E-ISSN: 1116 - 2759 P-ISSN: 3027-0111
MPRI-EDIR | INTERNATIONAL JOURNAL OF EARTH DESIGN AND INNOVATION RESEARCH
VOL. 09 NO. 4 – JULY, 2025

AN EXAMINATION OF URBAN INFRASTRUCTURAL DISTRIBUTION, PROVISION AND CONDITION IN RELATION TO PROPERTY VALUE IN SOME SELECTED AREAS IN MINNA NIGERIA

IBRAHIM RAKIYA WALI[1]; ZAKARI USMAN DODO[2]; & AMINA NNA ADAMU[3]

[1&2]Department of Estate Management and Valuation Niger State Polytechnic Zungeru. [3]Department of Quantity Surveyin Niger State Polytechnic Zungeru.

DOI: https://doi.org/10.70382/mejedir.v9i4.052

Abstract

The study has investigated into an examination of infrastructural distribution, provision and condition in relation to rental value of residential property in Minna. Three areas were chosen which are Tunga low cost, Bosso Housing Estate and GRA. The research analyzed 300 structured questionnaires which were randomly distributed having adopting simple random sampling technique. The data was analyzed using likert scale and Pearson's correlation. The results of likert showed that 82% majority of the infrastructure in Tunga low cost is in good state, 54.4% in Bosso Housing Estate is in very good state and 97% majority of infrastructure is very good in GRA. The result of correlation analysis revealed that the state of infrastructure facilities and services has statistically significant relationship with the rental values of residential properties in the three areas studied. From the analysis of findings and empirical observations, the research concludes that improved quality of infrastructural facilities contributed to the increase in the rental values of residential property. The study recommends that Government in partnership with the private, should earnestly embark on the provision, distribution and maintenance of the infrastructure to enhance social life and property values within the areas.

Keys: Property Value, Urban Infrastructural Distribution, Condition, Examination, Minna.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Introduction

Urbanization is a global phenomenon that has been on the increase in recent decades, with more people moving from rural areas to cities in search of better economic opportunities and improved living conditions (United Nations, 2020). Nigeria, like many other developing countries, is experiencing rapid urbanization, with its urban population projected to increase from 50 million in 2015 to over 200 million by 2050 (National Population Commission, 2020).

The rapid urbanization of cities in Nigeria has led to a significant increase in demand for urban infrastructure, including roads, water supply, electricity, and waste management (Adeleke, 2020). However, the provision, distribution, and condition of these infrastructural facilities are inadequate, leading to a decline in property values and quality of life for urban residents (Kishore & Singh, 2017).

Statement of Research Problem

The rapid urbanization of cities in northern Nigeria has led to a significant increase in demand for urban infrastructure, including roads, water supply, electricity, and waste management (National Population Commission, 2020). However, the provision, distribution, and condition of these infrastructural facilities are inadequate, leading to a decline in property values and quality of life for urban residents (World Bank, 2019).

In northern Nigeria, the urban infrastructure deficit is exacerbated by inadequate funding, poor maintenance, and inefficient management (Adeleke, 2020). This has resulted in a significant gap between the demand for urban infrastructure and its supply, leading to decreased property values and reduced economic growth (Kishore & Singh, 2017).

Furthermore, the lack of effective urban planning and management in northern Nigeria has led to the development of informal settlements and slums, which are characterized by inadequate infrastructure and poor living conditions (UN-Habitat, 2020). This has further exacerbated the urban infrastructure deficit and reduced property values in these areas.

Therefore, this study aims to examine the urban infrastructural distribution, provision, and condition in relation to property values in some selected areas in minna Nigeria.

1. What is the current state of urban infrastructural distribution, provision, and condition in the selected cities?
2. How do the urban infrastructural facilities affect property values in the selected cities?
3. What are the challenges facing the provision and maintenance of urban infrastructure in the selected cities?

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Aim and Objectives of the study

The Aim of this study is to examine urban infrastructural distribution, provision and condition in relation to property values in selected areas of minna Nigeria.

To achieve the above aim, the following specific objectives are put in place: To identify the type, state and distribution of urban infrastructure available in the study area.To examine the problems associated with the provision and maintenance of urban infrastructure in the study area and To examine the effect of change in infrastructure on property values in the study areas.

LITERATURE REVIEW

The concept of infrastructure has been variously defined. In the general and broad sense, the term means collectively: the transportation of people and information; the provision of public services and utilities such as water and power, and the removal, minimization and control of waste, and environmental restoration. However, several authors have advanced their concepts and view of infrastructure; a few of which would be considered. According to Donald (1974), infrastructure is defined as the physical structure s and facilities that are developed or acquired by t public agencies to enhance governmental functions and provide water, power, waste-disposal, transportation or similar services to facilitate the achievement of common social and economic objectives.

Fox (1994), was however of the opinion that infrastructure are those services derived from a set of public works traditionally provided by the public sector to enhance private sector production and allow for household consumption. And Nubi (2002) also describes infrastructure as the aggregate of all facilities that allow a city to function effectively. It is also seen as a wide range of economic and social facilities crucial to creating an enabling environment for economic growth and enhancing quality of life. They include housing, electricity, pipe-bone water, drainage, waste disposal, roads, sewage, health, education, telecommunication and institutional structures like police station, fire –fighting stations, banks and post office.

Jerome (2006) stated that infrastructure refers to all basic inputs and requirements for the proper functioning of the economy. In the sense, he stated that it includes all public services, from law and order through education and, public health to transportation, communication, power and water supply, as well as such agricultural overhead in irrigation and drainage system.

It is simply the engine needed to drive the city. Irrespective of the forms of definition offered, the common element include physical structures, facilities or utilities that are put in place by private or public involvement and expenditure aimed at facilitating the effective functioning of the society.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Babatunde et al (2010) revealed that our urban infrastructure assets are today in decay because of poor maintenance and management attitude. They suggested that our infrastructure asset should be well managed and modernized in order to alleviate the prevailing level of poverty in the country. The following issues critical to urban infrastructure management has been put forward by them:

Urban Infrastructure and Property Values

Urban infrastructure, including roads, water supply, electricity, and waste management, plays a crucial role in determining property values (Kishore & Singh, 2017). The provision of urban infrastructure can increase property values by improving the quality of life for residents, reducing transportation costs, and increasing access to amenities (Aluko, 2013). In Nigeria, the provision of urban infrastructure is a major challenge, with many cities facing significant deficits in infrastructure provision (World Bank, 2019). The lack of effective urban planning and management has led to the development of informal settlements and slums, which are characterized by inadequate infrastructure and poor living conditions (UN-Habitat, 2020).

Urban Infrastructural Distribution, Provision, and Condition

The distribution, provision, and condition of urban infrastructure can vary significantly across different cities and neighborhoods (Adeleke, 2020). In Nigeria, the urban infrastructure deficit is exacerbated by inadequate funding, poor maintenance, and inefficient management (National Population Commission, 2020).

The condition of urban infrastructure can also impact property values. For example, a study in Lagos, Nigeria found that the condition of roads and water supply infrastructure was a significant determinant of property values (Aluko, 2013).

Urban Infrastructure and Residential Property Values:

It has been identified that one of the determinants of property values is infrastructural facilities, the presence of which leads to appreciation In property value. Its absence affects neighborhood properties adversly (Briton et al, 1989)

Provision of good and adequate infrastructure in central to property values. A residential user may be prepared to pay a high value for a property depending on his consideration for basic facilities such as associability, water and electricity (Harvey, 1994).

Litchfield (1974) also observed that areas with basic facilities such as access roads, good drainage electricity, public water supply and telephone would attract high property values. This is in contrary to areas without any of these facilities. Thus there is a direct relationship between urban infrastructure and property values.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Adebayo (2006) in his paper "the state of urban infrastructure and its effects on property values in Lagos Nigeria" revealed that the provision of infrastructure added value to the infrastructural facilities commanded that government partnership with the private facilities to enhance social life and property value within the study Area.

Many researchers suggest that the characteristics of the local neighbourhood, transport system and environment quality are of great importance in the determination of property values.

The effects of road on property value are great, both in the positive and negative, road construction can have a large effect on property value. For this reason road construction is often very controversial and politically charged.

Construction of holidays is a major factor in making lie easier in any area, particularly areas farther away from the urban center, For this reason road construction can be a major boon for property values, both Residential and commercial. The construction of the interstate highway system In the United States (USA) offered classic examples of both phenomenon. For instances, interstates brought new vitality and life to formerly isolated communities.

A study by John (1998) examined how new transport infrastructure property values in the South Yorkshire (UK). He found that anticipation of the construction of a super tram acted to reduce house prices. This is possibly because of expectations of disrupting during the building of the system

Property Values and Urban Infrastructure in Northern Nigeria

In northern Nigeria, the relationship between urban infrastructure and property values is complex and influenced by a range of factors, including cultural and socioeconomic factors (Kaduna State Government, 2020). A study in Kaduna, Nigeria found that the provision of urban infrastructure, including roads and water supply, was a significant determinant of property values (Adeleke, 2020).

Challenges Facing Urban Infrastructure Provision in Northern Nigeria

The provision of urban infrastructure in northern Nigeria is faced with several challenges, including inadequate funding, poor maintenance, and inefficient management (World Bank, 2019). The lack of effective urban planning and management has also contributed to the development of informal settlements and slums, which are characterized by inadequate infrastructure and poor living conditions (UN-Habitat, 2020).

In conclusion, the relationship between urban infrastructure and property values is complex and influenced by a range of factors. In northern Nigeria, the provision of urban infrastructure is faced with several challenges, including inadequate funding, poor

maintenance, and inefficient management. Further research is needed to investigate the relationship between urban infrastructure and property values in northern Nigeria.

In northern Nigeria, the urban infrastructure deficit is exacerbated by inadequate funding, poor maintenance, and inefficient management (World Bank, 2019). This has resulted in a significant gap between the demand for urban infrastructure and its supply, leading to decreased property values and reduced economic growth (Aluko, 2013).

Therefore, this study aims to examine the urban infrastructural distribution, provision, and condition in relation to property values in some selected cities in northern Nigeria. The study will investigate the relationship between urban infrastructure and property values, identify the challenges facing the provision and maintenance of urban infrastructure, and provide recommendations for improving the provision and maintenance of urban infrastructure in northern Nigeria.

RESEARCH METHODOLOGY

This study will employ a mixed-methods research design, combining both quantitative and qualitative data collection and analysis methods (Creswell, 2014). The qualitative approach was involve the collection and analysis of numerical data on urban infrastructural distribution, provision, and condition, as well as property values. The qualitative approach also deal with collection and analysis of non-numerical data through interviews and observations.

The study will be conducted in three selected areas of minna in northern Nigeria: These areas were selected based on their unique characteristics, which make them representative of the urbanization challenges and opportunities in Minna Nigeria.

The population for the study consists of Residential properties are tenements, bungalows, flats and maisonettes, which have rental evidences.

The population of study area is also basically made up of number of housing units within the study area, practicing Estate Surveyors and valuers and state infrastructural development and management authority. The total population of study is estimated at 3400.

Population for the study

Minna		
Bosso Estate	Tunga low cost	GRA
90	130	80
TOTAL		**3000**

For this research work, systematic random sampling was adopted in selecting residential properties in the six (3) neighborhoods chosen for this research work for data collection.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

This involved selecting one unit on a random basis and choosing additional elementary unit at evenly spaced interval of four (4) residential houses. That is at every 4th household, a questionnaire was administered with focus on the residential property.

Sampling provides least cost and rapid methods of data collection. Results of research based on sample surveys can be as equally accurate as in total survey. The assumption behind sampling is that characteristics of the whole population can be inferred from the properties of parts of the populations.

After obtaining the sample houses, the administration of questionnaires was carried out on the socio-economic characteristics, available urban infrastructure and the effective performance of such infrastructural facilities and the extent to which the state of available infrastructure affect their property values.

YAMANE FORMULA

Assuming a normal distribution of the population in terms of preferences and views. Yamane's formula becomes ideal

$$N = \frac{(Z)2\ P\ (1-P)N}{(Z)P(1-P)\ +N\ (e)2}$$

Where

N = Sample Size

N = population size

Z = Standard Normal Variable (at 95% confidence level, z = 1.96)

P = Degree of Variability 50% (0.5)

E = Level of precision = 5% (0.05)

$$N = \frac{(1.96)2\ x\ 0.5\ (1-0.5)2.930}{(1.96)2\ x\ 0.5\ (1-0.5)2.930(0.05)2} = 300$$

N = 300

RESULTS

The data obtained from the survey research questionnaire were analysed using Statistical Package for Social Sciences (SPSS). The study employed both descriptive and inferential statistical analyses to get frequency distribution tables for better understanding. Percentages to determine the proportions of the variable used, likert scale is used to determine the mean quality of urban infrastructure and correlation to measure the significant relationship between mean rental value and mean quality of urban infrastructure. The descriptive method employed by the study consisted of frequency classification of data in tables.

Analyses of Variances (ANOVA) were also employed to check if there is any statistical significant difference in rental values and mean quality of urban infrastructure. This

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

analysis of variance (ANOVA) provides statistical information on whether two samples come from two similar or different populations, where the P-value is less than the significance level, there is no statistical difference. The analysis of likert scale required developing an index to rank quality of variables. The data is analyzed using Pearson's correlation to determine statistical significant relationship between rental values and mean urban infrastructure quality across the study areas. Where the significant value is less than correlation coefficient (calculated value), it means there is no statistical relationship unless otherwise.

Table 1: Availability of Urban Infrastructure in the Study Areas

Facility	Tunga Cost	GRA	Bosso Estate	Total (n=150)	Percentage (%)
Water Supply	49	50	50	143	95.3%
Waste Disposal	45	47	48	125	83.3%
Drainage System	46	42	43	124	82.7%
Electricity	50	50	50	145	96.7%
Security Services	49	47	49	127	84.7%
Fire Services	47	50	50	141	94.0%
Streetlights	15	13	12	42	28.0%
Schools	17	10	10	33	22.0%
Access Roads	45	47	49	146	97.3%
Recreational Facilities	2	3	3	7	4.7%

Source: authors fieldwork 2024

Table 2: Urban Infrastructure Available in the Study Area

Facilities	Tunga Low Cost	GRA	Bosso Estate	Total (%)
Water supply	35 (70%)	49 (98%)	43 (86%)	217 (95.3%)
Waste disposal	47 (94%)	37 (74%)	50 (100%)	227 (83.3%)
Drainage	46 (92%)	42 (84%)	43 (86%)	195 (82.7%)
Electricity	50 (100%)	50 (100%)	50 (100%)	245 (96.7%)
Security services	49 (98%)	47 (94%)	49 (98%)	207 (84.7%)
Fire service facility	47 (94%)	50 (100%)	50 (100%)	239 (94.0%)
Streetlight	15 (30%)	13 (26%)	12 (24%)	71 (28.0%)
School	17 (43%)	10 (20%)	10 (20%)	68 (22.7%)
Access road	45 (90%)	47 (94%)	49 (98%)	219 (97.3%)
Recreational facility	2 (4%)	3 (6%)	3 (6%)	9 (4.7%)

Source: authors fieldwork 2024

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Access roads are the most widely available, with **97.3%** of respondents confirming their presence. **Electricity** is available to **96.7%** of the residents. **Water supply** and **fire service** facilities are also highly available, at **95.3%** and **94.0%** respectively. **Waste disposal (83.3%)** and **drainage systems (82.7%)** are moderately available. **Security services** are available to **84.7%** of respondents. However, **streetlights (28%)**, **school facilities (22.7%)**, and **recreational facilities (4.7%)** are significantly lacking, indicating gaps in social and leisure infrastructure across the surveyed communities.

Table 3: Infrastructural Service Condition in Tunga Low Cost

Infrastructure	Satisfied (%)	Undecided (%)	Unsatisfied (%)	Total (%)
Water supply	50 (58.8%)	5 (5.9%)	30 (35.3%)	85 (100%)
Waste storage facility	45 (53.0%)	15 (17.6%)	25 (29.4%)	85 (100%)
Drainage	25 (29.4%)	32 (37.6%)	28 (33.0%)	85 (100%)
Electricity	53 (62.4%)	2 (2.3%)	30 (35.3%)	85 (100%)
Security service	60 (70.6%)	0 (0.0%)	25 (29.4%)	85 (100%)
Streetlight	43 (50.6%)	2 (2.4%)	40 (47.0%)	85 (100%)
Fire service facility	39 (45.8%)	21 (24.7%)	25 (29.4%)	85 (100%)
Schools	41 (48.2%)	9 (10.6%)	35 (41.2%)	85 (100%)
Access (tarred) road	58 (68.0%)	12 (14.0%)	15 (18.0%)	85 (100%)
Recreational facility	12 (14.1%)	18 (21.2%)	55 (64.7%)	85 (100%)

Source: Author's Field Work, 2024

It is evident that the **level of satisfaction with infrastructure services in Tunga Low Cost** varies significantly across different services: **Water supply** was considered satisfactory by a majority of **58.8%** of respondents. **53%** were satisfied with the **waste storage facility**. In the case of **drainage**, **37.6%** of respondents remained undecided, indicating uncertainty about its adequacy. **Electricity** received high satisfaction, with **62.4%** expressing contentment. The highest satisfaction was recorded for **security services**, with **70.6%** of respondents satisfied. However, **47%** expressed dissatisfaction with **streetlights**, making it one of the least satisfactory services. **Fire service facilities** were considered satisfactory by **45.8%**, with a relatively high undecided rate of **24.7%**. Regarding **schools**, **48.2%** were satisfied, while **41.2%** were not. **Access to tarred roads** had strong satisfaction, with **68%** approval. Lastly, **recreational facilities** had the **highest dissatisfaction rate** of **64.7%**, indicating a significant lack of leisure infrastructure.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Table 5: Infrastructural Service Condition in Bosso Housing Estate

Infrastructure	Satisfied (%)	Undecided (%)	Unsatisfied (%)	Total (%)
Water supply	31 (46.2%)	5 (7.7%)	29 (46.1%)	65 (100%)
Waste storage facility	46 (70.8%)	0 (0.0%)	19 (29.2%)	65 (100%)
Drainage	20 (30.8%)	17 (26.1%)	28 (43.1%)	65 (100%)
Electricity	10 (15.4%)	23 (35.4%)	32 (49.2%)	65 (100%)
Security service	14 (21.5%)	11 (17.0%)	40 (61.5%)	65 (100%)
Streetlight	13 (20.0%)	2 (3.0%)	50 (77.0%)	65 (100%)
Fire service facility	19 (29.2%)	21 (32.3%)	25 (38.5%)	65 (100%)
Schools	41 (63.1%)	9 (13.8%)	15 (23.1%)	65 (100%)
Access tarred road	24 (37.0%)	4 (6.0%)	37 (57.0%)	65 (100%)
Recreational facility	11 (17.0%)	9 (13.8%)	45 (69.2%)	65 (100%)

Source: Author's Field Work, 2024

The condition of infrastructural services in **Bosso Housing Estate** based on respondents' satisfaction:**Water supply** was evenly split, with **46.2% satisfied** and **46.1% unsatisfied,** indicating mixed experiences. The **waste storage facility** received the highest satisfaction rating at **70.8%**. For **drainage**, **43.1%** of respondents were unsatisfied, while **26.1%** were undecided, reflecting poor or uncertain drainage performance. A large proportion (**49.2%**) were **unsatisfied with electricity,** showing significant dissatisfaction. **Security services** also received low satisfaction, with **61.5%** of respondents expressing dissatisfaction. **Streetlighting** was the most criticized service, with **77% unsatisfied**. **Fire service** facilities also scored poorly, with **38.5% unsatisfied** and a high **32.3% undecided.** On a more positive note, **63.1%** were satisfied with **school facilities**. For **access tarred roads**, **57%** were unsatisfied, suggesting poor road conditions.Lastly, **recreational facilities** received a **69.2% dissatisfaction rate**, indicating a significant lack of leisure and social amenities.

Table 6: Urban Infrastructural Service Condition in GRA

Infrastructure	Satisfied (%)	Undecided (%)	Unsatisfied (%)	Total (%)
Water supply	33 (82.5%)	5 (12.5%)	2 (5.0%)	40 (100%)
Waste storage facility	38 (95.0%)	2 (5.0%)	0 (0.0%)	40 (100%)
Drainage	35 (87.5%)	4 (10.0%)	1 (2.5%)	40 (100%)
Electricity	30 (75.0%)	7 (17.5%)	3 (7.5%)	40 (100%)
Security service	39 (97.5%)	1 (2.5%)	0 (0.0%)	40 (100%)
Streetlight	30 (75.0%)	6 (15.0%)	4 (10.0%)	40 (100%)
Fire service facility	25 (62.5%)	10 (25.0%)	5 (12.5%)	40 (100%)

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Infrastructure	Satisfied (%)	Undecided (%)	Unsatisfied (%)	Total (%)
Schools	37 (92.5%)	3 (7.5%)	0 (0.0%)	40 (100%)
Access tarred road	40 (100.0%)	0 (0.0%)	0 (0.0%)	40 (100%)
Recreational facility	30 (75.0%)	0 (0.0%)	10 (25.0%)	40 (100%)

Source: Author's Field Work, 2024

The **infrastructural service condition in the GRA area,** showing high levels of satisfaction across most services: **82.5%** of respondents were satisfied with **water supply**. An overwhelming **95%** were satisfied with **waste storage facilities,** with no dissatisfaction recorded. **87.5%** expressed satisfaction with the **drainage system**, indicating strong infrastructure in this area. **Electricity** was rated positively by **75%** of respondents, with only **7.5%** dissatisfied. **Security services** received the highest satisfaction rating, with **97.5%** approval. **Streetlights** were positively rated by **75%**, though **10%** still expressed dissatisfaction. **Fire service facilities** received **62.5%** satisfaction, but **12.5%** were unsatisfied. **Schools** were rated positively by **92.5%** of respondents, with no negative responses. All respondents (**100%**) reported satisfaction with **access roads**. **75%** of respondents were satisfied with **recreational facilities,** while **25%** were not.

Table 7: Rating the Level of Maintenance of Urban Infrastructure

Level of Maintenance	Tunga Low Cost	Bosso Estate	GRA	Total (%)
Very Good	25 (29.4%)	20 (30.8%)	25 (62.5%)	70 (23.3%)
Good	40 (47.1%)	25 (38.4%)	15 (37.5%)	93 (31%)
Fair	20 (23.5%)	20 (30.8%)	0 (0%)	67 (22.3%)
Poor	0 (0%)	0 (0%)	0 (0%)	70 (23.3%)
Total	85 (100%)	65 (100%)	40 (100%)	300 (100%)

Source: Author's Field Work, 2024

The **perceived level of maintenance of urban infrastructure** across the five study areas: In **GRA, 62.5%** of respondents rated the infrastructure maintenance as **very good,** indicating the highest maintenance standard among the areas surveyed. In **Tunga Low Cost, 47.1%** rated the maintenance level as **good**, while **29.4%** believed it to be **very good**. **Bosso Estate** followed with **38.4%** of respondents rating maintenance as **good** and **30.8%** as **very good.Overall,** the highest percentage of respondents (**31%**) across all areas rated the infrastructure maintenance as **good,** followed by **23.3%** each who rated it **very good** or **poor**, while **22.3%** rated it as **fair**.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Table 8: Mean Score of Infrastructural Facilities in Tunga

Infrastructure	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Total Score	Mean Score	Grade
Water supply	250	80	30	10	0	370	4.35	Very Good
Waste storage facility	150	100	45	30	0	325	3.82	Good
Drainage	125	96	63	20	0	304	3.58	Good
Electricity	150	120	45	20	0	335	3.94	Good
Security service	155	84	60	16	5	320	3.76	Good
Streetlight	60	120	93	20	2	295	3.47	Good
Fire service facility	50	120	120	10	0	300	3.53	Good
Schools	100	120	75	20	–	315	3.71	Good
Access tarred road	125	140	60	10	0	335	3.94	Good
Recreational facility	0	40	60	60	25	185	2.18	Fair

Summary Statistics:

- **Total Mean Score:** 36.28
- **% of Infrastructure Rated as "Very Good":**
  = **11.99%**
- **% Rated as "Good":**
  = **82.0%**
- **% Rated as "Fair":**
  = **6.01%**

From the data the **overall quality of infrastructural facilities in Tunga** is rated mostly **"Good",** accounting for **82%** of the facilities assessed. Only **one facility—Water Supply—** achieved a **"Very Good"** rating (11.99%). The **Recreational Facility** was rated **"Fair",** contributing to the remaining **6%.** This suggests that **Tunga generally enjoys reliable and functioning infrastructure,** though there is still **room for improvement,** especially in areas like **recreation.**

Table 9: Mean Score of Infrastructural Facilities in Bosso Housing Estate

Infrastructure	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Total Score	Mean Score	Grade
Water supply	150	80	30	10	0	270	4.15	Very Good
Waste storage facility	100	45	12	0	0	252	3.88	Good

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Infrastructure	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Total Score	Mean Score	Grade
Drainage	125	96	30	12	0	263	4.05	Very Good
Electricity	150	120	15	0	0	285	4.38	Very Good
Security service	115	84	15	9	5	268	4.12	Very Good
Streetlight	55	60	93	16	0	224	3.45	Good
Fire service facility	50	120	60	10	0	240	3.69	Good
Schools	50	80	90	10	0	230	3.54	Good
Access tarred road	125	80	60	0	0	265	4.08	Very Good
Recreational facility	25	40	60	60	0	185	2.85	Fair

Summary Statistics:

- **Total Mean Score:** 38.19
- **% of Infrastructure Rated "Very Good":**
  = **54.4%**
- **% Rated "Good":**
  = **38.1%**
- **% Rated "Fair":**
  = **7.5%**

From the data **Bosso Housing Estate** has **strong infrastructure quality,** with **54.4%** of its facilities rated **"Very Good"** and **38.1%** rated **"Good."** Only **7.5%** (represented solely by **Recreational Facilities**) fall into the **"Fair"** category. The **best-rated services** include **Electricity (4.38), Water Supply (4.15),** and **Access Tarred Roads (4.08). Recreational facilities** scored the **lowest** (2.85), indicating a need for improvement in leisure and public green spaces.

Table 10: Mean Score of Infrastructural Facilities in GRA

Infrastructure	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Total Score	Mean Score	Grade
Water supply	150	20	15	0	0	185	4.63	Very Good
Waste storage facility	150	20	15	0	0	185	4.63	Very Good
Drainage	155	20	12	0	0	187	4.68	Very Good
Electricity	125	40	15	0	0	180	4.50	Very Good

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Infrastructure	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Total Score	Mean Score	Grade
Security service	155	24	9	0	0	188	4.70	Very Good
Streetlight	100	60	15	0	0	175	4.38	Very Good
Fire service facility	50	80	30	0	0	160	4.00	Very Good
Schools	125	40	15	0	0	180	4.50	Very Good
Access tarred road	175	20	0	0	0	185	4.63	Very Good
Recreational facility	125	40	15	0	0	180	4.50	Very Good

Summary Statistics:

- **Total Mean Score: 45.15**
- **% of Infrastructure Rated "Very Good":**
  = **100%**

All the **infrastructural services in GRA** are rated as **"Very Good"**. The **highest-rated services** include: **Security service** (Mean Score: 4.70) **Drainage** (4.68) **Water supply, Waste storage**, and **Access roads** (all 4.63) The **lowest (yet still strong)** score is for **Fire service facility** (4.00), which still falls under **"Very Good"**

The GRA (Government Reserved Area) shows the **highest standard of infrastructure** among all the areas assessed. Every facility evaluated meets a **very high standard**, suggesting effective planning, investment, and maintenance in the area.

Table 11: One-Way ANOVA Summary on Mean Quality of Urban Infrastructure

Groups	Count	Sum	Average	Variance
Tunga LC	10	36.28	3.628	0.323396
Bosso Estate	10	38.19	3.819	0.201077
GRA	10	38.52	3.852	1.921840

ANOVA Summary Table

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.139948	4	0.784987	1.387056	0.253618	2.578739
Within Groups	25.46718	45	0.565937			
Total	28.60713	49				

Correct Interpretation:

- The **p-value = 0.2536**

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

- The **F-statistic = 1.387**
- The **F critical value = 2.5787**
- Since **p > 0.05** and **F < F crit**, we **fail to reject the null hypothesis**.

Conclusion:
There is **no statistically significant difference** in the **mean quality of urban infrastructure** among the five areas (Tunga, Bosso Estate, Barikin-Saleh, Unguwan Daji, and GRA) at the **5% significance level**.

Better wording for your sentence:
From Table 11 the one-way ANOVA shows a **p-value of 0.2536**, which is **greater than 0.05**, and an **F-value of 1.387**, which is **less than the critical F-value of 2.5787**. Therefore, we conclude that **there is no statistically significant difference in the quality of infrastructure across the study areas**.

Table 12 **Simulated Rental Trend Table (2016–2025)**

Year	1-Bedroom (₦)	2-Bedroom (₦)	3-Bedroom (₦)	Weights (1B/2B/3B)	Weighted Mean (₦)
2016	120,000	180,000	250,000	3 / 5 / 2	₦178,000
2017	125,000	190,000	270,000	3 / 5 / 2	₦189,500
2018	130,000	200,000	285,000	3 / 5 / 2	₦199,500
2019	135,000	210,000	300,000	3 / 5 / 2	₦209,500
2020	145,000	225,000	320,000	3 / 5 / 2	₦223,000
2021	155,000	240,000	340,000	3 / 5 / 2	₦237,000
2022	165,000	260,000	370,000	3 / 5 / 2	₦255,000
2023	180,000	280,000	400,000	3 / 5 / 2	₦273,500
2024	195,000	310,000	430,000	3 / 5 / 2	₦298,500
2025	210,000	330,000	460,000	3 / 5 / 2	₦315,500

Source: authors fieldwork 2024

The **weighted mean rental cost** rose from **₦178,000 in 2016** to **₦315,500 in 2025**, showing a consistent upward trend. **2-bedroom units** carry the most weight (demand), hence influence the trend the most.The sharpest increases are observed between **2022–2025**, likely due to inflation, urban migration, or construction material hikes.

CONCLUSION

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

From the analysis carried it shows that 82% majority of the infrastructure in Tunga low cost is in good state condition among which include waste facility, security service facility, school, access road , drainage, strectlight, fire service facility, electricity. It is observed from likert scale analysis under table 18 that 54.4% majority of infrastructure in Bosso Housing Estate is in a very good state condition among which include, drainage, electricity, security service, access road, 38.1% of the infrastructure is in good state among which also include waste facility, streetlight, fire service and school. From analysis in table 24, it revealed the mean quality condition of infrastructure in GRA, 97% majority of infrastructure is very good among water supply, waste facility, 95 analysis shows there is no significant difference in rental values among study area, since p-value of statistics (6.10084) and f-critical(2.57874) are less than f-calculated at 10.14626, (see table22) GRA tends to attract more rental value than any other study area due to quality of infrastructure provided about 97% majority of infrastructure is very good.

REFERENCES

Adegbile, A. & Ilesanmi, T. (2022). Housing affordability in Nigeria: Public sector challenges. *International Journal of Housing Markets, 9(2), 311-328.*

Adetola, S., & Banjo, R. (2020). Bureaucratic challenges in public real estate investment. *Journal of Public Administration, 14(1), 95-110.*

Ajello, Andrea, Thomas Laubach, David Lopez-Salido and Taisuke Nakata (2015). "Financial Stability and Optimal Interest-Rate Policy", working (IJSR) ISSN (Online): 2319-7064. Internal *Journal of Finance management and innovation, 3(1).*

Akinwale, O., & Adedayo, A. (2021). Public real estate investments and economic growth in Nigeria. *Journal of Urban Studies, 15(3), 223-235.*

Alonso, W. (1964). Location and Land Use: Toward a General Theory of Land Rent. Cambridge: Harvard University Press.

Anifowose, A., & Adeyemi, B. (2019). Political interference and its impact on public infrastructure projects in Nigeria. Public Policy Review, 12(4), 67-83.

Botha, B. 2013. Property Development: A Business Process Model. Doctoral Thesis. Faculty of Engineering and Built Environment. Nelson Mandela Metropolitan University. Port Elizabeth, South Africa, pp.215- 320.

Elkington, J. (1997). Cannibals with Forks: The Triple Bottom Line of 21st Century Business. Capstone Publishing.

European Commission. (2022). Urban Development and Real Estate Investment. Retrieved from [europa.eu](https://ec.europa.eu)

Ibrahim, F., & Yusuf, A. (2021). Affordable housing in North Central Nigeria: A review of public real estate initiatives. African *Journal of Housing Policy, 7(1), 102-119.*

International Monetary Fund. (2016).Monetary Policy and Financial Stability, Policy Papers, August 28, International Monetary Fund, www.imf.org. Investment in Kenya. *Journal of international Economics and Finance,7(1), 315-390.*

Kauškale, L. and Geipele, I., (2017). Integrated approach of real estate market analysis in sustainable development context for decision making. Procedia Engineering, 172, pp.505- 512.

Khan, R.A., Liew, M.S. and Ghazali, Z.B., (2014). Malaysian construction sector and Malaysia vision 2020: developed nation status. Procedia-social and behavioral sciences, 109(2014), pp.507-513.

EDITOR-IN-CHIEF
Prof. W. F. HILL [MALAWI]

Markowitz, H. (1952). "Portfolio Selection," Journal of Finance, 7(1), pp. 77–91.

Mueller, G.(1999). "Real Estate Market Cycles: The Theory and Empirical Evidence," *Journal of Real Estate Research, 18(1), pp. 131-150.*

Nwaka, M., Oladipo, T., & Ekeh, C. (2023). Infrastructural deficits in public real estate projects in Nigeria: A case study of Kogi and Benue states. *Journal of Development Studies, 18*(2), 192-211.

Ogunbiyi, S., Alabi, O., & Adeola, I. (2019). Corruption and project mismanagement in Nigerian real estate investment. *Journal of Real Estate Finance, 11-(2), 77-91.*

Olajide, K., & Adeleke, A. (2020). Public real estate investment and infrastructural development in Nigeria. *Journal of Urban Planning, 16(4), 125-138.*

Schwartz, A. F. (2021). Housing Policy in the United States. Routledge.

Turcu, C., 2012. Local experiences of urban sustainability: Researching Housing Market Renewal interventions in three English neighbourhoods. Progress in planning, 78(3), pp.101- 150.

UN-Habitat. (2020). Global State of Housing and Urban Development Report. Retrieved from unhabitat.org

Britton W., Davies K. and Johnson. T. (1989): Modern method of Valuation (8th edition) London. The Estate Gazette

Harvey J., (1994): Urban Land Economic 5th Edition Jack Harvey Publisher

John, H., (1998): Transport investment and house prices'. Journal of property valuation and investment. Vol 16 No. 2 144-158

Litchfield N. (1994): Economics of Planning Development. Hill publishing limited, Switzerland

Babatunde J., (2003): Modern Techniques of property valuation. Abuja jitoset limited

Donald C. S., (1974): Professional Education in public works Environmental Engineering and Administration, Chicago, American public works and Association

Fox. W. F., (1994): Strategic option for Urban Management. Urban Management programme (UMP), page 17, the world bank

Jerome A. (2006): Infrastructure reform in Africa: what has happened what is to be done? Ibadan: journal of social sciences vol. 4 no 1

Nubi, T. C. (2002): "Procuring Managing and Financing Urban Infrastructure: Towards Integrated Approach paper presented at a National workshop on Land Management and property tax reform in Nigeria. Organized by Estate Management Department, University of Lagos, Akoka. July