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Database Housing: A Tool For Sustainable Housing Provision/ Development

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Abstract: ***Spontaneous settlement has been a major problem for third world cities since the 1940s. The need to develop a database system that will keep a handy record of the various housing provision programmes and policies adopted in Nigerian for urban and rural dwellers since the independence of Nigeria becomes pertinent. This data base if and when established can be used by policy makers to determine the most cost-effective option for housing delivery programme. This study investigates the significance of housing database as a suitable device for sustainable housing provision in Nigeria. Using questionnaire and observation schedule as data collection instruments, the data for this descriptive quantitative research was obtained and analysed using statistical tables, graphs and percentages. The result shows that Nigeria's wide housing deficit margin can be reduce through proper and regular collection of available housing stock and correlating same with the growing trend in urbanization both in the rural and urban settlements, a holistic housing database can also help housing policy makers and developers understand the effectiveness of housing demands. Proactive measures should be embarked on by the relevant housing authorities to develop a holistic housing database that will serve as a reference point for subsequent and future housing provision programmes.***

Keyword: Database, sustainable housing provision

I. INTRODUCTION

In recent past research has proven that the housing needs in Nigeria is geometrically on the increase as evident in different urban centres across the country, most particularly the low-income populace (Omojinmi, 2000; Olanrewaju, 2001; Olotuah 2002; Olotuah and Aiyetan, 2006). The unconstrained urbanization in numerous state of the nation incident by increased rural-urban movement patterns. These however, has prompted the emergence of settlements that are not appropriately recorded or enrolled with designated housing authorities. But even amidst this lack of proper housing stock records, the provision of adequate low income houses for low salary earners is still a huge challenge to different levels of governments in Nigeria on the grounds that the low-income workers constitute a significant majority of the nation's populace (Olotuah, 2015). As indicated by Federal government of Nigeria records of 2004, 60% of Nigerians are adjudge to be houseless and this figure is on the expansion every year.

Successive administrations in Nigeria since independence have highlighted diverse housing provision programmes or plan (Akeju, 2007). But unfortunately, after more than 55 years of its independence, Nigeria still can't satisfactorily account for the number and types of houses within its geographical area. This slip has to a large extent aggravated the housing issues in Nigeria in that, absence of precise record of existing housing stock to meet the increasing urban populace needs will prompt blind housing provision plans and this to a large extent has been the trend in Nigeria. This research work looks to accentuate the significance of housing

database as a suitable device for sustainable housing provision in Nigeria.

II. LITERATURE REVIEW

THE CONCEPT OF HOUSING

Housing is among the essential necessities of man, (Celestine et al, 2013) as it is a fundamental prerequisite for human livelihood. Olotua and Taiwo, (2015) considers housing to be a vital requirement for decent living. It is likewise a indicator of a man's way of life and of his or her status in the general public, (Morakinyo et al, 2015). As indicated by Ebie, (2009), housing ought to be considered as a right for all, due to its significance and the part it plays in the life of a society and its inhabitants. The right to access better protected and clean housing accommodation at moderate costs or rental with secure residency cuts across all categories of individuals that make up the general populace including the physically challenged, the old, the less privileged, and even the psychotics, (Celestine et al, 2013). unfortunately, quantitative housing provision in Nigeria has missed the mark regarding this general interest; since housing approaches and policies created by successive governments in Nigeria have not yielded the required impact to salvage the growing housing needs, (Agbo, 2012). For example, the national housing plan between 1975 and 1980 planned to deliver 202,000 housing units to the public achieved only 28,500 units, representing 14.1%. Also, out of 200,000 housing units planned to be delivered between 1981 and 1985, only 47,200 (23.6%) was constructed, (Funmilayo, 2013). Awareness campaign for the provision of decent habitable housing units at an affordable rate by world leaders had formed one of the major issues discussed in some global summits such as, 2014 United Nations Habitat summit at Istanbul, the 2000 New York, United Nations Millennium Development Goals (MDGS) summit, 2002 World Summit in Johannesburg and the 2005 La Havana, UN manageable Cities Documentation of Experience Program (Oladunjoye, 2005; UN-Habitat, 2007; UNDPI, 2008), they examined the requirement for developing habitable houses at reasonable rates for all particularly the low income earners who formed majority of the universes' populace. In a related move the united nations Statistical Commission at its thirty-eighth session, in 2007, considered the draft principles and suggestions for housing censuses. This principles stresses on the requirement for consistent housing statistics in order to create a housing database that will serve as a reference to developers and policy makers in the housing sector of each country.

SUSTAINABLE HOUSING

Sustainable suggests keeping up or keeping up something in a predefined position but because of its limitless use in different fields, for example, sustainable agriculture, sustainable environment, sustainable system and so on, various relevant application and definitions is ascribed to the word. Summer, (2007) in his meaning of Sustainable alluded to it as the capacity of something to proceed for quite a while. The United Nations Inter regional Seminar in 1975 characterizes housing as enveloping all the subordinate administrations and group offices which are important for human well-being. Additionally, the national development objectives perceive housing as a noteworthy investment sector which could make a critical commitment to the financial development of a state. Sustainable housing arrangement requires legitimate assessment of housing needs, and the cooperation of the end users to guarantee their satisfaction, since the general objective of sustainable development is to meet the key needs of the world's masses while guaranteeing that future eras have sufficient assets base to meet theirs. Basically, Sustainable housing refers to ceaseless housing development drive, to contain the present housing needs of the populace as well as take care of the housing needs of future generations. It is a procedure that requires ceaseless interest from all partners (government, private, open, and cooperatives social orders and so on.) in housing development and delivery exercises.

HOUSING NEEDS IN NIGERIA

The level of lack in Nigeria has made it difficult for most people to possess houses of their own. It is estimated that around 30 percent of the populaces with the most minimal earnings don't have adequate assets to command and effective demand in the formal housing market, Adedeji et al (2012). The housing sector assumes a more significant role in the nation's welfare as it specifically influences the well-being of the citizenry, as well as the performance of different segments of the economy. In acknowledgment of this, the Nigerian government has throughout the years started approaches and projects to address the housing challenges, yet with little/no triumph. Akeju, (2007) expressed that somewhere around 1973 and 2006, the Federal Housing Authority (FHA) built only 30,000 housing units across the country rather than meeting the country's housing deficiency evaluated to be 12million to 14 million housing units as at 2005, (Adejumo, 2008: Oluwaluyi, 2008); and is now set above 18 million housing units (Onwuemenyi, 2008).

According to Morakinyo et al, 2015 the housing stock in Nigeria as at 1991, was estimated at 15.2million dwelling units and more than 70% was in tenement rooms (called face-me-I-face-you), Unfortunately, there is no recent data available on the number of dwelling units in Nigeria despite the recent revolutionary steps taken to improve housing delivery in Nigeria. Although, Funmilayo, (2013) projected the housing stock in Nigeria to be 23 per 1000 inhabitant, it is pertinent, to revisit the housing database programme because an analysis of the available stock of housing dwelling units will give housing policy makers and developers an understanding of the effectiveness of housing demands/needs i.e. demand backed with means of affordability, (Morakinyo et al, 2015).

HOUSING DATABASE

Database according to Robert (1995) in his book titled "database essentials" is any collection of related information or a tenacious legitimately intelligible gathering of naturally

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significant information, applicable to some part of this present world. While Marek (2007) considers it to be an organized gathering of records. The database management system which is a collection of records of projects that empower users to make and keep up a database (Robert, 1995) can be said to carry out the following functions: 1. Oversees extensive measure of information, 2. Underpins productive access to huge measure of information, 3. Supports simultaneous access to information, and 4. Supports secure, nuclear access to stored information. As for the above definitions, the idea of housing database can be pronounced as a gathering of existing housing unit records for easy- to-read and steady documentation. The gathering is generally in view of some delineated criteria which fits in with the objective of such study. For instance, Ganju et al (2006), recommended the following as criteria for surveying housing stock:

- ✓ Accessibility of required spaces for the family's exercises.
- ✓ The nature of the house as a private spot for family expression.
- ✓ The role of the house in symbolizing character and pride.
- ✓ Simplicity of maintaining the house.
- ✓ Accessibility of spaces around the house for gathering association.
- ✓ Design and quality of vehicular and pedestrian circulation.
- ✓ Availability and location of communal facilities
- ✓ Waste Management and quality of water supply
- ✓ Security outfits
- ✓ The Cost of the building: the question to be asked here is, 'do the design decisions made allow the housing to remain affordable within the intended resident's carrying capacity'

An example of housing database record by UN-Habitat on Nigeria is as shown below

	Urban	Urban	Rural	Rural	Total	Total
Maisonnette	%	Units	%	Units	%	Units
Duplex	2	67	0	12	1	79
Detached Bungalow	3	101	0	-	1	101
Semi-detached	10	337	20	2289	17	2627
Flat	12	67	1	60	1	127
Room	15	506	0	-	3	506
Others	65	2194	77	9200	74	11393
Total	3	101	2	287	3	388
	100	3,375	100	11,848	100	15,221

Source: UN – HABITAT, 2002

Table 1: Estimated Housing Stock, by dwelling types in Nigeria (1991)

IMPORTANCE OF HOUSING DATABASE

The improvement of a functional housing database system in Nigeria will be helpful to both policymakers and researchers. It will help stakeholders in the housing industry and housing policy makers to survey what sorts of approach or activity will yield productive housing delivery. It will likewise give a top to bottom learning on the genuine housing needs of the diverse strata of the general public. It will give housing authorities a more extensive perspective on the impacts of housing credit and housing costs. It will likewise bolster analysts who wish to survey the adequacy of adopted approach to impact essential housing markets. For instance, Kuttner and Shim (2013) utilize such stored information, together with changes in policy rates and financial policy measures, to break down the impacts of monetary approaches or measures on housing credit and housing costs.

III. RESEARCH METHODS

This study is focused on projecting the culture of developing an annual or biennial housing database as a viable tool for sustainable housing delivery in Nigeria. Faitima gold estate Mararaba in Karu local government area of Nassarawa state was adopted as the study area and 126 housing unit was adopted as the sample size. The characteristics of the houses inside the study area were established. Also, respondents' satisfaction level on their present housing units were sort and analysed, the strategy for property procurement and security inside the estate was ascertained. The data collected were analysed using statistical frequency tables, charts and percentages. Housing qualities were studied under four unique groups namely:

- ✓ Indoor facilities in housing units
- ✓ outdoor facilities in housing units
- ✓ Nature of facilities in housing units
- ✓ Nature of estate facilities and services.

126 housing units which represents 50% of housing units in the phase 1 of the housing estates were studied. The housing estates was built using prototype designs. Primary data collection was through the use of field observation and a structured questionnaire. The information produced from the questionnaire included the physical characteristics of the housing (type of housing units, mode of acquisition, number of bedrooms, materials used for roof, ceiling, floor, windows, wall and fascia borad, finishes, and other ancillary facilities within the estate. Each housing unit was represented by one respondent, who was required to be the head of the household, and a legal adult as at the time of the survey.

THE STUDY AREA

NASSARAWA STATE

Situated in the North Central part and offering a typical fringe to the Federal Capital Territory (FCT), Nasarawa State is one of the 36 States of Nigeria. Created in 1996 by during Gen. Abacha's regime; it has an aggregate area zone of 27,290km2 and a population of more than two million individuals (2006 National Census) spread across 13 local government areas. It is transcendently rustic with farming as its fundamental financial base. Its closeness to Nigeria's Capital Territory and City of Abuja has a considerable measure of effect on its people and landscape. See figure1 beneath for the political map of Nassarawa state.

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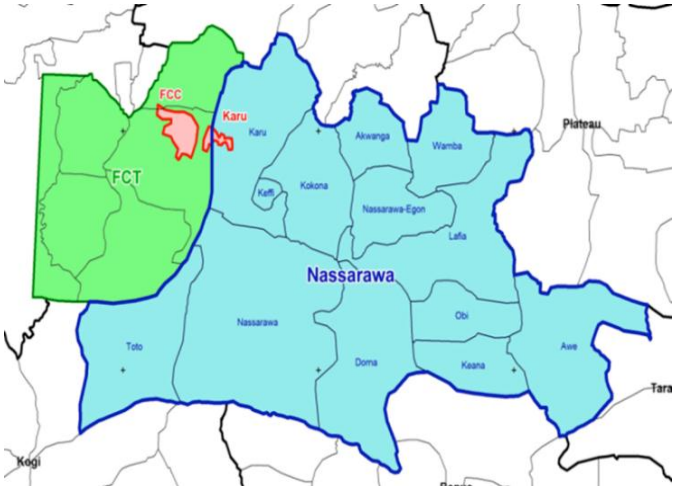
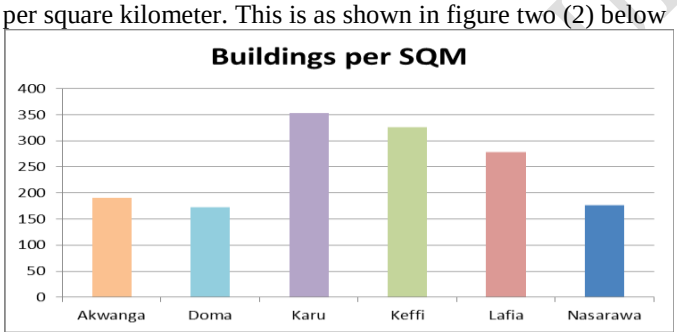


(Source: NAGIS, 2012)

Figure1: Political Map of Nassarawa State

IV. KARU LOCAL GOVERNMENT AREA

Karu Local Government Area is among the populous LGA's of the state with an estimated population growth rate of 4.7% (Envicoms Team, 2014) because of its nearness to federal capital territory, Abuja and different commercial activities carried out within its geographical area. The towns that make up Karu LGA are Mararaba, Ado, New Nyanya, Masaka and Auta-ba-lefi. All these areas have been slated for urban renewal programme because of the unplanned nature of the settlements. A recent survey carried out by Nassarawa state geographical information system (NAGIS) shows that Karu local government has the highest number of buildings per square kilometer. This is as shown in figure two (2) below



Source: Nassarawa Geographic Information Service (NAGIS), 2014

Figure 2: Preliminary Result of the Building Count (per sqm) from Orthophoto 10cm of Six Townships derived

V. FATIMA GOLD ESTATE

The increasing population rate in Karu local government area and the investment opportunity presented by the increasing demand for habitable space by the populace led to the development of FATIMA GOLD ESTATE in the year 2005, the estate stands as one of the foremost housing estate in the LGA with 400 housing units on a 23.19 hectares' land. The development was divided into phase 1 and phase 2. Phase 1 has 252 housing units while phase 2 has 148 housing units the. The estate is privately owned and managed by peter Okolo and company. The whole housing unit was developed and sold to potential buyers (owner – occupied) except for the primary school within the estate which was developed by the occupants. The type of housing finance used by occupants to secure the housing units or properties include Direct purchase 20%, Cooperative society 10%, Mortgage (Aso Savings, Stallion Savings 70%. The Category of housing units within the estate and their quantity are as shown in table 2. Also figure

Infrastructures/facilities within the estate: Tarred estate roads, security fence, police post, primary school, football pitch, children play ground, clinic

VIEWS OF FATIMA GOLD ESTATE

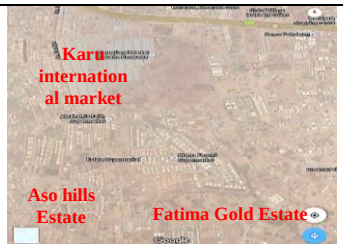


Plate 1: Fatima Gold Estate Neighbouring facilities

Plate 2: Fatima Gold Layout from Google Map

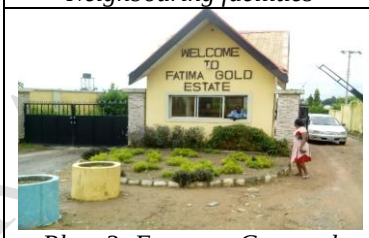


Plate 3: Entrance Gate and security post

Plate 4: Tarred Estate Road

Plate 5: Windows and doors

Plate 6: 4 bedroom Duplex

Plate 7: Water Source

Plate 8: Power source

Plate 9: 3- detached bedrooms bungalow

Plate 10: 2 bedrooms semi-bungalow

Plate 11: Unfenced housing units

Plate 12: waste collection Can

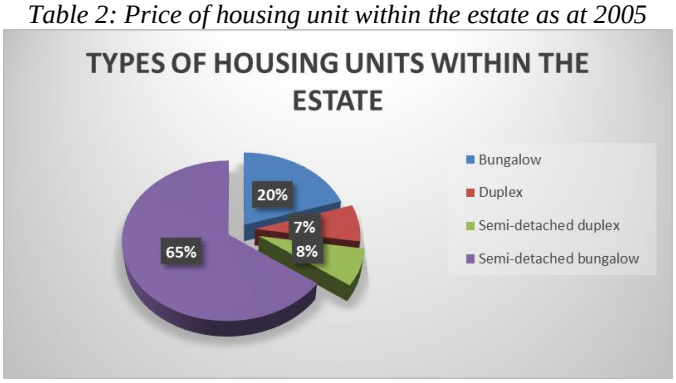
Plate 13: Unfinished housing unit

Plate 14: Uninhabited street in the estate

S/NO	HOUSING TYPE	QTY	No of habitable bedroom	Unit PRICE as at 2005
1.	1 Bedroom semi-detached bungalow	100	1	N2.95m
2.	2 Bedroom semi-detached bungalow	80	2	N3.95m
3.	3 Bedroom detached bungalow	70	3	N4.95m
4.	3 Bedroom detached bungalow with B/Q	50	3	N5.20m
5.	3 Bedroom semi-detached Duplex	30	3	N14.00m
6.	4 Bedroom detached duplex with BQ	70	4	N28.00m
	Total	**400**		

Source: Author's field survey 2016

Table 2: Price of housing unit within the estate as at 2005



Source: Authors field survey, 2016

Figure 3: Types of Housing Unit in The Housing Estate

From figure 3 above it is evident that the housing estate was developed with clear consideration of low income earners because of the high number of units assigned to semi-detached houses of 65% bungalow and 8% of duplex and it also encourages communal living by integrating different salary grade of occupants.

Number of persons per room	Frequency	Percentage
One	96	76.19 %
Two	20	15.87 %
Three	10	7.94 %
Four and above	0	0.00 %
Total	126	100%

Source: Authors field survey, 2016

Table 4: Number of persons per room in the housing units' survey

From the respondent's submission as indicated in table 4 above 76.19% of the habitable bedrooms in the sampled housing units is been occupied by one person while 15.87% is been occupied by two persons and 7.94% is occupied by three persons. It is generally observed that the estate is majorly occupied by small family size.

Rating	Frequency	Percentage
Good	46	36.51%
Fair	66	52.38%
Poor	14	11.11%
Total	126	100%

Source: Author's field survey, 2016

Table 5: Respondents Assessment of their current dwelling spaces

Table 5 shows the result of respondent's assessment of their present housing units based on the size of spaces and facility or infrastructure available. 52.38% of the sampled housing units had fair rating; 36.51% had good rating while 11.11% were poorly rated. From the aforementioned result it could be deduced that the occupants are not satisfied with their present dwelling unit and would have gone for something better.

S/NO	FACILITY	FREQUENCY	PERCENTAGE
A	**Source of water supply**		
	Deep well (with pumping machine)	15	8.72%
	Borehole	86	50.00%
	Pipe borne water supply	0	0%
	Shallow well	30	17.44%
	Water tanker supply	42	24.41%
	Total	**172**	**100%**
B	**Electric power supply**		
	Public mains (PHCN)	126	48.84%
	Solar panel	17	6.59%
	Generator	115	44.57%
	Total	**258**	**100%**
C	**Location of toilets and bathroom**		
	Within the house	126	100%
	Outside the house	0	0%
	Total	**126**	**100%**
D	**Location of kitchen**		
	Within the house	126	100%
	Outside the house	0	0%
	Total	**126**	**100%**
E	**Waste disposal**		

Collected	87	69.05%
Buried by household	6	4.76%
Public approved dump site	0	0%
Unapproved dump site	0	0%
Burnt by house hold	33	26.19%
Others (specify)	0	0%
Total	**126**	**100%**

Source: Author's field survey, 2016

Table 6: Housing Facility assessment

For a residential estate to be regarded as standard it should be able to accommodate a considerable population size, accompanied by provision of facilities services and maintenance of its qualities (Akindele, 2014). In the light of the above, some facilities within Fatima gold estate was assessed. Most of this essential facilities were made available by the developer except for water and alternative source of electric power supply. Since the estate is owner-occupied payment for most of the services are made by the residents. For example, payment for waste disposal, electricity, and water supplies are effected by the residents. From table 7 above it is evident that there is no source of public water supply (pipe borne water, 0%) within the estate; alternative source of power is still widely used in the estate (51.16%) and residents are not allowed to indiscriminately dispose waste within the estate (unapproved dump sites, 0%).

	Housing element	Frequency	Percentage
A	***Wall***		
	Burnt Bricks	0	0%
	Concrete blocks	126	100%
	Wood	0	0%
	Composite panels	0	0%
	Total	126	100%
B	***Roof***		
	zinc	0	0%
	Aluminum	126	100%
	Asbestos	0	0%
	Metro tiles	0	0%
C	***Window***		
	Steel	0	0%
	Wood	0	0%
	Aluminum	126	100%
D	***Floor finish***		
	Sand screed	0	0%
	tiles	126	100%
	Concrete slab	0	0%
	Terrazzo	0	0%
E	***Fascia board***		
	Polystyrene	0	0%
	Wood	126	100%
	Aluminum	0	0%
	concrete	0	0%
F	**Door**		
	Steel	126	100%
	Aluminum	0	0%
	Wood	0	0%

Source: Author's Field survey, 2016

Table 7: Housing elements assessment

From table 7, it was observed that the housing estate was built with contemporary building materials and the design likewise is contemporary. Although most of the residents were of the opinion that some of the materials used should have been substituted with a more durable one. For example, the wooden fascia boards should have been substituted with concrete fascia or the polystyrene panels.

PREFERENCE	YES	NO	TOTAL
Do you like large bedrooms?	72 (57.14%)	54 (42.86%)	126
Do you like large living rooms	89 (70.63%)	37 (29.36%)	126
Do you like large toilet space	91 (72.22%)	35 (27.78%)	126
Do you like well-equipped and large kitchen space	106 (84.13%)	20 (15.87%)	126
Do you like large store area	87 (69.05%)	39 (30.95%)	126
Do you need a study area	58 (46.03%)	68 (53.97%)	126
Do you need a ramp	36 (28.57%)	90 (71.43%)	126
Do you like the position of your door	76 (60.32%)	50 (39.68%)	126
Do you like high roof buildings	86 (68.25%)	40 (31.75%)	126
Do you like low roof buildings	40 (31.75%)	86 (68.25%)	126
Do you need a private garden space	112 (88.89%)	14 (11.11%)	126
Do you like leisure facilities to be included in the garden space	101(80.16%)	25 (19.94%)	126
Do you need a parking space on plot	126 (100%)	0 (0%)	126
Do you need alternative source of power supply	126 (100%)	0 (0%)	126

Sources: Author's Field survey, 2016

Table 8: Respondent's Housing preference

The result from table 8 shows that respondents prefer large bedroom (57.14%), large living rooms (70.63%), large toile sizes (72.22%), well equipped kitchen (84.13%), large store areas (69.05%), position of the door in the housing unit (60.32%), high roof (68.25%), private gardens space (88.89%), and 100% of the respondents need alternative source of power supply and parking spaces. 53.97% of the respondents said they don't need study area as they hardly have time for studies.

VI. DEDUCTIONS

From the study conducted, it is evident that Fatima gold estate was designed for the low income earners going by the type and quantity of houses within the estate. The houses are contemporary, built with conventional building materials and technology. The residents are generally fairly satisfied with the housing conditions with the estate and would prefer a larger and better livable spaces.

VII. RECOMMENDATIONS

For effective housing delivery and supply that will meet the growing housing need and preference (desired); the researcher here below suggests the following way out:

- ✓ An easy-to-access and ready housing database should be developed by all level of government i.e. federal, state and local governments.
- ✓ There should be an inclusive housing provision approach whereby potential user's opinion(s) is sort and considered in the design/planning stage.
- ✓ Identifying and getting land for affordable housing should be made easier and documented.
- ✓ Improving open familiarity with creative model groups and housing shapes to easy identification and assessment most especially in mass housing programmes.
- ✓ Infill guidelines for existing neighborhoods to encourage the safeguarding of housing stock and the development of affordable housing.
- ✓ Adjustments to designing and provision principles that would lessen costs for the developing of affordable housing should be developed and enforced.
- ✓ Fee waivers or exceptions should be given for affordable housing developments to meet the objectives of mass housing plan consistent with other fee approaches.
- ✓ The culture of documentation should be developed and maintained in the housing sector.

VIII. CONCLUSION

The provision of housing has for long has been seen as a government concern and the Federal Government has tried in different ways to tackle the nation's housing problems. The synthesis of government activities reveals that recent years, a series of constructive programme and far reaching actions were taken by the government to combat the housing problem. However, it is a fact that the housing problem is far from being solved, and this can be attributed to challenges of poor housing stock record keeping by the authorities concerned. The consideration of developing a potential annual or biennial housing database is therefore recommended to help achieve a sustainable housing delivery in Nigeria. This data base as earlier discussed in this study will be vital in future housing policies and plans. A good knowledge of the housing needs, preference, demand rate by the citizenry will be useful guide for effective housing supply or delivery by the stakeholders concerned.

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