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ASSESSMENT OF RESIDENTS' PERCEPTION OF INFRASTRUCTURE DELIVERY IN NIGERIA: THE TALE OF OSOGBO

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Peoples 'perception of the delivery of infrastructure is important in urban planning. This is because urban planning is a public activity hence information from people who are the recipient of planning activities assist stakeholders either to reverse deteriorating conditions or enhance existing successful programs. This paper assessed residents 'perception of infrastructure delivery across the identified different residential zones of Osogbo, Nigeria. This was with a view to identify the factors influencing residents 'perception of infrastructure delivery in the study area. The study area was stratified into three identified residential zones (traditional, transition and sub-urban). Using systematic sampling technique a total of 390 residents were selected for survey. Findings from the study revealed that residents ' socio-economic characteristics varied significantly with different residential zones.The study established that variation existed in the condition of environmental infrastructure across the study area. Also, the importance and satisfaction that residents derived from available infrastructure varied across residential differentials. Regression analysis revealed that residents perception of infrastructure delivery are significantly influenced by age with Beta value (β = -.253; p<.005), income (β = -0.197; p<.005), length of stay (β = 0.297; p<.005), and educational status (β = 0.281; p<.005). The study concluded that residents ' perception of infrastructure delivery differ significantly across the identified residential zones as reflected by residents socio-economic characteristics. The study recommends adequate provision of infrastructure needed by each category of people in the city.

Keywords: delivery, infrastructure, Nigeria, perception, urban planning

INTRODUCTION

All over the world, the presence and condition of environmental infrastructure has been adjudged as a key determinant of the socio-economic wellbeing of the people. This is because the economic prosperity of a nation is strongly tied to the adequate provision of infrastructural development (Olowoporoku, 2017; OECD, 2015; Fagbohunka, 2014). The World Bank (2004) noted that every 1% of government funds spent on infrastructure leads to an equivalent 1% increase in

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GDP in any country. Therefore, the role of infrastructure in the growth and development of any nation cannot be over emphasized. This has prompted governments in both developed and developing countries to make concerted efforts towards the provision of infrastructure that will be of benefit to the citizens (Fagbohunka, 2014). Despite the efforts, the provision of infrastructure has not met the demands of households, businesses and other users especially in the developing world and has become a major challenge to the government and other concerned stakeholders (Daramola & Olowoporoku, 2018 Obikunle, 2019).

The delivery of infrastructure is directly or indirectly essential in the determination of quality of life. According to Middleton (2011), infrastructure delivery involves the process of supplying infrastructure for residents and ensuring that they have access to the derivable benefits from its delivery. In another parlance, infrastructure delivery is the means by which facilities and services needed for the sustainability of an environment are identified and provided for (Obikunle, 2019). In Nigeria, the delivery of infrastructure is carried out majorly by the government and sometimes supported by private individuals and organizational investors. The performance of infrastructure delivery in Nigeria remains poor, unsatisfactory and has become a disease eating into the country's economic development (Daramola & Olowoporoku, 2018). Therefore in order to gain information on infrastructure delivery there must be an alignment of thoughts between the providers and the recipients of the infrastructure.

As established by Obikunle (2019) the efficiency of the delivery of infrastructural can be measured by the recipients 'level of access (availability, condition, importance and satisfaction) of infrastructure. Therefore, in order to measure the level of infrastructure delivery, opinions and perception data is needed. Perception refers to how individuals organize and interpret their impression about the environment (Olowoporoku, 2017). Peoples 'perception of infrastructure delivery provides a broad understanding of their opinion about infrastructure provided. It comprises their opinion of its availability, condition, importance and satisfaction derived from its provision. Furthermore, it is important to understand the factors that contribute to the positive or negative perception and attitudes of residents towards infrastructure because it helps to gain a deeper understanding of the residents 'attitudes and statistically measure the effectiveness of the provided infrastructure (Parks, Kearns & Atkinson, 2002).

LITERATURE REVIEW

According to Kadiri, Stephen and Godwin (2015), infrastructure is defined as the aggregate of facilities which aids the effective functionality of a city. It comprises a wide range of economic and social facilities that creates an enabling environment for growth and improved quality of life (Ifediora, Ogunlola & Olubi 2014; Nubi, 2002). In a broader sense, Fulmer (2009) defined infrastructure as the physical components of interrelated systems providing services that are essential to enable, sustain and enhance the living conditions of residents. They includes power, water supply, sewerage, communication, schools, roads and bridges, airports, railways, designated green areas, housing, urban services. Infrastructure are broadly categorized into two namely social and economic (Obikunle, 2019; OECD 2015; UN-Habitat, 2015; Fagbohunka, 2014; Palei 2014; Torrisi, 2010). Economic

infrastructure refers to facilities, activities and services provided to facilitate production and consumption. On the other hand, social infrastructures are facilities that support social services with indirect impact on the welfare of the people (Daramola & Olowoporoku, 2018; Torrisi, 2010). Nevertheless, the delivery of infrastructure has been a source of concern in Nigeria

Issues related to infrastructure have aroused the interest of researchers both in the developed and developing world. In the developed world, emphasis has shifted towards maintenance of infrastructure that have been put in place (Srinivaso, 2013; Fulmer, 2009; Torrance, 2009) while the developing world is battling with the adequate provisions of infrastructure (Fagbohunka, 2014). Studies that have examined infrastructural development in Nigeria (Obikunle, 2019; Fagbohunka, 2014; Ibrahim, 2010; Oyedele, 2006; Abdulkareem & Adeoti, 2004) focused on the economic potentials of provision and maintenance of infrastructure. These past studies did not extensively discuss public perception of the delivery of available infrastructure and this study is a conscious attempt to bridge this gap. Information on residents 'perception of infrastructure delivery are central to policy making as they aid policy makers in making enlightened decisions towards provision of infrastructure in the study area and others with similar background.

Materials and Methods

The study area is Osogbo, the capital of Osun State, located in south-western part of Nigeria. It was founded in the late 18th century and originated as a traditional as well as cultural city. Following the creation of Osun State in 1991, Osogbo assumed the status of a state capital. Over the years, Osogbo has witnessed tremendous growth both spatially and demographically. Its nature as a nodal settlement and the initial establishment of a railway station are factors in the growth of Osogbo. The National Bureau of Statistics (NBS) (2007) reported the population of Osogbo in the 2006 population census to be 287,156persons. The World Population review (2021) projected the population of the city as 720, 539 persons.

The city is mainly covered by two Local Government Areas (LGAs) which are Osogbo and Olorunda. The two LGAs in the city contain 26 political wards as delineated for election purposes. A typical characteristic of traditional African cities is the presence of homogeneous residential zones. Three homogeneous residential zones are identified in Osogbo: the core, the transition and the sub-urban. These identified zones are arranged in radial pattern following the concentric zone theory of Ernest Burgess of 1920s. Each of these zones is observed to be internally homogeneous in terms of physical characteristics, socio-economic status and availability of environmental amenities.

The core residential area, is the centre of the city. It is the home to indigenes and first migrant settlers. It accommodates the king palace, traditional markets, shrines, market square and the town hall. Residential buildings in this zone are closely built together and connected to one another with foot paths in a serpentine manner. It is characterized by aged buildings, built mainly of traditional system and old building materials. Residents in this zone are of low income status and low educational qualification. The zone is usually devoid of adequate environmental amenities.

The transition zone evolved during the colonial rule. It is the intermediate zone after the core residential area. The zone is characterized with improved road accessibility and better provision of environmental amenities. Heterogeneity of ethnic composition of residents in introduced in this zone. The sub-urban residential zone is characterized with well laid out plans. The ethnic composition is more heterogeneous and the residents mostly engage in white collar jobs. The building types comprised mainly flats and duplexes with small private open spaces. Also, the zone is of better provision environmental amenities compared with the other two zones. Nevertheless population density in the zone is smaller when compared with the other two zones.

METHODOLOGY

The 26 political wards in the city of Osogbo were stratified into the identified residential zones. This comprised seven wards in the core area, ten wards in the transition zone and nine wards in the sub-urban zone. Due to the homogeneity of the residential zones, one ward was selected in each of the three residential zones. In the three selected wards, every 10th residential building was sampled sequel to enumeration of buildings based on street numbering system and counting of buildings where houses were not numbered, especially in the core area. In each selected buildings, the focus was on any adult from age 18 years and above. The benchmark of 18years is premised on the appointed age of legal transition into adulthood in the country. A total of 390 residents were selected from the 390 selected buildings on which questionnaires were administered. The sample comprised 135 respondents in the core area, 147 respondents in transition area and 108 respondents in the sub-urban area.

Primary data were collected through the administration of the questionnaire on household heads in the area during the site observation and survey by the research team. The questionnaire addressed the socioeconomic characteristics of residents as well as the condition, importance and satisfaction residents derived from the available infrastructure in the study area. Analysis of the data was done using cross tabulation, Analysis of Variance (ANOVA) and Regression Analysis. Data on the condition of infrastructure were obtained using a 5-point Likert scale. Residents were to express their opinions using: scales of 'Very Good '(5), 'Good '(4), 'Fair '(3), 'Poor (2) 'and 'Very Poor (1)'. The respondents were likewise asked to rate the importance they attached using the scales of Very Important '(5), 'Important '(4), 'Just Important '(3), 'Not Important '(2) 'and 'Not Important at all '(1)'.The opinions of respondents based on the satisfaction they derived from available infrastructure was measured using the scale: 'Very Dissatisfied '(5), 'Slightly Dissatisfied '(4), 'Just Satisfied '(3), 'Moderately Satisfied '(2) 'and 'Very Satisfied '(1)'. These mean indexes were interpreted in the analysis as: 1-2.4 (low), 2.5 - 3.5 (moderate) and 3.6 - 5.0 (high).

The mean index was used to analyze the condition of infrastructure, importance attached to infrastructure and the satisfaction residents derived from the available infrastructure with the results "Infrastructure Condition Indexes" (ICIs), "Importance Attached to Infrastructure Indexes ''and "Satisfaction Derived from Infrastructure" (SDRIs) were evolved from the analysis of the responses. The summation of weight value (SWV) for each item was obtained through the sum of the product of the

number of responses to each item and the respective weighted value attached to each rating. This is expressed mathematically as:

$$SWV = \sum_{I=1}^{5} X_i Y_i$$

Where:

SWV = summation of weight value,
Xi = number of respondents to rating i;
Yi = the weight assigned a value (i = 1, 2, 3, 4, 5).

The ICI for each item on the scale was arrived at by dividing the SWV by the total number of respondents (N=390), mathematically expressed as:

$$ICI = \frac{SWV =}{N}$$

The $\bar{ICI}$ later was computed by summing the rating on the condition of infrastructure and dividing by the number of the number of infrastructure (n), mathematically expressed as:

$$\bar{ICI} = \frac{ICI}{n}$$

The infrastructure with the actual values of the $\bar{ICI}$ indicated a fair level of the condition of the infrastructure. Values with positive deviations indicated good condition of infrastructure, while those with negative deviations indicated poor condition of infrastructure. The ranks of the index values were likewise provided.

The deviations around the mean for each Infrastructure Condition Index was also computed. The deviations were representative measures of dispersion that provided information on the condition of infrastructure as perceived by the residents. The variables with positive deviations implied good condition of infrastructure, while those with negative deviations indicated low poor condition of infrastructure. The same procedure that was used in computing the Importance Attached to Infrastructure Indexes and Satisfaction Derived from Infrastructure. Examples of similar uses are found in studies by Olowoporoku et al (2020), Afon (2011), Afon, Abolade, and Okanlawon (2006).

RESEARCH FINDINGS

This section discusses the profile of the respondents. It also contains discussions on the availability, condition, importance and satisfaction residents derive from the available infrastructure in the study area.

Socio-economic attributes of residents

Socioeconomic attributes of people have been established to be a crucial factor in the assessment of people's opinion on various environmental concerns (Lindell, 2013; Twig & Mose, 2017; Olowoporoku, Daramola & Odunsi, 2021; Olawuni, Daramola & Odunsi, 2021). In this study, variables discussed in this regard are gender, age, income, educational status, length of residence and household size.

Table 1: Socioeconomic attributes of respondents

Attribute	Core	Transition	Sub-urban	Total
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Male	69 (51.1)	48 (32.7)	27 (25.0)	144 (36.9)
Female	66 (48.9)	99 (63.3)	81 (75.0)	246 (63.1)
Total	135 (100.0)	147 (100.0)	108 (100.0)	390 (100.0)
Age				
Less than 20	39 (28.9)	27 (18.4)	15 (13.9)	81 (20.7)
20-40	87 (64.4)	87 (59.2)	69 (63.9)	243 (62.3)
41-60	9 (6.7)	18 (12.2)	18 (16.6)	45 (11.5)
≥60	0 (0.0)	15 (10.2)	6 (5.6)	21 (5.4)
Total	135 (100.0)	147 (100.0)	108 (100.0)	390 (100.0)
Educational Status				
No Formal Education	31(22.9)	9 (6.1)	3 (2.8)	43 (11.0)
Primary	39 (28.9)	42 (28.6)	24 (22.2)	105 (26.9)
Secondary	54 (40.0)	66 (44.9)	18 (16.7)	138 (35.4)
Tertiary	11 (8.1)	30 (20.4)	63 (58.3)	104 (26.7)
Total	135 (100.0)	147 (100.0)	108 (100.0)	390 (100.0)
Income Status				
≤₦30,000	120 (88.9)	63 (42.9)	42 (38.9)	225 (57.7)
₦31,000- ₦90,000	12 (8.9)	75 (51.0)	45 (41.7)	132 (33.4)
≥₦91,000	3 (2.2)	9 (6.1)	21 (19.4)	33 (8.7)
Total	135 (100.0)	147 (100.0)	108 (100.0)	390 (100.0)
Household Size				
1 – 5	18 (13.3)	35 (23.8)	57 (52.7)	110 (28.2)
6 – 10	45 (33.3)	70(47.6)	45 (41.7)	160 (41.0)
Above 10	72 (53.4)	42 (28.6)	6 (5.6)	120 (30.8)
Total	135 (100.0)	147 (100.0)	108 (100.0)	390 (100.0)
Length of Residence				
≤10years	45 (33.3)	33 (22.5)	24 (22.2)	102 (26.1)
11 – 20years	31 (23.0)	61 (41.5)	67 (62.0)	159 (40.8)
≥21 years	59 (43.7)	53 (36.0)	17 (15.8)	129 (33.1)
Total	135 (100.0)	147 (100.0)	108 (100.0)	390 (100.0)

As presented in Table 1, findings revealed that 36.9% of the respondents were males while majority (63.1%) were females. The continuous raw data collected on age of the residents were categorized into four to aid better presentation. Findings revealed that 20.7% of the respondents were less than 20 years of age, 62.3% respondents had age range of 20 – 40 years, 11.5% were within the age bracket of 41 – 60 years while the remaining 5.4% were above 60 years of age. Further findings revealed that the overall mean age was 39 years while the minimum and maximum ages were 19 years and 73 years respectively. The findings revealed that respondents were of age and could provide information on the delivery of infrastructure in the study area.

According to Daramola (2015) and Olowoporoku et al (2019), level of education of people is an important tool in the assessment of their opinion on any environmental matter. Findings on educational attainment of respondents in the

study area revealed that in the core area, 8.1% of the respondents had tertiary education. This increased in the transition and suburban zones to 20.4% and 58.3% respectively. On secondary education, 40.0% of the residents in the core area attained secondary education, in the transition it was 44.9% and 16.7% in the sub-urban zone. Residents with primary education comprised 28.9%, 28.6% and 22.2% in the core, transition and suburban areas of the study area. On the other hand, the proportion of respondents with no formal education comprised 22.9% in the core, 6.1% in the transition area and 2.8% in the suburban area. The proportion of respondents with no formal education decrease as distance increases from the core area to the sub-urban area while the proportion of residents with tertiary education decreases as distance reduces from the suburban to the core. These results are similar to earlier studies by Daramola and Olowoporoku, (2019), Daramola (2015) that increased educational level in traditional African cities varied directly with increase in distance from the core towards the sub-urban residential area. Since majority of the respondents attained a level of education, it is believed that they will have information on the availability, condition and satisfaction they derived from infrastructure in the study area.

Findings were made on the average monthly income of residents across the identified residential zones. For easy analysis, the initial quantitative data on residents 'average monthly income were grouped into three: low, medium and high. Incomes below ₦30,000 were categorized as low income. This is based on the prevailing Civil Service Salary Scale in the country. The minimum wage at the federal level in Nigeria is ₦30,000 while it ranges from ₦20,000 to ₦30,000 in the states of the federation. The medium monthly incomes were categorized as from ₦31,000 to ₦90,000 while residents earning above ₦90,000 were categorized as high income earners. Based on this categorization, findings revealed that variation in income classes existed across the three residential zones of the city. Further investigation revealed that the average monthly income computed for the core, transition and sub-urban stood at ₦21,330.00, ₦43,455.00 and ₦76,180.00 respectively while the overall mean monthly income was ₦43,203.00. These results revealed that income distribution varied significantly with residential areas and it increased with increase in distance from the core to the sub-urban. The ANOVA results ($F= 7.139$; $\rho< 0.002$) indicated that income distribution of the residents varied significantly with residential zones. The findings are in tandem with the studies carried out in other traditional African cities such as Ogbomoso (Afon, 2006) and Ibadan (Afron and Faniran, 2013; Daramola, 2015) where conclusions were made that residents 'income increased as distance increased from the core to the suburban areas of African traditional cities.

Investigations were made into household size of residents in the study area. A household was defined as a person or group of people with shared cooking and living arrangements. Thus, household size was measured by the number of people living together with common eating arrangement. Based on this, the household size of the residents was categorised into three. The household sizes of one to five members were categorised as small, those with six to ten members as medium while those with more than ten members was categorised as large. Findings revealed that, across the residential zones, 28.2% had small household size, 41.0% had medium household size while 30.8% had large household size. The calculated household size of respondents in the core, transition and sub-urban area were

eight persons, six persons and five persons respectively. The ANOVA results (F= 9.106; ρ< 0.001) also indicated that household size varied significantly with residential zones. Information on household size could provide information on adequacy of infrastructure in the study area.

Length of residence refers to the number of year(s) a household has been in the study area and it is considered relevant to this study. This is because the longer the period people live in an area; the more they are likely to understand the prevailing challenges in an area (Olaniyi, 2018; Daramola & Olowoporoku, 2016). For this study, the length of residence is divided into three categories of 1 to 10 years, 11 to 20 years and above 20 years. Findings revealed that 26.1% of the respondents had spent less than 10 years in their residential areas; 40.8% had spent 11 to 20 years while 33.1% of the residents had lived for more than 20 years in their residential areas. Further findings revealed the mean length of residence in the core was 31 years 19 years in the transition and 13 years in the sub-urban areas. From this analysis, it could be deduced that the residents have lived in the area for a considerable number of years and would be familiar with the environment and thus can provide adequate information on the delivery of infrastructure in the study area.

Condition of infrastructure

Presented in this section are findings on the condition of infrastructure available across the identified residential zones in the study area. The condition of infrastructure was measured using the Infrastructure Condition Index (ICI). Also the deviation about the mean (DM) for each infrastructure was calculated.

Table 2. Infrastructure condition index

Infrastructure	Residential zone					
	Core		Transition		Suburban	
	ICI	DM	ICI	DM	ICI	DM
Road Network	2.703	-0.188	3.366	0.536	2.237	-0.270
Public Tap	2.687	-0.204	1.268	-1.561	1.229	-1.278
Waste Collector Trucks	2.289	-0.602	2.947	0.117	3.171	0.664
Communication	2.289	-0.602	2.810	-0.019	2.135	-0.372
Electricity Supply	3.158	0.266	2.780	-0.049	3.132	0.625
Hospitals	3.522	0.630	3.211	0.381	1.818	-0.689
Public Schools	3.976	1.084	2.898	0.068	1.805	-0.702
Private Schools	3.151	0.259	3.176	0.346	3.989	1.482
Police station	2.932	0.040	3.658	0.828	3.738	1.231
Open spaces	1.909	-0.982	3.477	0.647	3.674	1.167
Drainage	2.424	-0.467	2.295	-0.534	1.659	-0.848
Railway	1.307	-1.584	1.982	-0.847	1.61	-0.897
Sewerage collection	4.01	1.118	2.366	-0.463	2.237	-0.270
Market	4.703	1.811	3.268	0.438	2.229	-0.278
Waste Disposal sites	2.317	-0.574	2.947	0.117	2.947	0.440
$\bar{ICI}$	2.891		2.829		2.507	

* ICI*= Infrastructure Condition Index *DM*= Deviation about the Mean

As contained in Table 2, the condition of infrastructure revealed that the computed mean Incident Condition Indexes ($(ICI)^{\bar{\perp}}$) in the core, transition, and suburban residential areas were 2.891, 2.829 and 2.507 respectively. Impliedly, the condition of infrastructure in the core was higher compared to the transition area and least in the suburban area. Infrastructure whose conditions were rated highest in the core area were markets (4.703), sewage collection (4.01), public schools (3.976), hospitals (3.522) and private school (3.151). In the transition zone, police station (3.658), open space (3.477), road network (3.366), market (3.268) and hospitals (3.211). In the suburban area, private school (3.989), police station (3.738), open spaces (3.674), waste collector trucks (3.171) and hospital (3.132). In summary, residents in the study area rated the condition of available infrastructure low. Infrastructures in low conditions are usually over stretched, damaged and cannot meet the demand of the consumers (residents).

Importance attached to infrastructure

Sequel to findings on the condition of infrastructure, investigation was made into the importance residents attached to available infrastructure in the study area. The level of importance that residents attach to infrastructure in the study area serves as an indicator to determine the value that residents attach to each infrastructure. Residents 'expression of the necessity of each infrastructure is presented in Table 3.

Table 3. Importance Attached to Infrastructure Index (IAII)

Infrastructure	Residential zone Core		Transition		Suburban	
	IAII	DM	IAII	DM	IAII	DM
Road Network	4.754	0.276	4.689	0.370	4.851	0.400
Public Tap	4.750	0.272	4.644	0.325	4.136	-0.315
Waste Collector Trucks	4.667	0.189	4.462	0.143	4.543	0.092
Power Supply Cables	4.529	0.051	4.333	0.014	4.521	0.070
Communication	4.508	0.030	4.689	0.370	4.778	0.327
Hospitals	4.492	0.014	4.381	0.062	4.438	-0.013
Public Schools	4.497	0.019	4.415	0.096	4.435	-0.016
Private Schools	4.471	-0.007	4.244	-0.075	4.778	0.327
Police station	4.457	-0.021	3.902	-0.417	4.053	-0.398
Open spaces	4.452	-0.026	3.902	-0.417	4.000	-0.451
Drainage	3.897	-0.581	3.194	-1.125	3.814	-0.637
Railway	3.754	-0.724	4.415	0.096	4.851	0.400
Sewerage collection	4.750	0.272	4.644	0.325	4.500	0.049
Market	4.667	0.189	4.462	0.143	4.543	0.092
Waste Disposal sites	4.529	0.051	4.415	0.096	4.521	0.070
$\bar{IAII}$	4.478		4.319		4.458	

* IAII*= Importance Attached to Infrastructure Index *DM*= Deviation about the Mean

Findings revealed that the importance respondents attached to infrastructure was higher in the core area, compared to the suburban area and compared to the transition area. This findings is in tandem with (Olaniyi, 2018; Daramola, Olowoporoku & Popoola 2017; Daramola, 2015; Afon & Faniran, 2011) which

stated residents in the core area attach more importance to infrastructure because majority of respondents are of the low income class and rely on public infrastructure for survival. In the core area, infrastructure that respondents attached most importance to were road network (4.75), public tap water (4.750), sewerage collection (4.750), waste collection trucks (4.667), market (4.667) and communication (4.539). In the transition area, road network (4.689), electricity supply (4.689), sewerage collection (4.644), markets (4.462), waste collection trucks (4.462) and public schools (4.215) were the infrastructure that residents attached high importance to while in the sub-urban area, road network (4.851), railway (4.851), electricity supply (4.778), private schools (4.778), waste collector trucks (4.543), markets (4.543) and communication (4.521) were the infrastructure that weighted highest in terms of importance attached to it by respondents. In summary, across the three residential areas, markets, waste collection trucks and electricity supply were the infrastructure that weighted highest in the three residential areas.

Satisfaction respondents derived from available infrastructure

Information on the satisfaction residents derived from the infrastructure will provide answers on the pleasure residents' derived from the infrastructure.

Table 4. Satisfaction Residents' Derived from Infrastructure Index (SRDI)

Infrastructure	Residential zone					
	Core		Transition		Suburban	
	SRDI	DM	SRDI	DM	SRDI	DM
Road Network	3.044	0.478	3.794	1.110	3.886	1.284
Public Tap	2.930	0.364	1.652	-1.032	1.829	-0.773
Waste Collector Trucks	2.889	0.323	2.646	-0.038	3.794	1.192
Communication	2.800	0.234	1.622	-1.062	2.788	0.186
Electricity Supply	2.767	0.201	3.533	0.849	3.722	1.120
Hospitals	1.767	-0.799	3.500	0.816	3.629	1.027
Public Schools	1.756	-0.810	1.438	-1.246	1.500	-1.102
Private Schools	1.707	-0.859	3.367	0.683	2.469	-0.133
Police station	3.548	0.982	2.114	-0.570	2.424	-0.178
Open spaces	2.366	-0.200	2.408	-0.276	2.382	-0.220
Drainage	2.256	-0.310	2.167	-0.517	1.310	-1.292
Railway	1.044	-1.522	1.094	-1.590	1.886	-0.716
Sewerage collection	2.930	0.364	3.652	0.968	2.829	0.227
Market	3.889	1.323	3.646	0.962	2.794	0.192
Waste Disposal sites	2.800	0.234	3.622	0.938	1.788	-0.814
$\overline{SRDI}$	2.566		2.683		2.602	

* SRDI*= Satisfaction Residents 'Derived from Infrastructure Index *DM*= Deviation about the Mean

The computed mean Satisfaction Residents' Derived from Infrastructure Index were 2.566, 2.638 and 2.602 respectively. From the computed ($(SRDI)^{\perp\overline{\ }}$),it is implied that the satisfaction residents derived from available infrastructure was more in the core compared with the suburban and compared with the transition area. In the core residential area, infrastructure that residents derived highest satisfaction from their delivery were markets (3.889), police station (3.548), road network (3.044), public

tap (2.930) and sewerage collection (2.930). On the other hand, railway, private school, public school and hospitals were the least weighted infrastructure in terms of satisfaction derived from them by residents in the residential zone. In the transition area, road network (3.794), sewerage collection (3.652), market (3.646), waste disposal sites (3.622), electricity supply (3.533) and hospital (3.50) were the highest rated infrastructure that residents derived satisfaction from their provision. Those that were least rated in terms of satisfaction derived in the transition area were railway, public schools, communication and public taps. In the suburban area, road network (3.866), waste collection trucks (3.794), electricity supply (3.722), hospitals (3.629) and sewerage collection (2.829) were the highest rated in terms of infrastructure while the least rated in the residential zone were drainages, public schools, waste disposal sites, public tap etc. In summary, it was revealed that satisfaction residents derived from the available infrastructure is very low.

Table 5: Residents' perception of the delivery of infrastructure regressed on socioeconomic characteristics

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	41.832	2.346		9.425	.000
Gender	.136	.108	.090	1.527	.097
Age	-.235	.005	-.127	-3.023	.005
Monthly income	-.197	.007	.203	6.548	.003
Number of years spent in the area	.297	.006	-.019	-.326	.004
Household size	-.033	.012	-.084	-1.289	. 166
Educational status	.281	.057	.247	4.337	.005

Dependent variable: Residents 'Experience of Urban Legibility; R = 0.356; R Square = 0.186 $p \leq 0.05$

Presented in Table 5 are results of the combined effects and the relative contributions of each independent variable on residents 'perception of the delivery of infrastructure. The composite correlation coefficient of the relationship between socioeconomic characteristics and residents 'perception of the delivery of infrastructure is 0.356. This value provides a good estimate of the overall fit of the regression model. The regression value (R2) which provides a good gauge of the substantive size of the relationship is 0.186 for this model. This implies that 18.6% of the variance in residents 'perception of the delivery of infrastructure is accounted for by the predictor variables. Also presented in the table is the relative contribution of each predictor variable to the variance in residents 'perception of the delivery of infrastructure in the study area. Variables that influenced residents ' perception of infrastructure delivery are significantly influenced by age with Beta value (β = -.253; $p<.005$), income (β = -0.197; $p<.005$), length of stay (β = 0.297; $p<.005$), and educational status (β = 0.281; $p<.005$). Other socioeconomic attributes such as gender and household size predictor variables have no significant effect on residents 'perception of the delivery of infrastructure in the study area. Therefore it can be concluded that a statistically significant relationship exists between residents 'perception of the delivery of infrastructure in the study area and socioeconomic attributes such as age, income, length of stay and

educational status in the study area. Thus, these variables serve as predictors of residents 'perception of the delivery of infrastructure in the study area.

CONCLUSION

This study assessed residents 'perception of infrastructure delivery across the identified residential areas in Osogbo, Nigeria. It also identified the factors influencing residents 'perception of infrastructure delivery in the study area. Specifically, the findings established that there were variations in the condition of infrastructure, importance residents attached to infrastructure and satisfaction derived from the provision of infrastructure across the residential zones of the city. These variations could be attributed to variation in socio-economic characteristics of residents across the residential areas of the city. The residents in the suburban area were satisfied with infrastructure delivery, this is because, and these residents are high income earners that can easily afford to provide some of the facilities privately. Based on the findings from the study, it is concluded that socio-economic characteristics such as age, income, length of stay and educational status significantly influenced residents 'perception of the delivery of infrastructure.

Based on these, the following are recommended to improve the delivery of infrastructure in Osogbo:

- government and other concerned stakeholders must invest in adequate provision of infrastructure in the study area. This can be achieved through the introduction of Public Private Partnership into infrastructure provision in the study area;
- government and other concerned stakeholders should ensure adequate maintenance and upgrade of existing infrastructure. Proper maintenance of infrastructure will help to improve the physical and economic life of the infrastructure. When infrastructure is maintained, residents get to enjoy its benefits and the institution (which most residents think should be the government) will save significant cost.
- infrastructure delivery, maintenance and monitoring needs planning and execution, one is not more important than the other, planning will include financial planning and budgetary, data gathering and analysis on the appropriate infrastructure to be provided and future control of infrastructure maintenance
- residents should be made to pay for the use of infrastructure in the study area in order to make them sustainable.

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