Determination of Residents' Priorities of Basic Infrastructural Needs in Okpoko Urban Slum Settlement, Anambra State, Nigeria

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Abstract
One of the most visible and disturbing characteristics of most urban areas in Nigeria is the decline of infrastructure base. Okpoko is one of those Nigeria urban cities facing a lot of decay with lack of basic infrastructural facilities and public utilities. Various effort have been made by World Bank, Federal, State and Local government development agencies to improve the slummy nature of this area, all have virtually proved unsuccessful. Okpoko still lacks almost all the basic services and public infrastructure for a better living. There is a critical knowledge gap of determining and prioritizing the basic infrastructural and urban services needs of Okpoko urban slum settlement base on the perception of the residents. This study therefore is aimed at determining residents' basic infrastructural and urban services needs priorities in Okpoko urban slum settlement. The study adopted the survey research design. The research gathered data from a survey involving 362 household heads from a sample frame of 34,987 households. Employing a questionnaire method. Principal component analysis and relative importance index were subsequently employed to scrutinize the gathered information. The outcomes revealed that the seven most demanding and pressing needs of Okpoko community in terms of infrastructural facilities and basic services in other of the most priority, from the most preferred were - Residential upgrading needs, institutional needs, health needs, security/safety needs, transportation/circulation, environmental/physical needs and recreational needs. This revelation underscores the pivotal infrastructural needs of Okpoko community and calls for methodical urban planning and new project development in the area. The study established infrastructural needs where government or non-governmental or donor agencies' interventions are most needed for robust and sustainable urban renewal program in Nigerian cities

Keywords: *Infrastructure, Slum, Needs, Services, Basic, Cities*

1. INTRODUCTION

City as the production of diverse social civilization plays a major role not only in the form of habitat, but also the engine-rooms of human development during the urban age United Nations Habitat, 2012 (UN-Habitat, 2012). As the consensus of sustainable development, the role of cities to human society has attracted continuous attention last few decades around the world. On the perspective of UN-Habitat, almost two-thirds inhabitants of developing world will have become urban population by 2050. The demographic transformation of urban areas pressures the governments and organizations to cover the detects to improve the urban status. A study by the United Nations Center for Human Settlement (UN-Habitat, 2010) stated that nearly half of world's people now live in cities and more than one billion of the world's city residents live in inadequate or deficient housing simply because of rapid urbanization. According to UN-HABITAT (2006), only two African cities exceeding one million inhabitants in 1950. The number of such large cities reached nine in 1975 accommodating a combined population of about 19 million people. From 1975 to 2005 African cities exceeding one million rapidly increased to 43 with a combined population of 110+ million people. By 2015, there will be 59, home to more than 169 million individuals. Whereas, small and medium-sized cities now take in most of Africa's current overall urban population increases, large cities continue to grow as well. They will accommodate more and more people in absolute terms and will be of larger average size (Yoade et al., 2013). The urban poor are faced with daily challenges which include: limited access to employment opportunities and income, inadequate and insecure housing and services, violent and unhealthy environments, little or no social protection mechanisms, and limited access to adequate health and education opportunities (UN-Habitat 2003; Adjei et al, 2013). These conditions is are pointers to a dynamic condition of vulnerability or susceptibility to risks. The situation is even more pathetic in developing countries of South-Asia and Sub-Sahara Africa where poverty reduction has been uneven as these countries lagged behind in achieving the Millennium Development Goal (United Nations, 2015: Garcia et al, 2019).
The world's population is rapidly urbanizing (United Nations Center for Human Settlement, 2016). The signs are inescapable. In the early 1800s, roughly three per cent of the world's population lived in cities. One of the most visible and disturbing characteristics of urban areas in Nigeria is the decline of infrastructure base. Aribigbola (2008) stated that "as urban populations grow, and as available resources decline, public infrastructure is being degraded to the point where cities are seriously losing their capacity to operate as productive entities". The growth of towns and cities in Nigeria urban area and metropolitan areas has risen, with diverse planning problems such as waste management, pollution, slum, shanty towns, housing availability, poverty and several others as described by Ibem et al. (2011) on the challenges in public housing provision in Nigeria. The need for proper management of these problems and creating sustainable solutions to solving them is of necessity.

Okpoko is facing a lot of decay which lack of basic infrastructural facilities and public utilities are among. For example, open space which is a major facility in an urban area is not provided, the few places that were mapped out for an open space is used as a refuse dump. Okpoko, which currently has experiencing some levels of urbanisation across Anambra State, has continuously experienced environmental degradation, infrastructural and urban decay, flooding, environmental

pollution and poor waste management systems. The increased number of aged buildings in the area has also increased the demand for urban renewal. Moreover, the infrastructure gap between urban populace and the environment has continued to widen. In Okpoko, there are numerous roads with potholes and littered streets with garbage which hampers traffic flow. Lack of drainage system makes the roads impassable after a heavy rain floods. The stagnant water in the pot holes become breeding grounds for mosquitoes which cause malaria. They also contaminate pipe borne water through leaking joints, exposing the area to serious health hazards like cholera, typhoid fever, dysentery and other water borne diseases. Because of all these, the health of the inhabitants of the study areas is endangered. therefore, it calls for a revision of the existing planning practice to take into account the growth in the area, and the consequent increase in the demand for urban infrastructural services, proper articulation and implementation of planning policies and programmes to address future influx of people in the study areas.

Past efforts by the World Bank to better this area led to the introduction some roads into the slum,. The World Bank undertook an Okpoko slum-upgrading project in 1981, jointly with Onitsha Local Government and Anambra State Government [Arimah, 2011, UN-Habitat, 2012, Onweluzo, 2002]. The project was described as a huge failure, and the conditions that necessitated it have since worsened, despite the good intentions of government to improve the living conditions of residents in the slums through these programmes. Furthermore, the Urban and Regional Development Department of the Federal Ministry of Power, Works and Housing claimed that it has concluded the collation of baseline data for some selected slum areas within the six geo-political zones; and completed Slum Identification and Needs Assessment Survey for selected settlements in Nigeria including Okpoko Layout, Onitsha -Anambra State (Federal Government of Nigeria, 2017). Unfortunately, while some slum improvement programmes are currently going on in some of these settlements, it is not the same for Okpoko settlement. The State Town Planning department in the Ministry of Works framed a development scheme for Okpoko in 1976 and presently, Okpoko has no donor-funded projects, but a few NGOs, including church organisations, are currently engaged in social development in the area, particularly with the large number of widows. The Okpoko Community Development Union has also worked within the community to make it liveable [UN-Habitat, 2009; UN-Habitat, 2012]. Unfortunately, all these efforts have left the study area a squalor. Although efforts are being made by the current government of Governor Soludo to improve Okpoko due to the increasing environmental threat that a larger ratio of the urban populace are exposed to - storm surges, flooding and heavy rainfall. Yet, the community still has all the features and disadvantages of a slum community. The living condition of Okpoko residents are worrisome. This scenario therefore prompted more questions than answers regarding the priority public infrastructure and service needs of the residents of Okpoko. From the foregoing, it is obvious that Okpoko as an urban slum settlement lacks almost all the basic services and public infrastructure for a better living. Despite the misplaced government priorities and policies including the so called social services programmes, the question is then on what the most critical infrastructure and basic urban services requirements for Okpoko urban slum are? Since there is dearth of information in this area and the area is characteristically referred to as a place for urban poor, the ability to determine and prioritize these needs will be a starting point to solving the problems of inadequate basic urban services and inadequate infrastructures in Okpoko slum. This

bottom top urban renewal strategy supports the findings of the UN-Habitat studies that posited that the goal of slum improvement can only be achieved through the concerted efforts of all involved stakeholders and the engagement of the concerned communities and the better understanding of the urban poverty problem by the general public. UN-Habitat [UN-Habitat, 2014].

Consequently, there is a critical knowledge gap of determining and prioritising the basic infrastructural and urban services needs of Okpoko urban slum settlement based on the perception of the residents. Most of the failed efforts could be attributed to this lacuna. Therefore, the present research aimed to determine residents' basic infrastructural and urban services needs priorities in Okpoko urban slum settlement, Anambra State, southeast Nigeria. This study intends to evolve appropriate policy design and intervention strategy that will serve as the basis for achieving sustainable urban renewal agenda in the area. The study pursued one basic objective; to prioritized the basic services and infrastructural needs of Okpoko community based on the perceptions of the residents. The study is valuable in revealing the critical basic infrastructural and urban services needs of a typical slum as instrumental to devising appropriate intervention programmes and addressing urban poverty sustainable urbanization as well as contributing to the sustainability of the built environment in Nigeria and other developing countries in sub-Saharan Africa. In addition, this research makes a contribution to the burgeoning international literature on the subject from the perspective of a developing country in sub-Saharan Africa.

2. CASE STUDY

The study area is Okpoko. Okpoko layout is situated in a flat swampy land at the south of Onitsha urban, Anambra State. It is located in the southeastern geopolitical region of Nigeria. The geographivcal location of this study area is presented in figure 1, figure 2 and figure 3. Okpoko is located between $06^0\ 09^0$N and $06^0\ 47^0$E latitude and between longitude $07^0\ 26^0$ E and $07^0\ 37^0$ E. The layout is bounded on the North by Asaba-Onitsha-Enugu highway; on the East is the Onitsha-Owerri express Way and a thick forest that extends to the Idemili River to the South. The Western part of the layout is bounded by the Atani road. This layout which covers a total area of 300 hectares of land has part of it sloping into River Niger. Generally, Onitsha is situated on the East bank of the River Niger. It is located in a narrow basin between the Nkisi River the North and the Idemili River the South on the land which slopes gently down to the Niger flood plain.

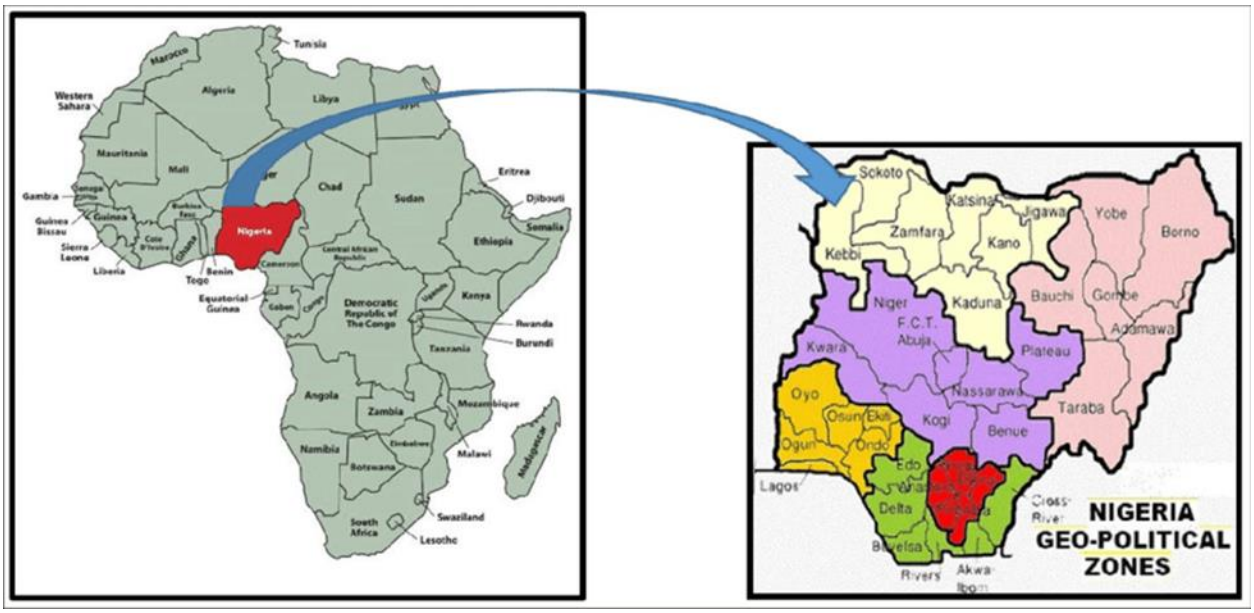

Figure 1. Map of Africa showing Nigeria.

Source: https://maps-nigeria.com/. Accessed on 19 October, 2022

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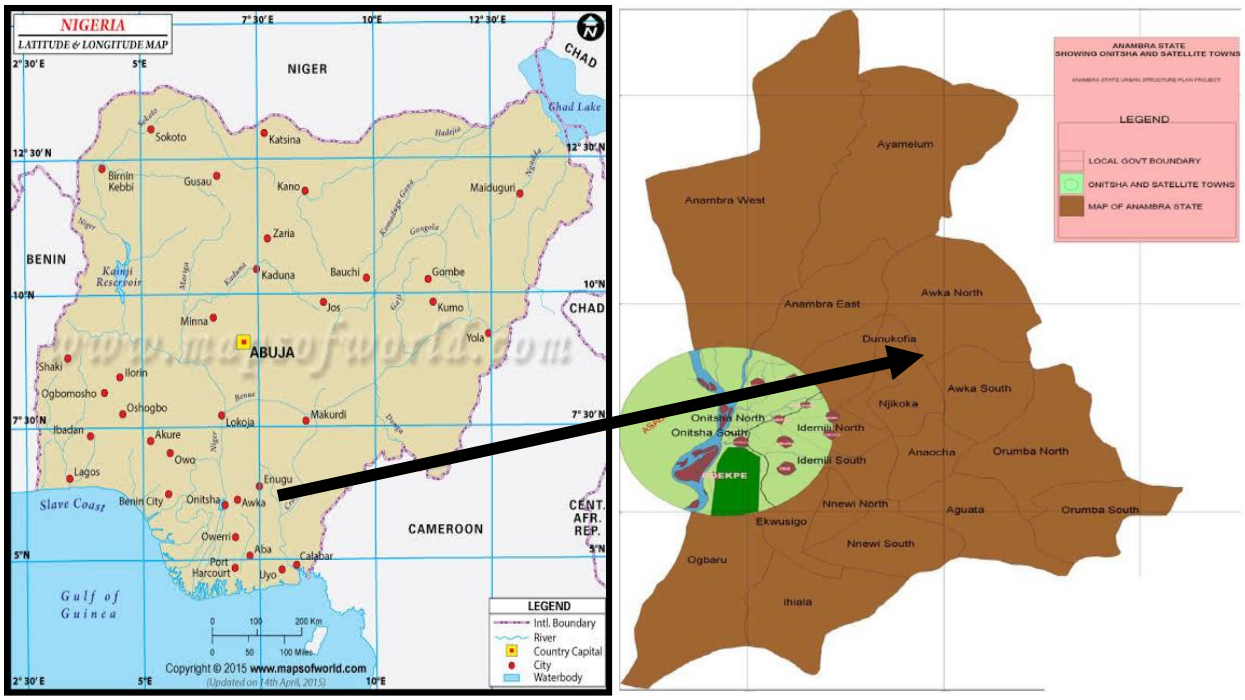

Figure 2. Map of Nigeria showing Anambra State and Okpoko the study area
Source: Ministry of Lands Survey, Anambra State, 2022.

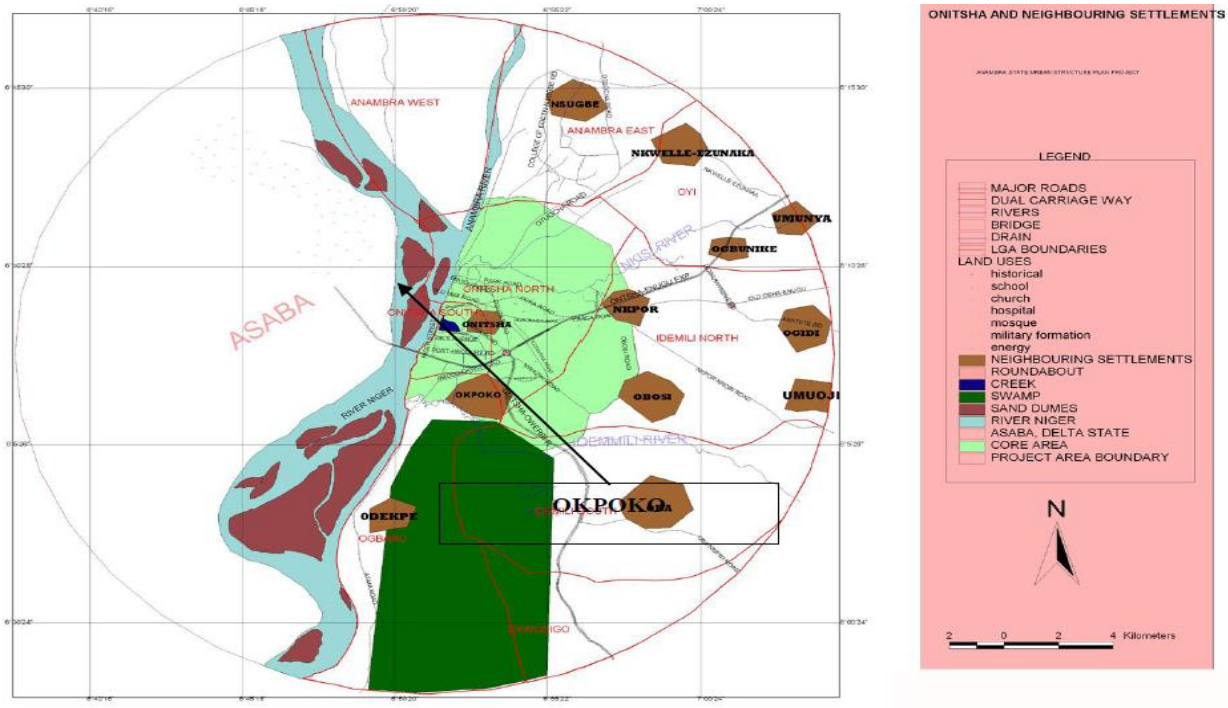

Figure 3: Map of Onitsha Metropolis showing Okpoko Community,
Source: UN-Habitat, 2009

Lying immediately at the outskirt of Onitsha, Okpoko is the largest suburban slum covering an area of 291.967 hectares. Okpoko's population grew very fast from 31,000 in 1978 to 105,127 in 1991, 121,343 in 1996 and to 128,417 in 1998 (UN Habitat, 2006). The population here has been on the increase and it is one of the most densely populated slums in the country, attracting as much as 44,000 people per ha in 1998. Growing by the same trend it would have reached 140,000 by 2008 using graphical projection (UN Habitat, 2006). According to the UN-Habitat (2009) the population of Okpoko averagely grows at 2.83% growth rate. This growth rate was also recommended by National Population Commission for Anambra State and used by the Anambra State Bureau of Statistics (2012 and 2011) and UN-Habitat (2009) for population projections in the state. Therefore, in 2023, Okpoko population would have increased exponentially based on this growth trend. Thus, the population of Okpoko slum settlement in 2023 was estimated approximately to be 253,277. The study area lies within the tropical wet climate zone with clear-cut wet and dry seasons. The wet season last from mid March to mid November with a short dry spell mostly in the month of August. The dry season lasts from mid – November to mid – March and the harmattan winds from the Sahara occur during this period. Surveys of housing conditions have indicated qualitative and quantitative deficiencies in residential accommodation in major towns and cities in Nigeria. The housing quality and value in the area is very low due to low quality materials used for construction, the inadequate technology, as well as poor planning standard of housing handling of the building components. Okpoko is characterised by low cost buildings and the residents rely on untreated water with about 27.1% of them using wells and 46.9% relying on boreholes. She further stated that residential neighbourhoods are substandard and deteriorated revealed that about 67.5% of the residents dump their refuse in the open air thereby causing more health hazards. Notwithstanding, the more recently erected buildings in the area tend to be more habitable than the ones built much earlier. The level of technology of buildings construction in the area is yet to catch on with the modern age.

3. RESEARCH METHODS

3.1 Research design and Study Population

The research design adopted in the study is a cross-sectional survey. The choice of this research design was due to the objective of the study and the nature of the subject matter being investigated. Besides this, the survey method affords the respondents time to articulate their answers adequately as previously. In addition, the survey research design, according to Cooper and Schindler (2006), is considered the best method to understand the preferences of a large population. The research population comprised the household heads in Okpoko community that has lived up to 5 years. However, the sampling frame comprised 34,987 households found in the study area.

3.2 Sample size determination

Out of the Out of the 34,987 households estimated in Okpoko community, a minimum sample size of 399 was determined for the study using the Yamane (1967) formula sample size determination formula.

$$n = \frac{N}{1 + N(e^2)} \quad \text{---------- Equation 1}$$

Where n is the minimum sample size for the sample, N is the population size of 34,987 households as obtained from the sample frame and *e* is the precision level which is 0.05 significance level at a 95% confidence level. Therefore, the minimum sample size was determined as 399.

3.3 Data collection instrument and variables investigated

Structured questionnaire was used for the collection of primary data from the heads of the selected households or their representatives. Only respondent adults within the age bracket of 25 years and above were considered. The questionnaire comprised of two parts. The first part consisted of the personal data of respondents. This demographic information includes the respondents' sex, age, marital status, education level, occupation, period of residence and position in the household. The second part was composed of structured and unstructured questions. The structured or closed questions were meant to tailor the respondents to specific answers that addressed the research questions and hypotheses. The unstructured or open questions were designed to give further elucidation on the structured questions and to inform the drawing of inferences on this study. The questions in this part of the questionnaire have responses that were either open in ranking scale or closed choices. A 4-point Likert scale responses was used to ascertain the prioritizing of the 21 identified perceived basic services and infrastructure needs of slum settlements. These needs were also ascertained from the literature and included in the questionnaire in the study area. Responses seeking degrees of importance were posed to respondents', namely: extremely important (4), important (3), unimportant (2) and extremely unimportant (1). The choice of this 4-point Likert scale instead of the normal 3 or 5-point scale was to ensure that participants gave definite answers and avoided fake answers. (Clinton and Thwala 2012). The questionnaire was first of all tested with few randomly selected residents in the settlement before administering it to the sampled residents in settlement. This was done in order to assess the level of comprehension of the contents of the questionnaires by the respondents and make minor changes in the grammar to avoid ambiguity of any sort.

Since the current study aimed to prioritize the perceived basic services and infrastructure needs of slum settlements by the residents, 21 identified basic services and infrastructure needs of slum settlements were identified from the review of the literature and presented in Table 1. They were included in the questionnaire as the possible residents basic services and infrastructure needs in the study area.

Table 1: 21 Variables used to investigate residents' basic services and infrastructure needs

X1	school
X2	hospital
X3	road rehabilitation
X4	pedestrian road
X5	street light
X6	Market
X7	parking lots
X8	pharmaceuticals corner stores

X9	Landscaping
X10	waste collecting truck
X11	fire service
X12	flood control
X13	parks/organized open spaces
X14	improved drainage
X15	police posts
X16	House rehabilitation
X17	House affordability
X18	electricity
X19	local security outfit - vigilante
X20	sporting centre
X21	relaxation sports

Source: Literature and pilot survey, 2023

3.4 Data collection and analysis

The survey was conducted using the multi-stage sampling technique as well as the simple random sampling techniques. However, a multi-stage sampling technique was employed in choosing the desired samples (number of households). In this case, samples are selected in stages (i.e. selecting the buildings to be studied first and then the households). Firstly, simple random sampling was used in selecting the buildings, and secondly, a systematic sampling technique was used in choosing the households from the 16 identified streets in the study area. In this case, samples were obtained by selecting one unit on a random basis and choosing additional elementary units at evenly spaced intervals or natural sequence until the desired number of units was obtained. Since each building in the study area accommodates approximately 6 households (Onweluzo, 2017), The 4th building is usually chosen from each stream, unless where the household head is not up to 25 years or has not lived up to 5 years in the settlement, then the nest building was chosen. Three households were systematically selected from each chosen building. In all, a total of 399 households were selected and studied. The survey was conducted by the researcher and employed research assistants. This questionnaire was administered in English language. The research assistants were engaged in the counting and administration of the questionnaires in each of the settlement and helped to interpret the content of the questionnaire to the very few household heads who were not able to read and write. They also aided in taking pictures in the settlement. The administration and retrieval of copies of the questionnaire were done on weekdays and on weekends. This is in line with the methods adopted by Lak et al. (2020). The questionnaire was administered face-to-face to ensure that sampling across the respondents represented different gender, educational and occupational backgrounds. Out of the 399 copies of questionnaires administered to household head, 362 copies, representing 90.5% response rate were retrieved and included in the analysis

To establish the reliability of the instrument, two trial questionnaire administrations was carried out in order to spot possible errors before their mass production. On collection, the odd-even Product Moment Correlation statistics was used to consider the level of consistency of responses. The co-efficient index was calculated and the score obtained. The result of the correlation coefficient was 0.59. This result was further subjected to Spearman-Brown Step-up formula (rw) and this gave an rw value of 0.74. This value is statistically high as the correlation coefficients of instrument which fall within the range of 0.60 to 0.79 are interpreted as being highly reliable

The data were analyzed using simple descriptive statistics - frequency and percentage distributions, Principal Component Analysis (PCA) - a variant of factor analysis, Relative Importance Index (RII) and multiple linear regression. However, before subjecting the data to PCA, the dataset was subjected to the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test and Bartlett's Test of Sphericity. The results revealed that the KMO Measure of Sampling Adequacy was 0.868 which is greater than the recommended minimum value of 0.6 and the Bartlett's Test of Sphericity is significant at 0.001.This result implies that the sampling for the study is adequate and the result of the PCA was robust and reliable. The results are presented using texts and tables.

The PCA was used to determine the dimensions of the residents' priorities of the basic services and infrastructural needs in Okpoko community. It was used to compress 21 primary variables which were the identified perceived basic services and infrastructure needs of slum settlements by the residents. These factors were obtained through reviewed literatures and pilot survey. In the same vain, the Relative Importance Index (RII) was used to rank the importance of each of the identified basic infrastructural need. Recall that the responses were weighed according to- degrees of importance as posed to the respondents, namely: extremely important (4), important (3), unimportant (2) and extremely unimportant (1). The summation of weight value (SWV) for each need is obtained from the addition of the product of weight value of each rating and the number of responses to each rating. The RII is finally obtained by dividing MWV by the total respondents that rated each project. Data processing and analysis for this study were performed using the Statistical Products and Services Solutions (SPSS) 22 for windows for statistical analysis of the quantitative data.

4 RESULTS

4.1 Basic services and infrastructural needs

Table 2 shows the level and ranking of the perceived importance of the basic infrastructures and services in Okpoko slum settlement. The essence of this is to appreciate the import of each of these identified infrastructure to the residents. The Relative Importance Index (RII) model as discussed in the previous chapter was to calculate this importance based on the respondents' prioritized needs and the needs ranked according to their priorities as indicated by the respondents' computed Relative Importance Index (RII) values. The result of the relative importance index reveals that all the identified infrastructures and services are important; and are also needed in the community for smooth and better livelihood.

Table 2. Perceived Level of importance of Basic Services and Infrastructural Needs in Okpoko Slum Settlement

Factors	EU Freq(%)	UI Freq(%)	I Freq(%)	EI Freq(%)	Mean	Rank
House Rehabilitation	12	12	52	24	3.98	1th
House affordability	10	20	54	16	3.87	2nd
schools	12	14	54	20	3.86	3rd
Fire service	8	30	44	18	3.89	4st
electricity	16	10	62	12	3.79	5th
market	14	32	48	6	3.71	6th
Pharmaceutical store	10	36	38	16	3.62	7th
hospitals	24	24	32	20	3.60	8th
Security outfit	16	32	40	12	3.60	9th
Street light	18	38	28	14	3.53	10th
Police	32	20	36	32	3.67	11th
Pedestrian	36	26	20	16	3.41	12th
Road rehabilitation	30	32	20	12	3.38	13th
Parking lots	16	32	30	4	3.33	14th
Waste removal	32	22	28	4	3.31	15th
Flood reduction	42	22	28	8	3.29	16th
landscaping	40	26	30	4	3.24	17th
Drainage provision	20	48	12	10	3.20	18th
Sports centres	20	41	24	15	3.00	19th

Relaxation centre	40	26	24	10	3.00	20th
Open spaces	43	31	23	3	2.97	21st

Note:

EU - Extremely unimportant
UI Unimportant
I important
EI Extremely important

Table 2 presents the results highlighting perceived level of importance of basic services and infrastructural needs in Okpoko slum settlement. The needs are ranked based on their mean scores, and the corresponding percentages of extremely important (EI), important (I), unimportant (U) and extremely unimportant (EU) responses provided. House rehabilitation (Mean=3.98), as a need ranked 1st, with 76% of respondents agreeing that it is a priority and 23% rating it as unimport basic service priority in Okpoko renewal program. House affordability (Mean=3.87), this was ranked 2nd, with 70% of respondents agreeing that it is a priority and 30% rating it as unimportant basic service priority in Okpoko renewal program.. The provision of schools (Mean=3.86), fire service (Mean=3.89), electricity (Mean=3.79), and market (Mean=3.71), were rated as the 3rd, 4th, 5th and 6th most needed basic services and infrastructural needs in Okpoko slum settlement respectively. The provision of chemist and pharmaceutical corner shops in the study area was ranked the 7th most important facility needed in the area, 54% of respondents agreed it was important while only 42 posited that it was not really a priority in Okpoko. The table further shows from the calculation that the provision of hospitals, security outfits, street lights, police stations , pedestrian lanes and rehabilitation of roads were ranked the 8th , 9th, 10th 11th, 12th and 13th most needed basic services and infrastructural needs in Okpoko slum settlement respectively. The provision of parking lots (Mean=3.33), This need ranked 14th, with 34% agreeing that it was important and the rest disagreeing that it was not a basic need importance in the study area. The provision of waste trucks in Okpoko with mean of Mean=3.31 ranked 15th in order of importance of the needs. Reduction of flood, landscaping, provision of drainages , provision of sporting facilities and relaxation centers in the study area were ranked the 16th , 17th, 18th 19th and 20th most needed basic services and infrastructural needs in Okpoko slum settlement respectively. However, the least ranked need was the provision of opens with a mean value of 2.97

4.2 Residents' basic services and infrastructure needs

In the course of the study, 21 primary variables were identified as possible residents' basic services and infrastructure needs in the study area. These factors which were initially derived from the literature were 36 in number, however, during the pilot survey, it was observed that only 21 of them were conversant and readily identified and agreed by the respondents. Hence, they were the ones that were used for the study. The Principal Component Analysis (PCA) was used to reduce the 21 identified primary satisfaction variables to 7 dimensions. These 7 dimensions derived

formed the secondary clustered variables. These seven dimensions (needs) were continually referred to as clustered basic services and infrastructural needs of the residents of Okpoko.

For clarity, each of the needs was named to match the variables that were found in them.

Factor 1 - Residential upgrading needs

Factor 2 - institutional

Factor 3 - health

Factor 4 - security/safety

Factor 5 - transportation/circulation

Factor 6 - environmental/physical needs

Factor 7 - recreational

In other to have a clearer understanding of the result, Table 3 showed that those primary variables that made up each component with their factor loadings. The result identified and classified the predominant residents' priorities of the basic services and infrastructural needs in Okpoko into 7 components that explained 87.981 percent of observed variation in needs variables. Each of these components needs is described in detail in the following paragraphs. The identified and classified needs that influenced the residents' priorities of the basic services and infrastructural needs in Okpoko that accounted for the explained percentage variations were as follows: Residential upgrading needs 22.44%, institutional 17.8%, health 14.7%, security/safety 10.05%, transportation/circulation 8.82%, environmental/physical needs 8.51% , and recreational 5.49%.

Table 3: Component names and factor loading and Eigen Value

Component names	Factor loading	Percentage variance	Eigenvalue
Factor 1: Residential upgrading needs		22.448	4.714
➢ House rehabilitation	.907		
➢ House affordability	.895		
Factor 2: Institutional Needs		17.872	3.753
➢ Fire service	.661		
➢ school	.615		
➢ electricity	.553		
➢ Market	.503		
Factor 3: Health		14.771	3.102
➢ Hospital	.775		
➢ pharmaceuticals corner stores	.677		

Factor 4: Security/safety ➢ street light ➢ security outfit ➢ police	 .946 .752 .634	10.053	2.111
Factor 5: Transport/circulation ➢ road rehabilitation ➢ pedestrian road ➢ parking lots	 .932 .742 .690	8.829	1.854
Factor 6: Environmental needs ➢ landscape ➢ waste collection trucks ➢ flood control ➢ improved drianage	 .883 .867 .614 .605	8.516	1.788
Factor 7: Recreational/leisure ➢ parks/organized open spaces ➢ sporting centre ➢ relaxation sports	 .943 .847 .760	5.492	1.153
Total		87.981	

Source: **PCA Results, 2023**

These factors were further explained individually.

Factor 1: Residential upgrading needs

This was highly and positively loaded on 2 variables out of the 21 variables in the study. The highest need in this component was house rehabilitation with the factor loading of 0.901. The other variable in this factor was house affordability with factor positive loading of .895. This Factor 1 with an Eigen value of 4.714, explains 32.7% out of the 21 basic infrastructural needs listed in table 5.24 and investigated in this research. Factor 1 is therefore the most important residents' priority of the basic services and infrastructural needs in Okpoko settlement. Factor 1 as defined by Residential upgrading needs is therefore identified and classified as the most prioritized basic services and infrastructural needs in Okpoko settlement.

Factor 2: Institutional Needs

The second component, which explains about 17.872% of the variance among the 21 variables listed in Table 2 and investigated in this research, is Institutional Needs. It is loaded with needs such as provision of fire station (0.661), provision of schools (0.615), provision of electricity (0.553) and provision of markets (0.5033). This was highly and positively loaded on 4 variables out of the 21 variables in the study. The defining variable in this factor was provision of fire station with the factor loading of 0.661. This factor 2 with an eigen value of 3.753, explains 17.872% of the entire 21 infrastructural needs priorities of residents in Okpoko. Factor 2 is therefore the second most significant and important residents' prioritised basic services and infrastructural needs in Okpoko settlement. Factor 2 as defined by institutional needs is therefore identified and classified as the second most prioritized basic services and infrastructural needs in Okpoko settlement

Factor 3: Health Needs

The third component identified is health concerns, accounting for about 14.771% of the variance in the 21 needs investigated. The two basic needs loaded on this are provision of hospital (0.775) and provision of pharmaceuticals corner stores (0.677). This third factor has an eigenvalue of 3.102.This was highly and positively loaded on 2 variables out of the 21 needs. The defining variable in this factor was provision of hospital with the factor loading of 0.775. This factor 3 with an eigen value of 3.7102, explains 14.77% of the entire 21 infrastructural needs priorities of residents in Okpoko. Factor 3 is therefore the third most significant and important residents' prioritized basic services and infrastructural needs in Okpoko settlement. Factor 2 as defined by health needs is therefore identified and classified as the third most prioritized basic services and infrastructural needs in Okpoko settlement

Factor 4: Security/safety

This was positively loaded on 4 variables out of the 21 variables. The defining variable in this factor was provision of street light with the factor loading of 0.946. Other variables included, provision of local vigilante security outfit with factor loading of .752 and the provision of police station with factor loading of .634. Factor 4 with an Eigen value of 2.111, explains 10.053% of the entire 21 infrastructural needs priorities of residents in Okpoko. Factor 4 is therefore the fourth most significant predominant residents' prioritized basic services and infrastructural needs in Okpoko settlement. Factor 4 as defined by security/safety needs is therefore identified and classified as the third most prioritized basic services and infrastructural needs in Okpoko settlement

Factor 5: Transport/circulation

The study noted equally that transport and circulation was the fifth predominant priority of the residents' infrastructural needs in Okpoko. This accounts for 8.829% of the entire 21 infrastructural needs priorities of residents in Okpoko. This was positively loaded on 3 variables out of the 21 needs. The defining variable in this factor was the road rehabiitation with the factor loading of 0.932. This factor 5 with an eigen value of 1.854, explains 8.829% of the entire 21 infrastructural needs priorities of residents in Okpoko. Factor 5 is therefore the fifth most

significant and important residents' prioritized basic services and infrastructural needs in Okpoko settlement. Factor 5 as defined by transport and circulation **needs** is therefore identified and classified as the fifth most prioritized basic services and infrastructural needs in Okpoko settlement

Factor 6: Infrastructural needs

The second least common factor that manifested the priority of the residents' infrastructural needs in Okpoko is the environmental needs. It contributes about 8.516% of the aggregate priority factor. The provision of landscape elements in the settlement (.883), provision of waste collection trucks (.867), controlling of floods (.614), improved drainages (.605) were among the leading needs in this factor. This component was positively loaded on 4 variables out of the 21 infrastructural needs in the study. The defining variable in this factor was provision of landscape elements in the settlement with the factor loading of 0.883.

This factor 6 with an eigen value of 1.788, explains 8.516% of the entire 21 infrastructural needs priorities of residents in Okpoko. Factor 6 is therefore the sixth most significant and important residents' prioritized basic services and infrastructural needs in Okpoko settlement. Factor 6 as defined by environmental needs is therefore identified and classified as the sixth most prioritized basic services and infrastructural needs in Okpoko settlement

Factor 7: Recreational/leisure:

The Recreational/leisure need was the least common (5.492%) need in the residents' prioritized basic services and infrastructural needs in Okpoko settlement**.** This was loaded on 3 variables out of the 21 variables in the study. It contributes about 5.492% of the aggregate priority factor. The provision of organized open spaces (.943), provision of sports centre (.847), and relaxation (.760) were among the leading needs in this factor. This suggests that this attribute is the least on the residents' scale of preference of basic infrastructural needs in Ogboko. The defining variable in this factor was provision of organized open spaces with the factor loading of 0.943. This factor 7 with an eigen value of 1.153 explains 5.4% of the entire 21 infrastructural needs priorities of residents in Okpoko. Factor 7 is therefore the least most significant and important residents' prioritized basic services and infrastructural needs in Okpoko settlement. Factor 7 as defined by recreational/leisure is therefore identified and classified as the least most prioritized basic services and infrastructural needs in Okpoko settlement.

In summary, these results show that the predominant residents' priorities of the basic services and infrastructural needs in Okpoko is patterned in seven key dimensions, namely 1) Residential upgrading needs, 2) institutional, 3) health, 4) security/safety, 5) transportation/circulation, 6) environmental/physical needs and 7) recreational

5. DISCUSSIONS

The study aimed to determine residents' basic infrastructural and urban services needs priorities in Okpoko urban slum settlement in a view to evolving appropriate policy design and intervention strategy that will serve as the basis for achieving sustainable urban renewal agenda in the area. The major findings in this study as presented earlier are brought forward for further discussion. Firstly, it was observed that that the predominant residents' priorities of the basic services and infrastructural needs in Okpoko is patterned in seven key dimensions, namely Residential

upgrading needs, institutional, health, security/safety, transportation/circulation, environmental/physical needs and recreational needs. Notably, these dimensions represent the prioritized residents' infrastructural needs in the study area

Second, the study found that the residents' basic services and infrastructural needs priorities was significantly influenced by residents' socio-economic characteristics in the study area.

Thirdly, it was noted that when measured with the residents' importance index, these needs were ranked as follows - House rehabilitation 1st, house was ranked 2nd, the provision of schools, fire service, electricity, and market were rated as the 3rd, 4th, 5th and 6th respectively. The provision of chemist and pharmaceutical corner shops in the study area was ranked the 7th most important facility However, reduction of flood, landscaping, provision of drainages , provision of sporting facilities and relaxation centers in the study area were ranked the 16th , 17th, 18th 19th and 20th most needed basic services and infrastructural needs in Okpoko slum settlement respectively. The least ranked need was the provision of open spaces and relaxation area

The importance of housing renovation and the rehabilitation of the existing dilapidated ones in the study areas cannot be overemphasized in the area. The presence of buildings that are characterized with untreated mud as the sole building material used for erection of the building is to say the least abysmal. Most of the houses are in dangerous state as there are much cracked walls and divided partitions in the walls. This portend grave danger to the residents. Thus, the choice of house rehabilitation as the top most priority infrastructural need to be handled in the urban renewal program is worthwhile. Going by this demographic dynamics and the antecedent of Okpoko and other Nigerian cities in the provision of infrastructure such as water and power supply, transportation, shopping, drainage and waste management facilities as well as housing (Fadairo and Taiwo, 2009; Ibem, 2011), it is obvious that there is enormous pressure on the existing housing and infrastructure in this city as seen in the study area. The implication of this is that massive construction of new housing units and infrastructural facilities as well as rehabilitation of existing ones through urban renewal are needed to curb current state of decay of physical environment and proliferation of slums and shanties in Okpoko. This was accounted for the reason why the resident ranked the rehabilitation and renovation of the houses as the top most infrastructural needs. This ranking was in line and lend credence to the findings of Jimoh et al (2013), Osuide (2004) and Eni & Abua, (2014) were they posited that the provision of standard housing in any blighted area has the greatest impact in healing the inimical effect of slums on the residents.

Further the provision of institutional facilities like school, hospital, market was seen as another need with high priority in the study area. There are no standard market in the area and this made the residents to always transverse very far to get basic commodity for their family upkeep. The incessant incidences of fire in the area calls for concern and this is worsen by the fact that most buildings are close to each other and any incidence of fire outbreak is always marked with massive destruction of houses and shops. Thus the need for these facilities like the fire service stations. This finding provides support to previous studies in Belgium (Roovers et al., 2002) and in Denmark (Schipperijn et al., 2013) as previously highlighted. In addition, Mouraviev & Kakabadse, (2012) observed that these institutional needs are crucial in other to return blighted environment to a renewed environment in any developing country. A similar study by Kara (2011) and Lee and Chan, (2008), found that the provision of educational facilities like the nursery, primary and secondary school will upgrade both the mental and intellectual capacity and capability

of the residents of slummy areas. They therefore submitted that these educational and other institutional facilities are crucial in area that should be renewed.

The third most important factor that influenced visits to urban parks among the population sampled in the survey was health concerns and benefits. Respondents in the survey generally stated that having good medical facilities helps to reduces medical stress, enhances successful ageing, and prolongs well-being and longevity. The finding can also be linked to the existing literature showing that regular available medical facilities in slum area can result in a reduction in mental fatigue, obesity, depression, osteoporosis, and others (see Mitchell & Popham, 2008). The health factor was observed to be a veritable need by the residents while considering renewal on Okpoko. This is very germane as it is said that health is wealth. There are cases of outbreak of diseases and sickness in the area and there are no much primary and secondary health facilities in the study area. The residents, at the case of any serious ailment normally travel far, at times 12km to seek for medical attention. Aside from the views of Madureira et al (2018), who submitted that shorter distances to medical services spaces were quite critical for establishing a stronger user base, many other studies (Karna et al, 2009; Jamali, 2004) have also stressed the importance of the provision of medical facilities in any urban renewed city

The security factor which involves the provision of police stations, inauguration and provision of local vigillantee groups and the construdction of street light had a significant influence on the infrastructural needs of the residents of Okpoko. These results lend credence to the findings of Savaya et al. (2008) who posited in their study security of lives and property in any settlement is of great importance in the sustainability of that environment. The study area normally has been experiencing insecurity and cases of kidnapping. This could, expectedly, be the reason why the many of the residents do not want to be far from their homes and move around in the night. The studies by Olotuah, (2000) and Raziyeh et al. (2012) revealed that security and safety are critical considerations in the renewal of any urban settlement by urban residents.

Furthermore, the transportation and circulation needs were also ranked crucial in the needs of the residents. The provision of parking lots, pedestrian lanes and rehabilitation of roads were seen as important priority by the residents of Okpoko. There are incidences of much on-street parking along the road in the study area. This has had much transportation challenge in the area. Man hour are always lost by workers due to long transport queues noticed every morning and evening during week days. There are no parking lots, thus cars and tricycles are seen parked along the ways. Residents therefore stressed the importance of having designated parking lots and streamlined pedestrian lanes in the roads. It is also in line with the findings of previous research indicating that among others, good road circulation system aids better renewed urban environment (Van der Brugge, & de Graaf, 2010; Zielenbach. and Levin, 2000),

Again, in support of the existing studies, it was also found that environmental needs as well as recreation needs were very infrastructural and basic needs of residents in Okpoko slum settlements. There however ranked among the least in the other of priority an importance. (Fadare, & Oduwaye, 2009; Gandy, 2006; Huang 2008). The need to provide functional drainage system, controlling of flood etc. was stressed. Considering the topographical nature of the area, residents highlighted the dire need for proper channeling of the flood to the nearby sea close to the study area.

Even though the present study has achieved its goal, it has some noteworthy limitations. First, this study is limited to 376 respondents and only 21 infrastructural needs variables were considered in

the study. Further study should consider more respondents and variables for more robust findings. Second, the study is based on a cross-sectional survey and captures a snapshot of the existing situation and cannot account for what will happen thereafter. To circumvent this, it is suggested that future studies should consider adopting longitudinal surveys for an adequate understanding of the infrastructural needs by the residents. Hence, it is recommended that similar studies be extended to other slum areas in the state in other to give a more robust and reliable findings

6. PLANNING IMPLICATION AND RECOMMENDATIONS

These findings have some noteworthy compelling practical implications. Firstly, the study implies that the seven dimensions of residents' identified infrastructural facilities and basic services pivotal and crucial in any attempts to embark on any urban renewal program in Okpoko community. This order of priorities or importance of these basic needs are the aspects that urban planners can easily relate to in their understanding and assessment of how best to rehabilitate and improve the study area. This revelation in the study underscores the pivotal infrastructural needs of Okpoko community and calls for methodical urban planning and new project development in the area. Hence, researchers and scholars interested in this subject area should pay attention to these dimensions if they must understand the best approach to renew slums that have similar characteristics with the study area. In addition, the knowledge of these dimensions will improve the validity of research findings on this subject and the effectiveness of urban renewal programme and development in Okpoko and other cities that have similar demographic, and socio-cultural experiences. Secondly, It has also established the area where government or non-governmental or donor agencies' interventions are most needed. It is a guide towards implementing government plans and programmes in the area and an important addition to many other studies on the area which could not prioritize the infrastructural needs of the community despite its strategic position in the State.

Lastly, the findings also imply that to evolve any robust and sustainable urban renewal program in cities of Nigeria, urban planners and other development agencies need to also pay attention to the infrastructural needs sampled in this survey. To this end, urban policymakers, planners, designers, and managers should consider renovation and rehabilitation of building, provision of security and safety and other identified needs as paramount.

7. CONCLUSIONS

The present research investigated residents' basic infrastructural and urban services needs priorities in Okpoko urban slum settlement in a view to evolving appropriate policy design and intervention strategy that will serve as the basis for achieving sustainable urban renewal agenda in the area. Based on the findings, two key conclusions are made. Firstly, it can be concluded that the residents sampled in the survey prioritized the basic services and infrastructural needs in Okpoko in seven key dimensions as listed from the topmost to the least priority. In other others, although the study found that though all the identified basic infrastructural facilities and urban services in the study area are important and needed in the community, the seven most demanding and pressing needs of Okpoko community in terms of infrastructural facilities and basic services in other of the most important to the least important as found in the study were - Residential upgrading needs, institutional, health, security/safety, transportation/circulation, environmental/physical needs and

recreational needs. This implies that any slum upgrading programme in the area should follow this scale of preference in order to have any meaningful impact on the residents. Based on the findings in the study, this will involve revitalization of affected parts of the area by providing safe, adequate and affordable buildings, retaining some structures that are retainable; rehabilitating old buildings and structures, upgrading the roads that are not tarred and introduction of more roads with a view to opening up the blighted areas. It also involves improving the existing infrastructures as well as providing new ones such as water supply system; waste disposal/sanitation system; improved drainage system; and many others. These are improving the structural quality and aesthetic of the areas.

Generally, what differentiates the urban slum settlement from the rest of the urban cities is the state of the infrastructure and basic services which inadvertently affect the socio- economic activities of the area. In most cases, the infrastructural needs of the slum are many and varied. Evidently, when any intervention tends coming, it becomes a problem choosing from many competing alternatives, and sometimes the priority need(s) is misplaced with project(s) which immediate need may not have much impacts on the residents. On this premise and base on other existing scenarios including the so called federal government need assessment on Okpoko and the UN-Habitat Structure Plan for Onitsha and Satellite Towns which only identified, but failed to prioritise the infrastructural and basic services needs of the area, this study has successfully examined, profiled and prioritised the infrastructural and basic services needs of Okpoko urban slum settlement of Anambra State.

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