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# Residents' Income Status and the Condition of Basic Physical Infrastructure Facilities in Awka Public Housing Estates

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**Abstract**
This research studies the residents' income status and the condition of basic physical infrastructure facilities in Awka Public Housing estates. It was motivated by a desire to evaluate the status of basic infrastructure facilities in our public housing estates considering the rapid relocation of occupants to private estates and neighborhoods. It identifies the income status of residents of public housing estates in Awka and the condition of basic physical infrastructure facilities with a view to discover their relationship and planning implications on the findings. A total of five hundred and six households representing 72.3% of the total household in five habited estates in Awka, viz: Udoka, Ahocol 1 and II, Iyiagu and Real Estates were examined through a fifty four item questionnaire. Interviews were conducted on the agencies responsible for the maintenance of the selected estates. Pearsons correlation coefficient was employed in testing the postulated hypothesis. Result obtained reveals generally poor condition of basic physical infrastructure facilities in the estates. While there is a significant relationship between the income status of residents and the conditions of some basic infrastructure facilities in some estates, others have no relationship. The paper suggests among others, involvement of the intending residents of the housing estates in housing provision and the provision of the site and services before actual construction of housing units.
**Keywords:** Residents' income, Public housing estates, Basic infrastructure, Housing provision, Housing condition.

## 1. Introduction

Infrastructure facilities according to Hirschman (1958) refer to those basic services without which primary, secondary and tertiary productive activities cannot function. In its wider sense, infrastructure facilities embrace all public services from law and order through education and public health to transportation, communications and water supply (Mabogunje, 1974); Kahn, 1979). In other words, infrastructure facilities are elements in the package of basic needs which a community would like to procure for better living. Improvements in infrastructure services can have the beneficial effect of increasing household's real income and quality of life. Obiegbu (2008) asserted that the improvement of welfare and production capacity through availability of reliable and sustainable infrastructure is regarded as one of the most important objectives of, as well as means to economic development.

This paper views infrastructure as necessities for both human sustenance and development and therefore categories it into two: namely Basic infrastructure to include roads, water supply, drainage (non-sanitary facilities), sewerage (sanitary facilities), waste disposal facilities, power (electricity supply), housing; and Non-Basic infrastructure to include transportation, education, hospitals, telecommunication, security, firefighting services, social-cultural recreation parks, banks and Financial institutions. This is done with the understanding that Basic Infrastructure are the primary human needs that sustain life. In addition, housing is included among the basic infrastructure since its role in human existence cannot be underscored. Housing is not complete and cannot be enjoyed without the basic infrastructure such as roads, water supply, sanitary and non-sanitary facilities, electricity supply and waste disposal facilities.

Historically, public housing provision rested in the hands of private developers. Housing provision by the public sector was the responsibility of the Regional Administration of which the scope and consequent impact was small. The Federal Government did not accept housing as part of its social responsibility until the Third (1975-1980) and the Fourth (1981-1985) National Development plans. Hitherto, housing was lumped with Town Planning that was regarded as a low priority sector.

However, the civilian Government of 1979 made housing provision the nucleus of the government programme. The National Sites and Services Programme was adopted by the Federal Government in 1986 as a viable alternative for housing delivery through increased supply of serviced plots at affordable costs. This programme was supposed to make available the basic infrastructure need in our housing estates to provide some comfort to living. Since the commencement of the programme in 1986 to date, huge sum of money is still needed to complete the on-going scheme.

## 2.Statement of the Problem

Our public housing estates generally and especially those in Awka, capital of Anambra state, are experiencing

 

various forms of infrastructure deterioration. These housing estates are Udoka, Ahocol, Iyiagu and Real Estates. While the basic infrastructures are not provided in some estates from design inception, others are either lacking maintenance, thereby not meeting the required needs of the residents.

In Udoka and Real housing estates, field observation shows that roads were tarred with low specification. Portholes exist in all the roads within the estates making accessibility difficult. The road width in Ahocol and Iyiagu are not wide enough. Vehicle congestion occurs especially at peak periods. Drainages in Real Estates are not properly channeled to follow the estate topography. Some building foundations are strongly affected by gully erosion formation.

The entire residents of the estates are suffering from electricity problem. Okoye (2009) stated that the estates have their separate transformers but with low capacity to serve the consumers. In some parts of the estates, electricity poles are not provided suggesting no power connection yet.

There is no pipe bore water in the entire estates. According to Okoye (2009), while some estates were originally provided with pipe bore water facilities from inception, some were not. Children are seen on queue in some estates struggling to fetch water from nearby water vendors. Field observation further shows that the entire estate environment is littered with waste; one wonders whether there is no functional solid waste disposal method. However, the conditions of basic infrastructure facilities in the estates appear to vary from one estate to another. While some estates are better provided others are still in great need.

**3.0 Research Aim and Objectives**

This research aims to study the income status of residents of public housing estates in Awka and the condition of basic physical infrastructure facilities provision with a view to provide adequate information to planners, designers and policy makers to improve the provision of public housing.

The objectives are as follows:

1) To discover the income status of residents in public housing estates in Awka.
2) To describe the condition of the basic physical infrastructure facilities in the public housing estates in Awka.
3) To determine the relationship between income status of residents of public housing and the condition of basic physical infrastructure facilities in the estates.
4) To examine the implications of the findings for planning, execution and management of public housing estates.

**4.0 Research Hypothesis**

The research tested the hypothesis below:

There is no significant relationship between the income status of residents of public housing estates in Awka and the condition of basic physical infrastructure facilities in the estates.

**5.0 The Study Area**

Awka, the capital of Anambra state, is the chosen area of the study. It is located between latitudes 6o 131 N and 60 151 N and longitudes of 70 041 E and 70 061 E. It is an area covering approximately 1,592, 500m2 or 159.25 hectares. According to Muoghalu and Okonkwo (1998), the building area in Awka constitutes 1,207,700m2 or 120.77 hectares while average height of the city ranged from 91 to137m above sea level. It is well dissected as an escarpment which gives Awka its physical character.

Prior to becoming an urban Centre, the indigenous Ifiteani people of Awka were Itinerant tradesmen and practiced agriculture on a subsistence level. They were also well known for woodwork and blacksmithing. The events that culminated in the gradual shedding of Awka's rural characteristics and acquisition of urban status include her popular blacksmithing and woodwork which made the town a commercial centre early in history.

Awka witnessed a recession in growth during the Nigerian civil war of 1967-1970 but the greatest tonic for the urbanization process of Awka came on 27th August, 1991 when the town was named the capital of the new Anambra State. The pronouncement resulted in the influx of many returning state and federal civil servants to Awka. Many businessmen who wanted to take advantage of the new status of the town to expand their businesses also moved into Awka. The sitting of a non- residential Federal university in Awka increased the housing need.

The few available houses though not structurally and architecturally fitting to the taste of the new influx were in high demand. It resulted in most civil servants coming to work from other states. It was in an answer to the question of where to accommodate the workers that the establishment of public housing estates emerged to reduce the sufferings of the returning population. Currently, there are six public housing estates in Awka. These are Udoka, AHOCOL 1, AHOCOL 2, Iyiagu, Agu-Akwa (GRA) and Real Housing Estates. While some are still under construction others are built up and habited. This study focuses on the five built-up and habited housing estates. These are Udoka, AHOCOL 1and 2, Iyiagu and Real Housing Estates. Figures 1and 2 show Map of Awka capital territory and Map of Awka core showing the five estates.

 

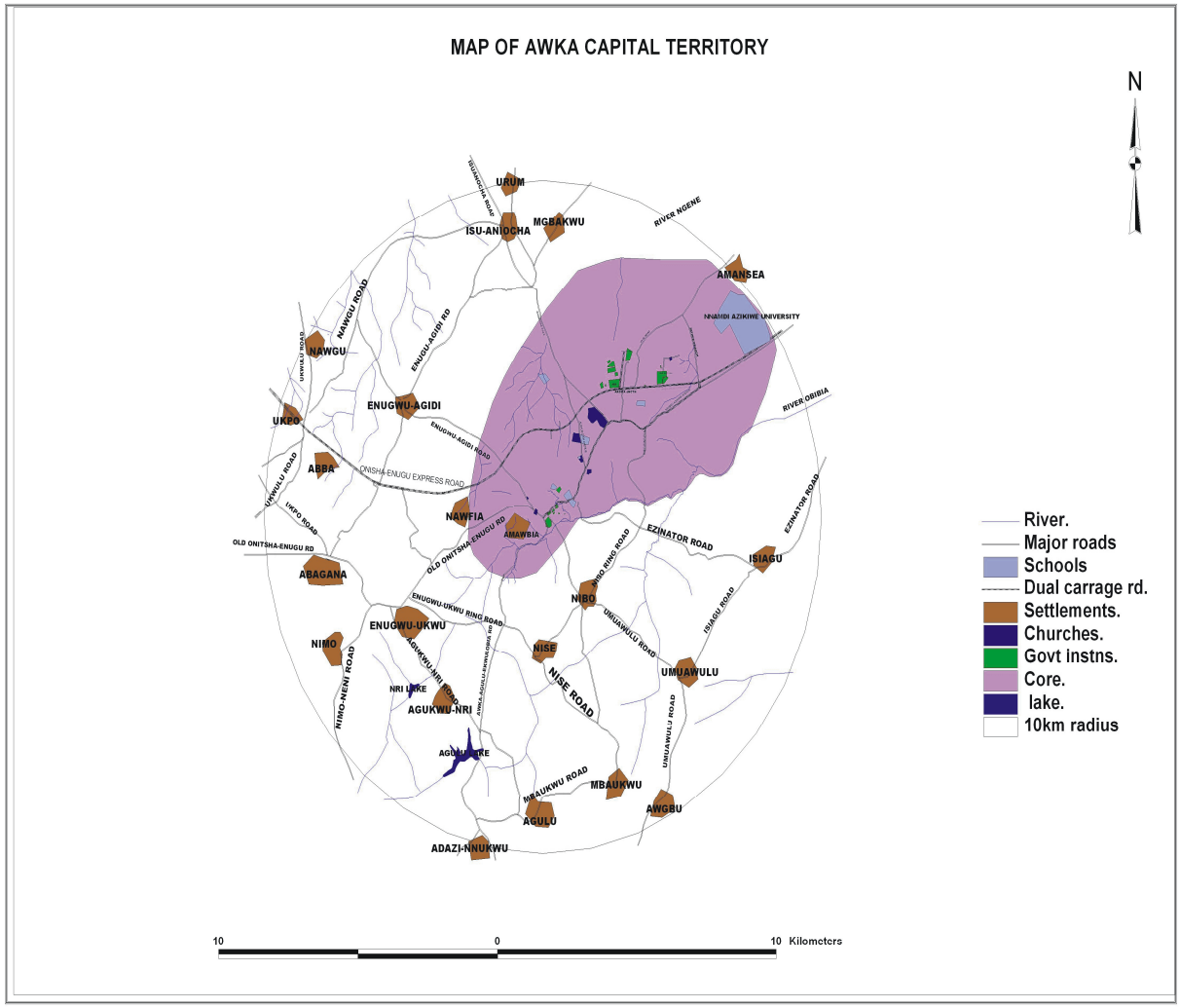


Fig. 1: Map of Awka Capital Territory
Source: Anambra State Urban Development Board (ASUDEB), Awka

 

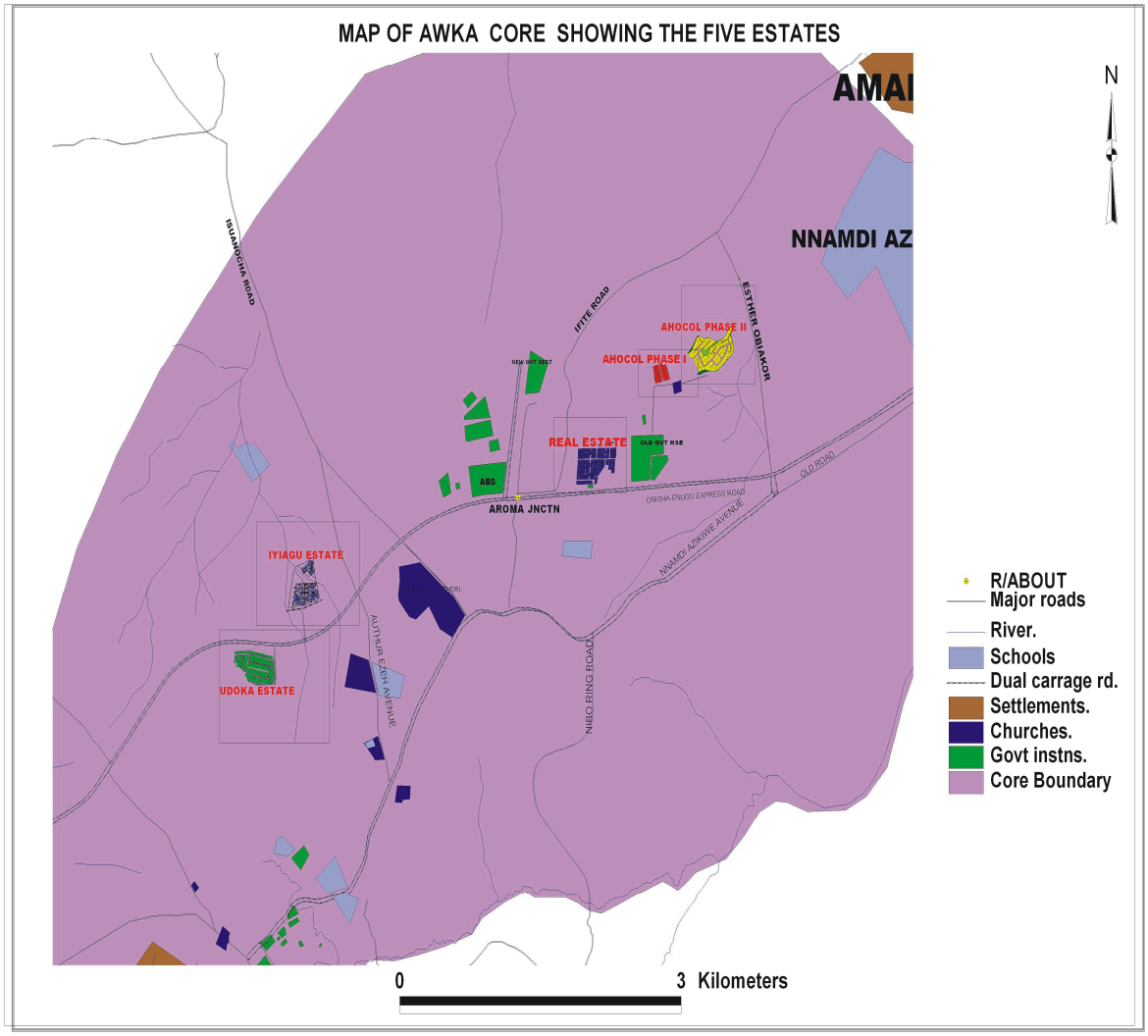


Fig. 2: Map of Awka Core showing the five Estates
Source: Anambra State Urban Development Board (ASUDEB), Awka.

**6.0 Theoretical Framework**

This paper adopts the "Environmental Load or Over Stimulation Approach" theory which explains environment-behaviour relationship. It is especially useful when describing reactions to novel or unwanted environmental stimuli. The model derives from work on attention and information processing and can be described in four parts (Broadben, 1958, 1963; Cohen, 1978; Easter Brook, 1959; Milgram, 1970)

1. Human has a limited capacity to process incoming stimuli and can invest only a limited effort in attending to inputs at any one time
2. When the amount of information from the environment exceeds the individual's capacity to process all that is relevant, information overload occurs. The normal reaction to overload is a type of "tunnel vision" in which we ignore those inputs that are less relevant to the task at hand and devote more attention to those that are relevant.
3. When a stimulus occurs that may require some sort of adaptive response (or when an individual thinks such a stimulus will occur), the significance of the stimulus is evaluated by a monitoring process and a decision is made about which coping response, if any to employ. Thus, the more intense or unpredictable or uncontrollable an input, the greater its adaptive significance and the more attention paid to it. Furthermore, the more uncertainty generated by an input about the need for an adaptive response, the more intentional capacity allocated to it.
4. The amount of attention to a person is not constant and may be temporarily depleted after prolonged demands. After attending for prolonged demands, the total capacity for attention may suffer from an overload.

What happens to behavior when overload occurs? The answer depends on which stimuli are given adequate attention and which are ignored. Generally, stimuli most important to the task at hand are allocated as much attention as needed and less important stimuli are ignored. If these less important stimuli tend to interfere with

 

the central task, ignoring them will enhance performance. If however, a task requires a wide range of attention, as when we must do two things at once, performance on less important tasks will deteriorate. According to the overload model, once capacity for attention has been depleted owing to prolonged demands, even small demands for attention may cause overloading. Interestingly once exposure to unpleasant or excessive stimulation has ceased, behavioral after effects, such as decreased tolerance for frustration, errors in mental functioning and less frequent altruistic behavior may occur. The overload model attributes these after effects to a reduced capacity to attend to relevant cues.

Environmental Load Approach is used in this study to explain the decay in the basic infrastructure provision in our public housing estates. Housing provision which is one of the basic needs of man is considered by the government as provision of houses only and not in its holistic form thereby separating housing units from housing infrastructure. Provision of houses is therefore being included in the government's central, core needs that require attention while housing infrastructure like provision of roads, drainages, water supply and electricity supply fall into less priority needs. Government contends with meeting a lot of needs especially economic investment areas which places financial demand and comes as a burden to carry. Environment Load Approach helps us to understand that when the burden of government is much or overloaded less or no attention is given to these less priority areas. Sometimes, they are completely ignored. This may explain the decreasing rate of basic infrastructure provision in our housing estates and the deterioration of the existing ones. It also goes further to explain the relationship between the residents' level of income and the condition of basic infrastructure. The reason being that with high income, demand from basic infrastructure may be given attention unlike with meager income.

**7.0 Research Methodology**

This study addresses two major components, namely physical component-the facilities and the human component that is the populace (residents of the housing estates). The study therefore requires designs that can integrate both components. To this end, this study adopts both survey and distributive design.

The study population is the 700 households obtained from the 506 habited houses in the chosen public housing estates in Awka. Udoka housing estate has 177 households; 236 households at AHOCOL 1 and 2; 129 households at Iyiagu Housing Estate and 132 at Real Housing Estate.

A purposive sampling type of non-probability sampling technique was used to select the older or oldest household where there is more than one in a house. This is with the understanding that responses from such a household should serve as a representation of the condition or true picture of basic infrastructure facilities provided in that house. A random sampling technique was used to select a household where all the households in a house packed in the same day.

For ease of analysis and amenability to statistical analysis, the study adopts structured questionnaire method. The questionnaire comprises of a total of fifty-four structured questions. It seeks principal information on the assessment of basic infrastructure provision (roads, drainages, water supply, electricity supply, sanitary facilities and solid waste disposal facilities) in the public housing estates in Awka and divided into two sections. Section A elicits data on the respondents' demographic data as a means of providing background information and also to obtain suitability of the respondent for the study. Section B concentrated on basic infrastructure provision but divided into parts. Part 1 – on roads; part 2 on non- sanitary facilities (drainages); part 3 on water supply; part 4 on electricity supply; part 5 on solid waste disposal facilities, and part 6 on sanitary facilities.

In field observation and measurements, a non-participatory observation was carried out on the following issues; the roads, during rainy and dry seasons (which took place between February – April and May-September, 2008); the electricity supply especially at nights; the services of water vendors and water collection points; the volume of storm water that passes through the drains during rains; how repairs on roads and electricity were carried out and the nature of roads, drainages and electric poles provided in the estates.

A steel tape of metric standard unit was used to measure roads length, roads width, number of portholes per 30 meters in each road, drainage length, width and depth and number of electricity poles per road in the estates. These measurements were taken in all the roads using the road names as identification.

Purposive sampling technique was used to select the heads of the departments in charge of provision/supply/works as the case may be in the agencies responsible for provision of roads, water and electricity for the interview. Information that centers on quality of basic infrastructure was elicited. These include the quality of basic infrastructure existing in the estates, standards used in the provision of these infrastructures, and the implications of what is provided in terms of durability and functionality.

Also purposive sampling technique was used to select the directors/Managers of the Government parastatals that oversea the estates. Information that centers on maintenance of roads, drainages, water and electricity supplies in the estates were elicited.

Data generated were statistically analysed using simple statistical tools. Pearson's correlation was used to test the hypothesis.

 

## 8.0 Results and Discussions

### 8.1 Respondents' level of income per month as at the time they moved into the estate.

Respondents were asked to state their level of income per month as at the time they packed into the estate. This is to help determine whether household heads income level was used in the allocation of the plots or buildings. The Anambra State Harmonized Public Service Salary Structure for the year 2000 was used which gave the salaries in grade levels. The salary structure for year 2000 was chosen because majority of the estate residents packed into the estate about that time. Also a memorandum from the Department of Establishment, Office of the Head of Service, Anambra State categorized the workers into three groups. Grade levels 01 – 06 – junior staff, grade levels 7 – 12 – senior workers and grade levels 13 – 17 – senior workers (management)

Table 1: reveals that among the 162 respondents in Udoka, there was no junior worker, 39.7% were senior workers and 41.3% were management staff. The data shows that majority of the respondents are either senior staff or management staff indicating that the estate is dominated by people like principal officers, directors, heads of units and permanent secretaries. In Ahocol 1, among the 37 respondents there was no junior staff, 62.2% were senior staff while 37.8% were management staff. In Ahocol II, among the 112 respondents, 2.7% were junior staff, 81.2% were senior staff while 16.1% were management staff.

Table 1.0: Respondents' level of income per month as at the time they moved into the estate.

| Status | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Junior | - | - | 0 | - | 3 | 2.7% | 12 | 19.0% | 58 | 44% | 73 | 14.4% |
| Senior | 40 | 24.7% | 23 | 62.2% | 91 | 81.2% | 25 | 39.7% | 26 | 19.7% | 205 | 40.5% |
| Magt. | 122 | 75.3% | 14 | 37.8% | 18 | 16.1% | 26 | 41.3% | 48 | 36.3% | 228 | 45.1% |
| Total | 162 | 100 | 37 | 100 | 112 | 100 | 63 | 100 | 132 | 100 | 506 | 100 |

In Iyiagu, among the 63 respondents, 19.0% were junior staff, 39.7% were senior staff while 41.3% were management staff. In Real, out of the 132 respondents, 44% were junior staff, 19.7% were senior staff while 36.3% were management staff.

In summary, this research reveals that preference was given to senior and management staff in the allocation of plots and buildings to workers (occupants) of Udoka, Ahocol I and II and Iyiagu Housing Estates. It was only in Real estate that junior workers were given greater share. It can therefore be deduced that the public housing provision in Awka was not primarily for low income earners as purported but for middle and high income earners.

### 8.2 Respondents' Assessment of the Roads in the Estate

Table 2.0 reveals respondents' assessment of the roads in the estate. They were asked to make a general assessment of the roads in the estate and to state whether the roads were very good, good, fair, bad or very bad.

Table 2.0 – Respondents' Assessment of the Roads in the Estate

| S/N | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Very good | 27 | 16.7 | 1 | 2.7 | 0 | - | 6 | 9.5 | 8 | 6.1 | 42 | 8.3 |
| B | Good | 24 | 14.8 | 3 | 8.1 | 12 | 10.7 | 13 | 20.6 | 23 | 17.4 | 75 | 14.8 |
| C | Fair | 49 | 30.2 | 4 | 10.8 | 24 | 21.4 | 24 | 38.1 | 66 | 50 | 167 | 33.0 |
| D | Bad | 44 | 27.2 | 7 | 18.9 | 29 | 25.9 | 6 | 9.5 | 18 | 13.6 | 104 | 20.6 |
| E | Very bad | 18 | 11.1 | 22 | 59.5 | 47 | 42 | 14 | 22.3 | 17 | 12.9 | 118 | 23.3 |
| | Total | 162 | 100 | 37 | 100 | 112 | 100 | 63 | 100 | 132 | 100 | 506 | 100 |

Source: Researcher's field survey, 2008.

In Udoka, 49 or 30.2% of the respondents indicated that the roads were fair while 44 or 27.2% assessed the roads as bad. This agrees with the researcher's field observation. The roads in Udoka were tarred some years ago but probably with less quality materials. Currently, there are so many portholes on these roads which make it difficult for vehicles to pass.

In Ahocol I and II, the table shows that majority of the respondents assessed the roads to be very bad; 59.4% and 41.9% respectively so indicated. Field observation shows that the roads were not tarred and the soil type does not allow rain water to peculate into the ground thereby causing flooding and dust during the rainy and dry seasons respectively.

The respondents' assessment of the roads in Iyiagu and Real Estates show that the roads were fair. Twenty-four or 38.1% of respondents from Iyiagu and sixty-six or 50% of respondents from Real so indicate. Field observation shows that the roads in Iyiagu were tarred though portholes exist in few places but in Real estate even though all the major roads were tarred, there exist many portholes. The researcher's own assessment of the roads in Real Estate was that they are generally bad. Some portholes were so deep that during rains, they retain a good quantity of storm water making accessibility difficult.

### 8.3 Respondents' Opinion on the Problems Experience on the Estate Roads

In each of the estates, respondents were asked to state the problems they experience on their roads. They were given a list of problems and open spaces for those not included. They were also asked to select as many as it

 

obtains in the estate where they reside. Table 3.0 shows a summary of road problems as elicited from the respondents. These were road congestion, erosion, dust, unnecessary road bumps, parking on the roads and portholes. This question was raised in the questionnaire to provide more information on the road quality.

Table 3.0 – Respondents' opinion on the problems experience on the estate roads.

| S/N | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Road congestion | - | - | 6 | 5.4 | 3 | 1.3 | 5 | 6.0 | 5 | 1.8 | 18 | 2.1 |
| B | Erosion | 52 | 25.4 | 25 | 22.5 | 73 | 31.6 | 30 | 36.1 | 30 | 1.93 | 224 | 26.1 |
| C | Dust | 10 | 5.0 | 8 | 7.2 | 63 | 27.2 | 15 | 18.1 | 15 | 9.2 | 117 | 13.6 |
| D | Unnecessary road bumps | 14 | 7.0 | 9 | 8.1 | 26 | 11.3 | 13 | 15.7 | 13 | 11.0 | 87 | 10.2 |
| E | Parking on the roads | 25 | 12.2 | 13 | 11.7 | 11 | 4.7 | - | - | 0 | 9.6 | 71 | 8.3 |
| F | Portholes | 96 | 47.0 | 42 | 37.8 | 43 | 18.6 | 18 | 21.7 | 18 | 49.1 | 311 | 36.3 |
| G | Undecided | 7 | 34.4 | 8 | 7.3 | 12 | 5.2 | 2 | 2.4 | 2 | - | 29 | 3.4 |
| | Total | 204 | 100 | 111 | 100 | 231 | 100 | 83 | 100 | 83 | 100 | 857 | 100 |

*Source: Researcher's field survey, 2008.*

In Udoka, portholes ranked highest with 96 or 47.1% of the road problems mentioned, followed by erosion problem with 52 or 25.5%. Respondents indicated that they do not experience road congestion. Field observation strongly supports this view but noted that even if dust exists, it is highly minimized because the roads are tarred.

In Ahocol I and II, majority of the road problems mentioned were portholes, erosion and dust. Fourty-two of the problems raised in Ahocol I or 37.8% indicated portholes followed by 25 or 22.5% that indicated erosion. Seventy three or 31.6% of the problems raised in Ahocol II indicated erosion followed by 63 or 27.3% that indicated dust. Fourty-three or 18.6% also indicated portholes. The road problems in Ahocol I and II is connected to the soil nature bearing the roads. The road surfaces are made of earth without drains.

In Iyiagu and Real, majority of the respondents indicated erosion, portholes and unnecessary road bumps. Thirty-six point one percent of the road problems indicated in Iyiagu show erosion followed by 21.7% that indicated portholes. One hundred and twelve or 49.1% of the road problems mentioned in Real shows portholes followed by erosion (19.3%) and unnecessary road bumps (10.9%). The respondents' opinion that erosion is a road problem in Iyiagu may only be applicable to the internal roads within buildings (since they are of earth) and not on the major roads because all the major roads in Iyiagu are tarred with proper drains. All the road problems mentioned in Real estate exist.

### 8.4 Respondents' opinion on the problems experienced in the functioning of the drains

Respondents were asked to express their opinions on the problems they experience in the functioning of the drains. They were given options and also asked to specify further problems not listed. Table 4.0 shows summary of the problems they experience. This is on the premise that the respondents live in the area serviced by the drainage channels and thus should be better assessors. The data further reveals the quality of drainage facilities.

Table 4.0: Respondents' opinion on the problems experienced in the Functioning of the drains.

| | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. | Blocked by refuse | 16 | 8.1 | 5 | 4.4 | 7 | 3.0 | 21 | 24.1 | 56 | 16.7 | 105 | 10.9 |
| b. | Constructed with low quality materials | 30 | 15.2 | 16 | 14.2 | 11 | 4.7 | 4 | 4.6 | 6 | 1.8 | 67 | 7.6 |
| c. | Not adequate to carry the waste | 55 | 28 | 23 | 20.3 | 9 | 3.8 | 15 | 17.3 | 36 | 10.8 | 138 | 14.3 |
| d. | Not provided in every part of the estate | 32 | 16.2 | 34 | 30.1 | 94 | 40.2 | 37 | 42.5 | 82 | 24.6 | 279 | 29 |
| e. | Soil erosion | 36 | 18.3 | 20 | 17.7 | 52 | 22.2 | 7 | 8.0 | 56 | 16.8 | 171 | 17.7 |
| f. | Gully formation | 23 | 11.7 | 15 | 13.3 | 61 | 26.1 | - | - | 98 | 29.3 | 197 | 20.3 |
| g. | No problems | 5 | 2.5 | - | - | - | - | 3 | 3.4 | - | - | 8 | 0.8 |
| | Total | 197 | 100 | 113 | 100 | 234 | 100 | 87 | 100 | 334 | 100 | 965 | 100 |

*Source: Researcher's Field Survey, 2008.*

A total of 29% of the respondents, from the estates indicated that drainage channels were not provided in every part of the estates. Field observation also shows that in all the estate, drains were provided only along major roads. There are no drains around buildings. Individual households were left to manage waste water around their homes. A total of 20.3% and 17.7% of the respondents indicated gully formation and soil erosion respectively. This supports the fact that though there are drains in some parts of the estates, they are not adequate to solve the drainage problems in the estates. While some drains are not wide enough to carry surface runoffs, others were constructed with blocks (made of sand and cement mixture) which could not confront the run-off pressure. Thus some drains are broken, given rise to gullies at such spots.

The prominent drain problem in Udoka according to the respondents is "not adequate to carry the waste water".

 

This has to do with drainage width. While in Ahocol I and II, and Iyiagu majority of the respondents (30.1%, 40.2% and 42.5% respectively) indicated that drains were not provided in every part of the estate. Majority of respondents in Real Estate pointed gully formation as the prominent drainage problem. This proposes that the entire estates require a construction and reconstruction of drains as a panacea for waste water passages. Waste water management is an intractable human settlement problem.

**8.5 Respondents' Assessment of Water Facilities in terms of Adequacy**

As earlier mentioned, Iyiagu is the only housing estate that has public water supply with her own borehole. At the time of this research, it was not functioning due to same mechanical problems. However, the water facilities were assessed by the respondents in terms of adequacy when water was supplied.

Table 5.0 shows respondents assessment of the water facilities in the estate in terms of adequacy. These water facilities are pipes and storage tanks.

Table 5.0 – Respondents' Assessment of Water Facilities in terms of Adequacy.

| | | Iyiagu | |
|---|---|---|---|
| **S/N** | **Variables** | **No** | **%** |
| A | Very adequate | - | - |
| B | Adequate | 13 | 20.6 |
| C | Fairly adequate | 6 | 9.5 |
| D | Not adequate | 37 | 58.8 |
| E | Undecided | 7 | 11.1 |
| | Total | 63 | 100 |

Source: Researcher's field survey, 2008.

Majority of the respondents indicated "not adequate" (58.7%) followed by 20.6% that indicated "adequate". The researcher observed that the water storage tank at Iyiagu was adequate to serve the residents for some days when filled, only that the overhead tank leaks. To solve this problem, the moment water was pumped into the tank, residents were advised to fetch immediately to store before it leaks out. In addition, the water pipes were connected to all the buildings and common fetching points within the estate.

**8.6 Respondents' Assessment of Electricity Facilities in the Estate**

Table 6.0 shows respondent's assessment of electricity facilities in the estate. These facilities are electric poles, wires and transformers. They were asked to assess the facilities in terms of their level of adequacy. In Udoka, 40.7% indicated 'fairly adequate' while 30.2% said 'adequate'. In Ahocol I, 59.4% indicated fairly adequate. In Ahocol II – 55.4% indicated 'not adequate'. Majority of respondents in Iyiagu (41.2%) and Real (36.7%) indicated fairly adequate.

Table 6.0 - Respondents Assessment of Electricity Facilities in the Estate

| S/N | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a | Very adequate | 12 | 7.4 | 3 | 8.1 | 4 | 3.5 | 1 | 1.6 | 21 | 15.9 | 41 | 8.1 |
| b | Adequate | 49 | 30.3 | 4 | 10.8 | 14 | 12.5 | 15 | 23.8 | 31 | 23.5 | 113 | 22.3 |
| c | Fairly adequate | 66 | 40.7 | 22 | 59.5 | 32 | 28.6 | 26 | 41.3 | 51 | 38.6 | 197 | 39 |
| d | Not adequate | 35 | 21.6 | 8 | 21.6 | 62 | 55.4 | 21 | 33.3 | 29 | 22 | 155 | 30.6 |
| | Total | 162 | 100 | 37 | 100 | 112 | 100 | 63 | 100 | 132 | 100 | 506 | 100 |

Source: Researcher's field survey, 2008.

The level of adequacy of the electricity facilities vary from one estate to another. Adequacy buttresses more on quantity of items and also on quality i.e. whether it is rendering the required service. Electricity facilities being fairly adequate or not adequate may suggest an overloading problem as a result of increase in use. Whichever is the case, effective planning includes evaluation and monitoring to make room for adjustments where necessary. The electricity design of the estate may require a review.

**8.7 Respondents' Opinion on how long electrical faults stay before repair.**

In a way to assess the maintenance culture on the electrical facilities in the estates, respondents were asked to provide more information on how long it stays before electrical faults are repaired. Table 5.43 reveals that majority of the respondents in Ahocol I and II (43.2% and 53.6%)l Iyiagu –(49.2%) and Real (40.9%) indicated after a long time with the exception of Udoka where the majority indicated within a week (34.5%). Other variables such as within a day, within two days and within three days that were indicated by the respondents occurred at low percentages.

 

Table 7.0 – Respondents' Opinion on how long electrical faults stay before repair

| S/N | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | ***Real*** | | Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Within a day | 17 | 10.5 | 1 | 2.7 | 3 | 2.7 | 5 | 7.9 | 10 | 7.6 | 36 | 7.1 |
| B | Within two days | 33 | 20.4 | 2 | 5.4 | 11 | 9.8 | 17 | 27 | 12 | 9.1 | 75 | 14.8 |
| C | Within three days | 21 | 13 | 8 | 21.6 | 12 | 10.7 | 7 | 11.1 | 21 | 15.9 | 69 | 13.7 |
| D | Within a week | 56 | 34.5 | 10 | 27 | 26 | 23.2 | 3 | 4.8 | 35 | 26.5 | 130 | 25.7 |
| E | After a long time | 35 | 21.6 | 16 | 43.3 | 60 | 53.6 | 31 | 49.2 | 54 | 40.9 | 196 | 38.7 |
| | Total | 162 | 100 | 37 | 100 | 112 | 100 | 63 | 100 | 132 | 100 | 506 | 100 |

Source: Researcher's field survey, 2008.

Now that the research reveals that PHCN is responsible for the maintenance of electrical facilities, the maintenance services of PHCN in the estates are by this evaluated. If electrical faults are generally repaired after a long time, then the residents cannot do without an alternative source of supply otherwise they remain in darkness. There would also be no justification to penalize the estate community if they try to repair or replace electrical facilities on their own. More so, this has revealed some fundamental problems in our public housing estates.

**8.8 Respondents' opinion on the problems experience in the use of the sanitary facilities**

To elucidate information that has to do with the quality of service obtained from the sanitary facilities in the estates, respondents were asked to state the problems experienced in using the facilities. Table 8.0 reveals a collection of problems listed by the respondents. All the respondents from Udoka (100%) housing estate indicated "no problems". Recalling that in Udoka, houses were provided by the residents themselves, they may have provided quality sanitary facilities seeing its importance. No household would want to have problems in this regard. So, this may have informed the general response that there is no problem.

Table 8.0: Respondents' opinion on the problems experience in the use of the sanitary facilities

| | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. | Excessive bad odour | - | - | - | - | - | - | 3 | 4.8 | 19 | 14.4 | 22 | 4.3 |
| b. | Flies | - | - | - | - | - | - | 6 | 9.5 | 28 | 21.2 | 34 | 6.7 |
| c. | Distant location | - | - | - | - | 1 | 0.9 | - | - | 3 | 2.3 | 4 | 0.8 |
| d. | Poor quality const. work | - | - | 27 | 73.0 | 68 | 60.7 | 45 | 71.4 | 62 | 46.9 | 202 | 40 |
| e. | Household size | - | - | 5 | 13.5 | 22 | 19.6 | - | - | 8 | 6.1 | 35 | 6.9 |
| f. | Not maintained | - | - | 5 | 13.5 | 21 | 18.8 | 9 | 14.3 | 12 | 9.1 | 47 | 9.3 |
| g. | No problems | 162 | 100 | - | - | - | - | - | - | - | - | 162 | 32.0 |
| | Total | 162 | 100 | 37 | 100 | 112 | 100 | 63 | 100 | 132 | 100 | 506 | 100 |

Source: Researcher's Field Survey, 2008.

The opinion of respondents from other estates gave a list of problems ranging from poor quality construction work (40%), lack of maintenance (9.3%), household size (6.9%), flies (6.7%), excessive odour (4.3%) and distant location (0.8%). Poor quality construction work will definitely result into poor services, frequent breakdowns, leakages and excessive bad odour. The entire estate environment by this is uncondusive and unhealthy for human habitation. Our model housing estates ought not to be so.

**8.9 Respondents' assessment of solid waste disposal dumps within the estate**

Respondents were asked to assess the solid waste dump sites within their estates to ascertain how these sites are managed. A total of 64.2% indicated that the sites litter the streets. Other issues raised by the respondents include that the sites pollute the air (13%) and that the sites are not treated at all (4.2%). Though table 5.55 reveals that majority of respondents from each of the estates are of the opinion that the dumps are fairly managed, field observation shows that the dump sites creates unpleasant odour around the environment.

Table 9.0: Respondents' assessment of solid waste disposal dump within the estate

| | Variables | Udoka | | Ahocol I | | Ahocol II | | Iyiagu | | Real | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. | Properly managed | 5 | 3.1 | 5 | 13.5 | - | - | 2 | 3.1 | 3 | 2.3 | 15 | 3.0 |
| b. | Fairly managed | 106 | 65.4 | 23 | 62.2 | 73 | 65.2 | 41 | 65.1 | 82 | 62.1 | 325 | 64.2 |
| c. | Pollutes the air | 25 | 15.4 | 2 | 5.4 | 5 | 4.5 | 19 | 30.2 | 15 | 11.4 | 66 | 13.0 |
| d. | Litters the street | 16 | 9.9 | 2 | 5.4 | 32 | 28.5 | 1 | 1.6 | 28 | 21.2 | 79 | 15.6 |
| e. | Not treated at all | 10 | 6.2 | 5 | 13.5 | 2 | 1.8 | - | - | 4 | 3.0 | 21 | 4.2 |
| | Total | 162 | 100 | 37 | 100 | 112 | 100 | 63 | 100 | 132 | 100 | 506 | 100 |

Source: Researcher's Field Survey, 2008.

 

Table 10.0: Summary of Pearson's Correlation results on Income status of residents in public housing estates and the condition of basic physical infrastructure facilities

| S/No | Variables | | | |
|---|---|---|---|---|
| | | Income Level | Decision | |
| | | Correlation | Significance | **NSR** |
| 1. | What is your assessment of the roads in the estate? | -.027 | .548 | **SR** |
| 2. | What is the condition of the roads during rains? | -.094 | .034 | **NSR** |
| 3. | What is your own assessment of the road drains? | -.065 | .144 | **SR** |
| 4. | How do you assess the maintenance of the roads? | .134 | .003 | **NSR** |
| 5. | How do you obtain your daily water needs? | -.047 | .294 | **NSR** |
| 6. | How regular is electricity supply? | .053 | .235 | **SR** |
| 7. | Alternative electricity supply source | -.199 | .000 | **SR** |
| 8. | Assessment of electricity facilities | -.161 | .000 | **NSR** |
| 9. | Assessment of solid waste disposal facilities | -.014 | .759 | **NSR** |
| 10. | Frequency of solid waste evacuation from dump. | -.062 | .167 | **SR** |
| 11. | Problems experience in the use of sanitary facilities | -.137 | .002 | **SR** |

NSR – No significant Relationship
SR – Significant Relationship
Level of significance: 0.05 and 0.01 (2 tailed)

**8.10 Implications of Pearson's Correlation results**

Pearson's Correlation statistical tool was used to test whether there is a relationship between the income status of residents in public housing estates and the condition of basic physical infrastructure facilities. The analysis reveals that while there is significant relationship in the condition of some facilities, significant relationship did not exist in others. The general implication is that the income status has a significant relationship with the condition of basic physical infrastructure facilities. Field observation revealed that allocations into some estates like Iyiagu and Real Estates were done on the basis of income status. This may have been responsible for the significant correlation observed. Furthermore, an estate like Udoka is predominantly occupied by Senior and Management cadre of workers (see table 10.0). This may also have implications on the condition of basic infrastructure facilities.

**9.0 Planning Implications**

The research findings clearly support the view that provision of basic infrastructure in public housing in Awka is greatly neglected. No wonder, according to Okoye (2009) residents of public housing are relocating to private estates where there is provision and maintenance of these facilities. To reassure the public that government is still interested in public housing provision, these urgent steps must be taken by both urban planners and the government:

1. The estate layout designs should, from inception, incorporate designs and provision of basic infrastructure facilities.
2. Adequate site and services should be provided before construction housing units.
3. In other to make for quality housing provision, the intending residents of housing estates should be brought into partnership with the government agencies in charge of the provision.
4. The agencies in charge of housing estate should institute maintenance strategies for managing the basic infrastructure facilities.

**10.0 Conclusion**

This research assessed the conditions of basic physical infrastructure facilities viz roads, drainages, water, electricity, sanitary facilities and solid waste disposal facilities in Awka public housing estates correlated with the household level of income. The study which was carried out in Udoka, Ahocol I and II, Iyiagu and Real Estates being the selected estates in Awka observed generally poor condition of basic physical infrastructure facilities. While some basic physical infrastructure facilities like water and drainages were neglected others provided are not rendering the desired services to the residents.

Analysis results reveal that while there are significant relationships in the condition of some facilities with the income status of the residents, there are no significant relationships in others. The research observed that the middle and high income workers were given more opportunities to occupy and in turn own houses in the estates. Low income earners are completely neglected.

However, housing development goes beyond simple shelter. It includes utilities and services. All these place housing as an important factor in general well being of the society. Our public housing estates which are government initiated, planned and managed purpose to provide sufficient and adequate housing to the people ought to be model of housing provision especially in basic infrastructure facilities. The condition of basic

 

infrastructure in our public housing estates especially in Awka calls for great concern. The government's commitment towards provision of housing for the workers is in doubt since housing is not just provision of housing units alone. The big question that arises is if the basic infrastructure facilities provision were observed to be so in our model estates, what is the status of non-basic infrastructure such as health facilities, education, recreation, transportation, security and telecommunications? This is against the millennium development goals with great implications on the people. The Government will have to do a rethink on whether to continue with public housing provision or not.

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