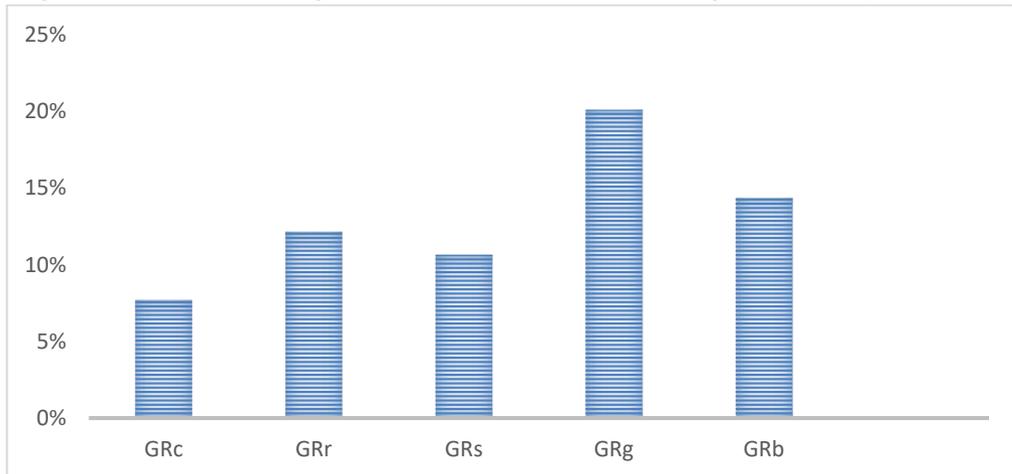
GR$_c$-Growth rate of Cement; GR$_r$– growth Rate of Reinforcement; GR$_s$-Growth rate of sand; GR$_g$- Growth rate of granite and GR$_b$- growth rate of blocks

A cursory examination of Figure 5 and Figure 6 shows the growth rates of some selected building materials and their pattern of movement. The building materials are experiencing faster and more rapid movement than the national income. The per capita income could be used as proxy for household income. The reality still holds that the household income is growing at fractions of the rate at which building rates are growing. When there were contractions in the economy the basic building input s are still experiencing expansion. This of course correlates with the economy wide inflation movement. The implication is the increasing cost of houses and the mirage that the achievement of low-cost housing is becoming.

**Figure 6: Growth Rate of GDP of Selected Sectors related to Housing**
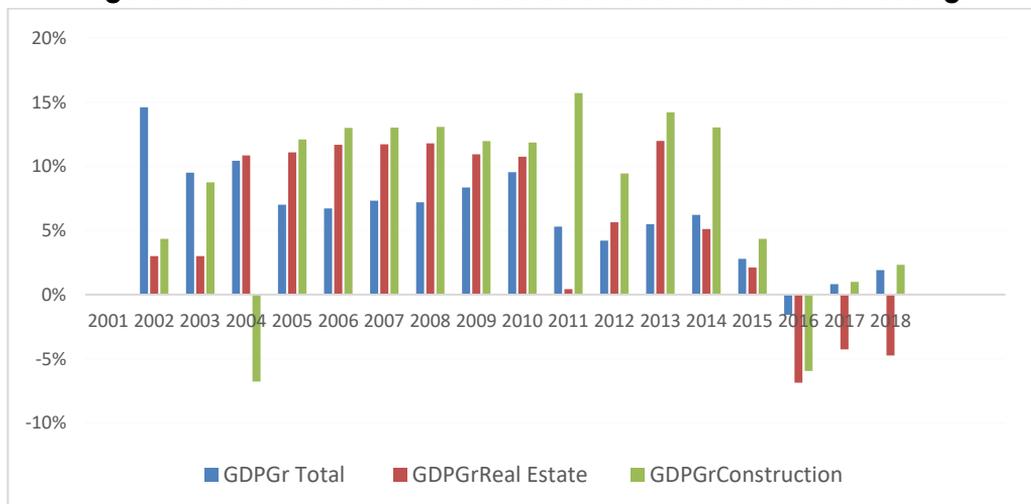
As desirable as low-cost housing is for both the low-income citizens and government and as an essential social contract with the citizens, the achievement has become more of a mirage despite the promises of politicians (Jackson, 2014), policy of technocrats and administrators and pontification of researchers. Protagonists of dry construction method, organic design, sustainable systems building, or alternative technology have made spirited efforts at hitting at the goal of low-cost housing. There is a mismatch in the solutions and the fundamental parameters that underpin the cost of the building as a product that responds to economic perturbations.

A further analysis of the rental values and sales values of some selected estates by private developers in two leading urban cities in Nigeria is shown in Table 3.0 and Figures 7 and 8.

Table 3: Comparative Rental and Sales Values of typical Housing for Low-income Dwellers

Housing Type	Rental (N: K)		Sale (N: K)	
	Abuja	Lagos	Abuja	Lagos
Studio	587,500.00	412,500.00	11,800,000.00	11,500,000.00
Mini Flat	1,160,937.50	530,000.00	23,275,000.00	16,000,000.00
2 Bedroom	1,537,500.00	700,000.00	30,750,000.00	21,132,075.47

**Figure 7: Average rental Values of typical Low-Income Houses**
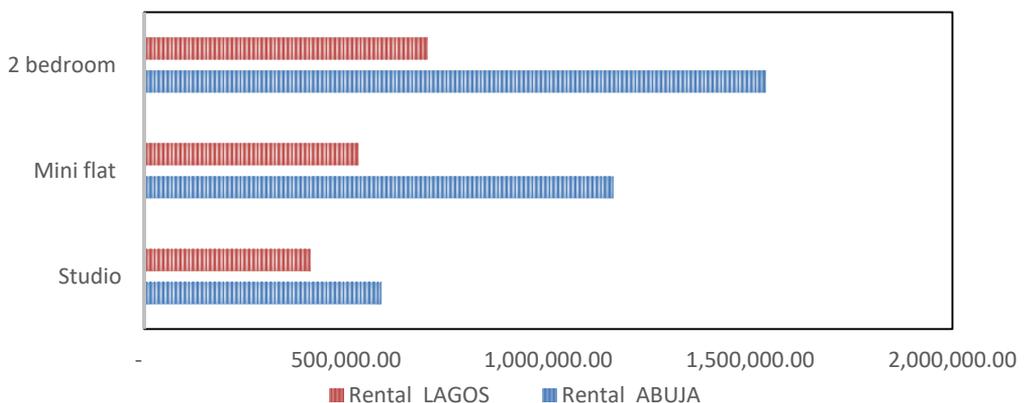
Both the rental and selling values cannot be said to be within the reach of low-income earners. These prices are not also low cost for the sizes of accommodation listed. As earlier discussed in connection with Table 2.0, the Federal Mortgage Funded houses that fall into the same categories, but probably of lower quality finishing, though lower in prices, are not what can be considered low-cost houses. Comparatively the Federal Mortgage Bank funded

houses could be said to enjoy lower funding cost than the private developers' houses. Expectedly cost of fund is bound to be reflected in the prices they are rented or sold.

Location, level or stage and quality of finishing, as well as, other transaction costs are contributory to the final cost. In all cases the costs are beyond affordability for the categories that such houses are meant to serve.

Figure 8: Average sales Values of typical Low-Income Accommodation
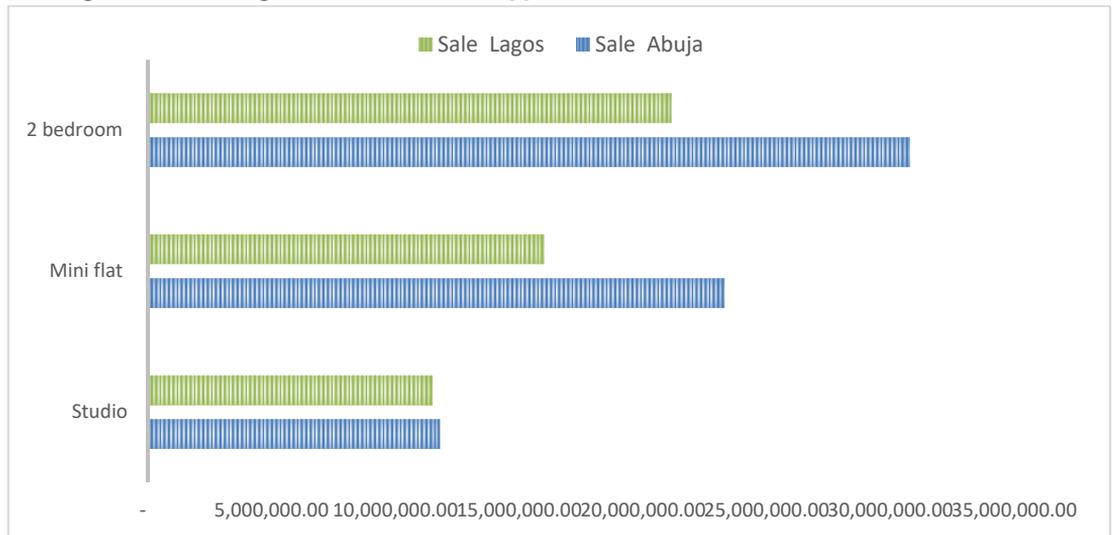
VI.   Real Sector Inclusive Approach to achieving Low-cost and Affordable Housing

Solving the problem of housing finance has been of serious concern to stakeholders. However, this may still be far from providing affordable housing especially due to the high level of informality and the sentiment attached to home ownership. Hopefully the millennials may change the sentiments attached to individual home ownership and opt for other variants of accommodation such as outright purchase and "rent-to-own". These approaches often come with multi ownership on a piece of land, a situation that not only spreads the cost of the land over many units of households but involves communality and density in urban housing ecosystem.

Fatoye and Odusanmi (2017) x-rayed some affordable housing delivery strategies to meet the housing needs of the low-income categories. These strategies included, incremental self-build (core) housing (Alagbe, 2013; Napier, 2002; Ibem, 2011); turnkey housing delivery strategy (Ibem, 2010, 2011, shell stage housing strategy (Ibem, 2010), public-private partnership; site and service

scheme (Agboola, 2005; Alagbe, 2013; UN-HABITAT and UNESCAP, 2008 and cargo (shipping) container homes (Alagbe, 2013). These strategies though for low-income housing cannot guarantee low cost housing.

Eyakenyi (2014) expressed that affordable housing delivery for the low and middle-income earners cannot be achieved without the provision of incentives to encourage private sector participation. The intervention and involvement of the organised private sector (OPS), construction materials manufacturing companies, financial institutions, funding agencies and multilateral agencies to support the drive for affordable housing delivery is not negotiable.

A private sector driven strategy supported by government institutions is hereby proposed for producing affordable housing. It is a bottom up approach that is aimed at reducing cost from the basic elements of the cost of building equation. Understandably, the cost of houses is a summation of the cost of land (including land administration and title charges), the cost of the building (materials, labour, transaction cost of procurement for both design and management) and the infrastructure. The cost of the building is usually the highest of the three. Even in urban areas where the cost of land could be astronomically high, the cost of building placed on the land is usually multiples of the cost of land and the supporting infrastructure. Thus, a strategy aimed at reducing the cost of the building is necessary to help in achieving the goal of low-cost housing delivery.

The first stage is for the intervention of the government in land provision. The land zoned into urban, peri-urban and rural categories for housing only could be made to enjoy special prices that could be affordable to low-income groups. The house types in each of the categories should also be structured and regulated to reflect the values of land in each zoned category.

The second stratum of intervention is in the disaggregated input support for the cost of the building. In this category, the cost of materials is the highest input element (Mogbo, 1999). The materials include the basic and necessary materials, the less expensive essentials and the luxury. The basic and necessary materials perform structural functions and as such form the core of the building. This core could cost as much as 40.0 per cent of the building cost, depending on the structural complexity of the building. This is the aspect most researches in alternative indigenous construction materials have concentrated (Jain and Paliwal, 2012; Makenya (1996); Madikizela, 2014; Botes, 2014). It is also the aspects that most manufacturers and distributors of building materials focus their commercial and production activities. The market is as huge as the housing deficit and a low profit margin on scale could be advanced as the contribution

of the materials manufacturing and distribution companies to the housing deficit bank.

The low-cost and affordable housing strategy starts with the reduction in the cost of materials that go into building construction. It has been established that the alternative construction materials which are local or indigenous are either costlier on the long run when life cycle costing is factored into it or they are not socially acceptable and the technology cannot be produced on a scale required to meet the ever-increasing demand for their uses (Oyediran and Alabi, 2008). Consequently, the drive to low-cost housing should not begin with locally sourced or indigenous building materials as protagonists would propose. An initiative that revolves around reducing the cost of the existing materials, both those produced in Nigeria and those imported is hereby advocated.

The initiative could be a platform for affordable home ownership club or association of building materials manufacturers and manufacturers in Nigeria (AHOC). This is an association of major construction materials manufacturer and merchants with the passion to support affordable home ownership by providing materials at highly discounted rates to registered and organised land owners and other providers of affordable homes. Such manufacturers and manufacturers of structural elements such as cement, reinforcement, roofing materials, electricals, plumbing and plumbing fittings, low end finishing materials, among others. The organised Affordable Housing Materials Manufacturers and Merchants (AH3M) or Materials Manufacturers and Merchants for Affordable Homes (3M4AHouse) operate on supplying predetermined materials at breakeven cost or at a minimum profit for a fiscally regulated tax holiday. There is a long run return to the government in the form of property tax resulting from the empowered home owners who can now pay property tax on their property. The structure operates on a network of other stake holders who come into the network. The platform for such strategy can tap into the evolving partnership structure being forged by bodies like the Real Estate Developers Association of Nigeria (REDAN), the Federal Mortgage Bank of Nigeria, the Building Materials Association of Nigeria (BUMPAN), Association of Professional Bodies of Nigeria, Federation of Construction Industry (FOCI), Nigerian Institute of Building (NIOB), among others. The Strategy promises to be the amazing occurrence or a miracle that releases the huge economic potential that underpins the production of houses at low cost especially for the underserved and informally structured low-income and/or irregular income earners. Additionally, the strategy brings together under an official platform an otherwise informal sector difficult to capture in the existing home ownership and economic landscape.

There are organisations, borne out of their business interests and or corporate social responsibilities have developed initiatives to contribute to resolving housing deficit challenges. A case in point is the Lafarge Africa's Affordable Housing initiative tagged, "Easy Home". The idea is to provide individuals with free technical expertise and demystify the idea of owning a home. The Company provides free cost estimate and designs for prospective home owners. The prospective owners are also connected with sources of finance and qualified artisans that provide the most economic cost without compromise of quality. The Initiative believes the need of the prospective home owners centres around the finance, quality of workmanship and construction process cost. The Initiative is for those who have acquired land and are ready to build. The Scheme was reported to have benefitted about 30,000 home owners in fourteen states: Lagos, Ogun, Oyo, Kwara, Ondo, Benin, Osun, Nasarawa, Niger, Cross River, Abia, Akwa Ibom, Rivers and Abuja between 2014 and 2017. While this initiative is the company's contribution towards reducing the national housing deficit, the other side of the Initiative is the huge market for its product that the deficit portends. The Initiative could have included support for housing forms and design that would minimise the traditional construction system that utilises cement in large quantities. The cement component of the initiative could also include discounting the prices of cement that participators in the Scheme use on such projects. It must be noted that by providing free quantity estimates, it is not impossible to skew the cement content.

The Easy Home initiative, which reportedly began in 2016, has impacted positively on over 30,000 persons across 14 states of the Federation. Beneficiaries of the Scheme included business people, civil servants and salary earners, who have used "Easy Home's" menu of free services to build bungalows, duplexes, self-contained apartments, shops, schools, clinics, etc. This private company initiative is capable of stimulating home ownership but its capacity to reduce cost could be further enhanced by an articulated and structured housing strategy build around 3M4AHOUSE. The sheer number of beneficiaries, and the spread across states points to the possibility of successful realisation of a structured strategy advocated in 3M4AHOUSE.

Labour cost in the production process is becoming a serious matter. Oyediran (2003) found that construction labour cost is growing at about 16.0 per cent yearly. This trend has not abated and is even worsening with the incidences of highly unskilled and depleting artisan stock. It is the reality of the time that the inflow of artisans from the neighbouring countries had shored up the shortage. The partnership framework being promoted by bodies like REDAN, NIOB, among other private sector commercial operators may not bring the cost of labour down. However, it could help to formalise the construction labour market force,

enhance quality in deliverables, and thereby improving the quality of houses built and reduce costs due to reworks and improve sustainability.

To complement the reduction in building materials that is envisaged through the 3M4AHOUSE is the massive empowerment of the informal prospective home owners with funds. Such funds tied to housing alone if and when available would create a huge demand for the 3M4AHOUSE members such that production at scale could further drive the price down. To ameliorate the funding problem, operators believe that multiple sources of funding has to be deployed to solve the housing problem. Among such is the mobilisation of up to ₦100 billion through the synergy between the government and the cooperatives schemes. Azeez and Mogaji-Allison (2016) reported the use of this source of fund for housing among cooperatives of tertiary institutions in the south west, Nigeria. The cooperatives are in an advantaged position to aggregate co-operators' equity contributions through savings schemes which could be channelled towards effectively and sustainable delivery of affordable housing to co-operators. Adewole cited the instance of India that took advantage of the pool of fund that is available in the coffers of the cooperative system to provide about 4.5million housing units in a period of ten years.

Associated with this structure of providing low cost housing is the need to deploy digital technology, particularly, Building Information Modelling (BIM) into the design and procurement process as a driver of production of materials on large scale. Components manufacture that meets the requirement of sustainability and offsite, on-the-shelf standard would require the precision and integration that BIM offers. There is a need for a paradigm shift in architectural designs that aim at designing affordable houses with functionality, sustainability and elegance that can be produced in large scale.

VII.   Summary and Conclusion

Nigeria is growing through its cities, and every day, as people flock to urban centres in search of opportunities and change, the demand for housing grows. With an annual urbanisation rate of 3.5 per cent over the past two decades. The challenge of meeting the housing need can be overwhelming more so that the cost of building houses is on the increase. Housing delivery is not reaching the scale, sustainability or affordability levels that the population pressures put on the government and the individual citizen and household. Investors, lenders and developers will miss the market if they do not consider the realities of affordability and the very real need for scale and sustainability.

The paper has also x-rayed the successive government efforts through policies and direct engagement in provision of houses. It is like dreaming of water in a vast desert. The concerted effort of institutions connected with housing provision had been analysed. The effort at developing alternative building materials had received little success. The failure at meeting the policy targets are caused significantly by the cost of the building. Building costs respond to economic temperature.

The paper believes the solution to affordable housing is in considering the fundamentals of cost reduction by involving the primary participators in the chain. An initiative that involves building materials manufacturers and merchants whereby the cost of materials for prospective home owners and developers for home occupiers are provided at a discount is proposed. The benefit to the manufacturers and merchants is in form of tax holidays and increased capacity utilisation resulting from economies of scale and increased turnover. The government reaps the fruit of differed tax through property tax on empowered home owners and resulting economic growth. The synergy is explosive and could dramatically unleash the potential of the huge housing deficit with minimal foreign direct investment. This approach requires effective and sound fiscal policy decisions, inclusive reorientation of the stakeholders and synergy of operators in the ecosystem of the Nigerian housing market.

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