# An Analysis of Existing Housing Stock in Selected Neighbourhoods in Port Harcourt Municipality

Ibisiki T. Godwill, O. B. Owei, and Ibama Brown

### **ABSTRACT**

The housing stock in Port Harcourt municipality has over the years experienced incremental deterioration from neglect to change of use, paucity of funds and sometimes misappropriation of resources. The study assessed existing housing stock within Port Harcourt municipality with the objective to ascertain the physical condition of the housing stock in some planned and unplanned neighbourhoods in Orije layout-Orominike (D/Line), Port Harcourt Township and Diobu (Mile1 and Mile 2) and some waterfront settlements. Twenty-five (25) communities were identified from the entire study area. Some indicators such as habitable space, physical condition, availability of basic social infrastructure and services and environmental quality of the housing unit were measured. The sample was drawn purposively as 4 distinct neighbourhoods were studied. A multi-stage sampling technique was deployed, Taro Yamane formula was applied to determine the sample size of 156, as the number of questionnaires to be administered and stratified simple random sampling technique was employed to select respondents with household 5 persons per household of which 148 questionnaires were retrieved. Data from the field were analysed using Statistical Package for Social Sciences (SPSS), aimed at comparing the nature of substandard housing found across the neighbourhoods studied. The result indicates that the housing stock in the indigenous enclaves within the Diobu neighbourhood has a high occupancy ratio and lacked basic public utilities and services in addition to houses being constructed with substandard materials. Residents often experience periodic flooding after rainfalls. The study recommends that to further improve the standard of housing conditions in line with the global UN standards, the provision of basic social infrastructural services alongside periodic and consistent urban renewal processes should be constantly carried out to reduce the housing deficit within the municipality.

**Keywords:** Housing, Occupancy ratio, Population, Urban renewal.

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## I. INTRODUCTION

Housing is of fundamental importance to everyone [23]. Next to food and clothing, the concept of housing as shelter is considered a human basic need. Housing means different things to different people based on differences in perception [23]. The World Health Organization (WHO) defined housing as, "the residential environment which includes in addition to the physical structure that man uses for shelter, all necessary services, facilities, equipment and devices needed or desired for the physical, mental and social well-being of the family and individual". A house that is primarily used for residential purposes is sometimes referred to as a dwelling unit [24]. Therefore, housing is not only in terms of dwelling but also a place where economic activities take place especially in the case of housewives [23].

In the same vein, the Nigerian Urban and Regional Planning Law [26] describes a dwelling house as a building erected or converted for use primarily to provide living accommodation for one or more persons. Cities are currently home to nearly half of the world's population and over the next 30 years, most of the 2 billion-plus persons increase in global population is expected to occur in urban areas in the developing world [22]. Today, almost 400 cities contain a million people or more and about 70% are found in the developing world, Nigeria inclusive [22]. By 2007, for the first time, more people were living in cities and towns than were living in rural areas and by 2017, the developing world is likely to have become more urban in character than rural [29]. The urban crisis in Nigeria is not only manifest in the acute shortage of housing units which has resulted in overcrowding, high rents, and slum settlements [3]. General observation shows that housing quality especially in high density areas in Port Harcourt is poor. [37] the issue of substandard housing needs attention especially considering rapid population growth and urbanization in Port Harcourt Municipality.

#### A. Description of Study Area

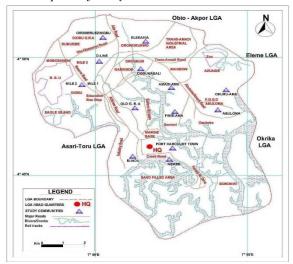


Fig. 1. Map Showing the Study Area. Source: GIS Lab, URP Dept, [23]

TABLE I: LISTING OF IDENTIFIED COMMUNITIES IN THE STUDY

Area							
S/No.	Sampled Communities	1991 Population	2020 Population (Projected Using 6.5% Growth Rate)				
1	Nkpolu Oroworukwo	52,613	326,764				
2	Mgbundungwu	55,682	345,824				
3	Otumuonyo	44,183	274,407				
4	Oromerezimgbu	6,595	40,960				
5	Oromenike	21,377	132.766				
6	Rumuoparaeli	14,133	87,776				
7	NkpoluOrogbum	3,423	21,259				
8	Ochiri	6,072	37,711				
9	Elekahia	15,302	95,036				
10	Ogbunabali	15,014	93,247				
11	Orije Old GRA	6,482	40,258				
12	PH Township	12,369	76,820				
13	Bundu	16,266	101,023				
14	Nembe S/front	71,388	443,369				
15	Nkpogu	20,402	126,711				
16	Amadi-Ama	7,034	43,686				
17	Ukukalama	691	4,392				
18	Somiari-Ama	1,296	8,049				
19	Fimie-Ama	1,250	7,763				
20	Ozuboko	4,484	27,849				
21	Borikiri	39,214	243,546				
22	IshmaelOrupabo	945	5,869				
23	Abuloma	10,454	64,927				
24	Okuru-Ama	5,603	34,799				
25	Azuabie-Ama	8,127	50,474				
	Total	440,399	2,735,186				

Source: NPC, 1991: Researcher's Fieldwork, 2020.

Port Harcourt is an integral part of the sub-areas of the Niger Delta, covering an area of 75,000 km<sup>2</sup> and occupies about 60% of the 800 km of Nigerian coastline located in the southsouth of Nigeria. The city however lies within latitude 4°54 and 4°56 North and 6°54 and longitude 6°59 east of the equator and on an elevation of 1.00 m - 3.00 m above sea level [7]. Port Harcourt metropolis comprising of Port Harcourt City and Obio/Akpor Local Government Areas, and bounded to the North by Ikwere, Etche and Omurna; East by Oyigbo, Tai, and Eleme, Parts of which are in the metropolis; west by Emuoha; and South by Okrika and Degema Local Government Areas.

The city area is 664sqkm with a metropolitan area of 934 km<sup>2</sup> that is linked to the outside world by land, sea, and air [1]. The city has gone through series of changes and transformation throughout these years that have taken place is unprecedented in all areas of development in roads, housing, power supply and population growth which prompted the need for infrastructural facilities.

#### II. METHODOLOGY

#### A. Method

Data collation was carried out and analytical techniques were used to analyze the data that were collected for the study. This section also includes the following: conceptual model of the study, research design, population and sample, sampling, instrumentation and data collection, analytical techniques for data analysis and validity and reliability of data. The research design framework involved survey, analysis, and interpretation of data.

#### B. Population and Sample

This aspect involved identifying the target population and sampling techniques that were appropriate for the study. A sample is a group of individuals in the population who actually will participate in the study. The target population for the study includes:

Residents of the study area concerning substandard housing and what determines this housing quality in the study area such as housing condition and rating, land tenure, access to basic facilities and services, economic status of residents and housing services.

The research work also involved the procedure and technique of sampling that prompted the choice of the respondents from the study area.

#### C. Sampling Technique

The study covered Port Harcourt Municipality and the population of the study area is 440,399 persons as of 1991 population census [19] and is projected to the year (2020) which is 2,735,186 (for the study communities) persons using Exponential Growth Model formula with 6.5% growth rate. However, the study used NPC population results of 1991 for the study, as the 2006 population report did not break down the population results into communities.

### D. Sampling Method

#### Stage 1: Selection of Communities

The 1991 population census listed 25 communities within Port Harcourt City Local Government Area (Port Harcourt Municipality). This is contained in (Table I), however, 50% coverage from the total communities existing i.e., 3 communities were selected using stratified sampling technique to sample the communities. These were the communities covered in the primary data collection. This is contained in table 2 stratification is based on the nature of the settlements and the population density as contained in table 1.

#### Stage II: Selection of Households Size

Using an average household size of 5 persons per household (National Bureau of Statistics for Urban Centers, 2020), for Port Harcourt, the number of households was derived. The sample size of 156 was determined using the Taro Yamane formula that was distributed across the 13 communities covered by the study. The households were selected randomly in the community.

#### Stage III: Selection of Respondents

In each building or housing, a household was identified, and an adult member of the household was interviewed. At the first stage, the study identified twenty-five (25) communities as contained in the 1991 Population National Census that are in the study area and these communities were listed with their population figure. At the second stage, the selected number of household heads (respondents) were interviewed which was the primary unit of sampling. A stratified sampling technique was used to select 50% of the communities since the communities do not have the same characteristics. The communities were found to be planned neighbourhoods. From the thirteen (13) selected communities, The Taro Yamane formula was employed to determine the sample size of the study area. Thus, from the sample size, the simple random technique was employed to select the respondents (households) that were sampled.

#### E. The Exponential Growth Model

The formula for Exponential Growth Model used for the projection is represented as thus:

$$P_n = P_o (1 + r)^n$$

where:

 $P_a$  = Base Population;

1 = Constant;

r = Growth Rate (6.5%);

n = Number of year(s) to project the population (29 years: 1991-2020).

Port Harcourt Municipality

 $Pn = (1+6.5\%)^{29}$ 

 $= 244,816 (1+0.065)^{29}$ 

 $= 244,816 (1.065)^{29}$ 

= 244,816 (6.211)

= 1,520,479 populations for the study area.

#### F. Sample Size

To achieve the sample size of the population to administer questionnaires in the study area, the Taro Yamane formula was employed. The sample size for the study is 156 obtained from the total households of the selected communities for sample in the study area (see Table II). This implies that 160 questionnaires were administered randomly to the household heads (respondents) of the selected communities in the study area. Taro Yamane's formula is explained below and how the sample size was obtained:

Yamane Formula:

$$n = \frac{N}{1 + N(e)^2}$$

where:

n = sample size;

1 = constant:

N =Population Size;

e = Sampling error (5%) = 0.0025.

Furthermore, in obtaining the number of questionnaires administered in the selected communities in the study area, the proportion of the questionnaires in each of the communities determined from the number of households.

TABLE II: DETERMINATION OF SAMPLE SIZE FOR THE STUDY								
Strata	Sampled Communities (Planned Neighbourhoods)	1991 Population	2020 Population (Projected Using 6.5% Growth Rate)	No. of Households (HH)	No. of Population Sampled			
1.	Orije Old GRA	6,482	40,256	8,051	10			
2.	Oromenike (D/Line)	21,377	132,766	26,553	35			
3.	PH Township Mgbundugwu (Mile 1/Mile 2)	12,369 55,682	76,820 345,824	15,364 69,165	20 91			
	,		Total		156			

#### III. RESULT

## A. Standard Housing

Classification of housing stock; the following attributes constitutes standard housing in the study area across the neighbourhoods ranging from the physical condition of houses, materials used for buildings, availability of basic facilities, method of refuse and sewage for disposal, sharing and not sharing facilities as well as occupancy ration.

All of these determine the standardness or the substandardness of housing. The responses of the respondents from the field survey retrieved were 387:

- 1) For the physical condition of roof 71.83% of housing stocks were in good condition across the neighbourhoods.
- 2) 33.07% of housing stock were having good wall without cracks.
- 3) For the floor conditions 67.44% of housing stocks were screed and 14.72% were not damaged.

- 4) 71.83% for ceiling condition of the housing stock were in good shape, while 30.75% of housing stocks were having burglary proof in the houses for security and safety.
- 5) The study revealed that 97.93% of housing stocks were having electrical fittings and 22.58% and 76.49% of housing stock were surface and conduct wiring type for electricity supply. While 92.76% of housing stocks were having windows.

#### B. Result on Materials Used

For roofing materials that were used 53.75% corrugated iron sheets and 41.86% for aluminium roofing sheets. Similarly, 87.5% of housing stock used concrete for wall building structurally.

For floor materials, 59.43% used tiles, 18.34% used concrete and 19.89% used the rug as others from the housing stock in the study area. The study showed that 23.26% of housing stock used steel doors, 8.53% used a bullet proof door as 65.37% that used wooden materials for doors from the study area across the neighbourhoods.

Sources of Water Supply: 28.68% of housing stocks have privately drilled boreholes as a means of water supply. In the same vein, 42.11% of housing stock has plumbing facilities in the houses as against 57.89% that do not have. Then, 40.57% of housing stock from the study area; have water available as basic facilities in bother bathroom and kitchen.

Waste Disposal: From the housing stock, 43.40% of the respondents disposed of refuse with the aid of government collection agents – personnel, while 55.30% of the housing stock disposed sewage into the septic tank.

Facilities Shared: From the study carried out so far, 46.77% of the housing stock have private toilet used by each household as part of the basic facility, 70.28% owned private kitchen and 53.23% also owned private bathroom.

Occupancy Ratio: 8.53% of the housing stock from the study showed only one person per room.

Classification of housing stock in the study area across the neighbourhood into:

The study revealed that the following attributes of the housing stock in the study area constitute sub-standardness:

- 1) For roofing condition, 20.16% were leaking while 1.55% and 6.4% were both destroyed and dilapidated that need repair.
- 2) For ceiling condition, 20.16% were leaking, 1.55% were destroyed that need major repair and 6.46% were dilapidated that need minor repair.
- 3) On the cracked nature of walls, the study recorded 33.07% of housing stock that was cracked.
- 4) The physical condition of the floor from the study showed that 2.54% of the housing stock are damaged, 13.00% need repair and 2.32% were made with earth that need a major repair.
- 5) While 69.25% of the housing stock do not have burglary proof. Thus, this negates the official Canadian Government Standard (2005) on housing standard for safety against crime.
- 6) Similarly, 2.07% of housing stock from the study area showed that there was no electricity connected to the house as part of the physical condition of houses.
- 7) 7.23% of the housing stock from the study area was without a window as part of physical condition.

#### C. Result on the Materials Used

From the study carried out 0.25% and 0.78% of the housing stock used thatched and plastic was used as roofing materials for buildings.

5.68% of the housing stock used wood for the building of walls, while 4.42% were for bricks, 0.26% for curtain, 0.26% for mud and 0.78% zinc were all used for wall building.

#### IV. DISCUSSION OF RESULT

#### A. Ways of Improving Substandard Housing

The outcome from the study indicates that some respondents opined ways of improving housing quality across the neighbourhoods, for low-cost housing was 41.4% in the planned, 37.3% in the indigenous and 65.4% for the waterfront. For sites and services, 14.5% opted for planned settlements, while 5.9% opted for indigenous enclaves and 25.6% went for the waterfront settlements. For the building materials, 15.1% of respondents in the planned neighbourhoods, 12.7% of respondents in the indigenous enclaves and 6.0% of the residents in the waterfront settlements indicated that there should be an improvement in the materials used to build the housing units. Also, 28.9% of respondents in the planned neighbourhood, 44.1% of respondents in the indigenous enclaves and 3.0% of the waterfront neighbourhoods suggest that housing finance loans should be provided to enable residents to access those and build up standard housing in their domains. The study further revealed that most of the respondents suggested a lowincome mass housing scheme by the government authority concerned.

#### V. CONCLUSION

According to United Nation Sustainable Development Goal Eleven (11) (Sustainable Urban Development and Cities), the world is becoming increasingly urbanized. Since 2007, more than half the world's population has been living in cities and that shore is projected to rise to 60 per cent by 2030. Rapid urbanization is resulting in a growing number of slums, dwellers, inadequate and overburdened infrastructure, and services such as waste collection and water sanitation systems, roads and transport worsening, air pollution and unplanned urban sprawl. Half of humanity 3.5m people lives in cities today and 5b people are projected to live in cities by 2020, while 95 per cent of urban expansion in the next decades will take place in the developing world.

From the study, it can be concluded that 1.3% - 4.6% were high income earners. The study showed that those in high income bracket were very few across the neighbourhood, there were more people fall within the low socio-economic status in the waterfronts than other neighbourhoods.

Based on the study, most residents across the neighbourhoods were not owners' occupiers of housing, they mostly lived in rented apartments. Due to the pressure on the demand for housing, landlords had frequently increased the cost of house rent on yearly basis. Over 3-4 persons occupy one room in the waterfront settlements, in some indigenous enclaves, 2-3 persons per room in some indigenous enclaves Amadi-Ama, Okuru-Ama and some planned neighbourhoods while 1-2 persons occupy one room in few planned neighbourhoods such as G.R.A and D/Line. This resulted in overcrowding as the occupancy ratio of 1 person per room is exceeded particularly in the indigenous enclaves and waterfront neighbourhoods. The physical condition of housing in the study were generally not in a good state, as most houses were built over 20-30 years ago without proper maintenance, dwelling units across the neighbourhoods required major repair and renovations.

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