

An Assessment of the Relationship between Road Network Connectivity and Tourists' Patronage in Lokoja Metropolis, Kogi State

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Abstract

The study assessed the Relationship between Road Network Connectivity and Tourists' Patronage in Lokoja Metropolis. Gamma index was adopted to measure road network connectivity level. The result revealed that the level of road network connectivity in Lokoja metropolis is just 40% which is an indication of a low level of road network connectivity among the Tourists' attractions and Hotels in the area. The result from road network accessibility using the Shimmel index also revealed that Kogi Hotels Ltd. With lowest Shimmel index of 24 is the most accessible and the most patronized accommodation facility with an average monthly patronage of 45 among all hotels and tourists' attractions considered for this work. The relationship between road network accessibility and the level of tourists' patronage was measured using Pearson Moment Correlation and a result of 7% level of relationship was obtained which is considered to be too low for a strong relationship. This means that there is no significant relationship between the level of road network accessibility and tourists' patronage in the study area, suggesting that the level of road network connectivity and accessibility could not completely explain the level of tourists' patronage in the area. It is therefore recommended that further study should be conducted to determine other factors that account for the level of tourists' patronage in the area.

Keywords: Road Network Connectivity, Hotels, Tourist Attractions, Patronage and Relationship.

INTRODUCTION

The growth of the tourism industry in Nigeria and most especially Lokoja depends mainly on patronage. The patronage to these hotels and tourist sites can therefore be enhanced through the provision of well maintained and functioning transportation network as well as road networks connectivity. A well functioning road networks must includes the provision of roadways, water ways and where necessary airways, in order to enhance the level of patronage of these tourist sites in Lokoja.

Page and Lumedon (2004) opined that the road networks connectivity system of a tourist destination has an impact on the tourism experience which explains how people travel and why they choose different forms of holiday destination and transport. The provision of functioning road networks connectivity modes plus low fares have increased the accessibility of areas once considered not accessible. The level or rate of patronage to tourist sites varies with respect to the nature of the sites, the state of the tourism infrastructure and the efficiency of the road networks connectivity facilities (European Union, 2009). Tourism competitiveness therefore depends on road networks connectivity system competitiveness and services of travel.

The relationship between tourism and effective road networks connectivity system is the catalyst factor without which tourism cannot survive. Road networks connectivity links the various tourist destinations and ferries, people, goods and services. According to Sorupia (2005), tourism is all about travel and the role of transportation in its operation and patronage is vital. It is believed that any improvement in the transportation facilities like roads, water ways and airways will ultimately affect the level of patronage of tourist sites. The advent of flight has expanded tourism to places never before imagined. This reality coupled with changing work patterns and innovative marketing has driven international mass tourism through the year. Effective road networks connectivity has led to widespread growth and development of nature tourism within the Nigeria and overseas (Honey, 1999).

Road networks connectivity in tourism is most often seen as just a sub-set of tourism transport system which is in charge of bringing the tourist to the tourist destinations, a means of getting around the place and leaving it once the duration of the trip is over.

Road networks are observed in terms of its components of accessibility, connectivity, and traffic density, level of service, compactness, and density of particular roads. Level of service is a measure by which the quality of service on transportation devices or infrastructure is determined, and it is a holistic approach considering several factors regarded as measures of traffic density and congestion rather than overall speed of the journey (Mannerling, Walter, and Scott, 2004).

Access to major roads provides relative advantages consequent upon which tourists get their desired satisfaction. Modern businesses, industries, trades and general activities depend on road networks connectivity and transport

infrastructure, with movement of goods and services from place to place becoming vital and inseparable aspects of global and urban economic survival. Developments of various road networks connectivity modes have become pivotal to physical and economic developments especially around Lokoja.

Such modes include human portorage, railways, ropeways and cableways, pipelines, inland waterways, sea, air, and roads (Said and Shah, 2008).

According to Oyesiku (2002), urbanization in Nigeria has a long history in its growth and development. Extensive development being a feature of the 19th and 20th centuries, with concentration of economic and administrative decision-making process, Wyatt (1997) states that urban areas have tendency to develop at nodal points in road networks connectivity and places with good road network will possess relative advantage over locations having poor network.

Urban locations with such relative advantage are found where different road networks connectivity routes converge with high degree of compactness, connectivity, density, length and accessibility exhibited within the intra- and inter- destination road networks.

Lokoja, being a confluence town is a typical example in the history of growth and development of cities in Nigeria. It is the capital of Kogi State with improved road networks developed to cater for increase in concentration of pedestrian and tourists' satisfaction. Similarly, commercial activities like banking, retail/wholesale businesses, and professional services congregated to take advantage of nearness to seat of governance. Concentration of tourist destinations in Lokoja metropolis attracted tourists and tourism practitioners.

STATEMENT OF THE RESEARCH PROBLEM

The demand for tourists' attractions is itself affected by levels of road network connectivity, planning and development schemes, legislation, and availability of other good transport facilities (Richmond, 1982; Millington, 1982; Olayiwola, Adeleye and Oduwaye, 2006).

Earlier theorists (Burgess, 1925; Hoyt, 1939; Harris and Ullman, 1951; Lean and Goodall, 1977) generally believe that tourists sites adjacent to main road routes have relative advantages over those located some distance away, and other sites located at route intersections possess relative advantage with greater advantages belonging to sites located at focus of transport system.

These advantages are determined in relation to accessibility, which has different characteristics in relation to individual sites thus differentiating between sites in terms of accessibility advantages. Many of the aforementioned studies emphasized the effects of road network connectivity generally with little consideration given to road network patterns and its effects on patronage. Possible relationships between road networks, location attribute, connectivity constraints, and accessibility and patronage have therefore elicited the interest of the researcher in this direction. It is against this background that this study was conceived.

RESEARCH QUESTIONS

Some pertinent questions to enable the study attain its objectives are as follows:

1. What is the level of tourists' patronage in Lokoja?
2. What are the spatial pattern and trend of road network connectivity system in the study area?
3. What are the major constraints that tourists face with road network connectivity system in the study area?
4. What are the specific contributions of road network connectivity system to tourists' patronage in the study area in Lokoja?
5. What are the appropriate measures to improve tourists' patronage with road network connectivity system in the study area?

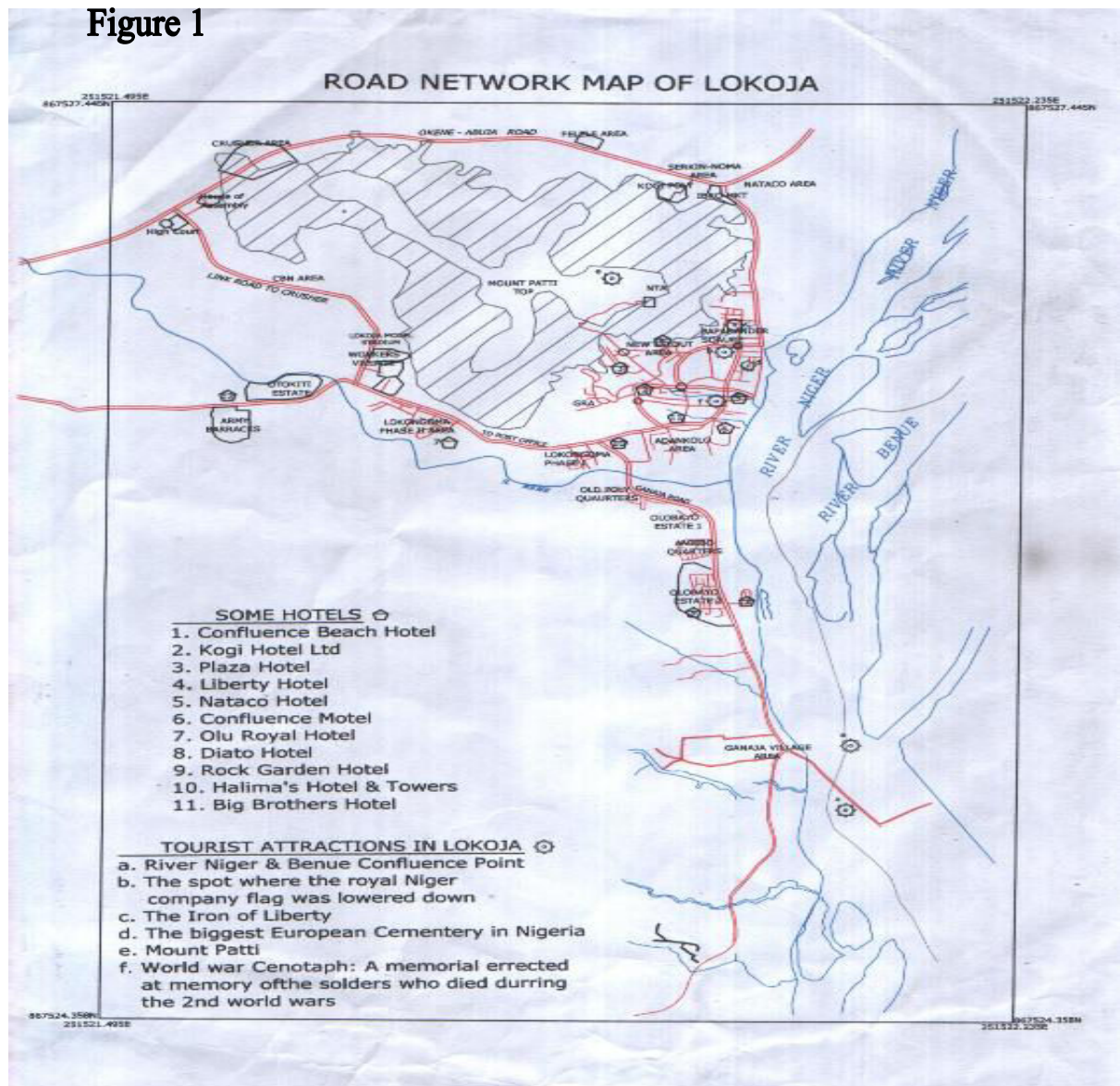
METHODOLOGY

An over view of the study area.

Kogi State lies between longitudes $5^{\circ} 18^{\text{E}}$ to $7^{\circ} 40^{\text{E}}$ and between latitudes $6^{\circ} 30^{\text{E}}$ to $8^{\circ} 42^{\text{E}}$ on the map of Nigeria. The state comprises of Igala, Ebira, Kabba and Kogi divisions of the former Kabba province. The conducive climate of the state makes it possible for numerous tourists' potentials in the state to be in existence. Also, the geography of Kogi state makes it enjoys abundant rainfall, makes the vegetative cover of the state to be very attractive because of the combinative types of vegetation in the state, that is, forest and savannah.

The approximate population of the inhabitants is 3.3 million based on the 2006 population census. This shows that participation in tourism activities by the indigenes will be very high if efforts are intensified to creating awareness about tourism industry. The cultural life of the people in Lokoja metropolis and in Kogi state in general is a reflection of a diversified cultural endowment, characterized by colourful festivals and ceremonies. While Christianity and Islam are widely practiced, some are still committed to traditional religion. The diversified cultural heritage is contributing greatly towards tourism development. This is because the cultural

attractions are diversified and many. Some of the cultural attractions that can aid tourism development in the state are fishing festival, maiden festival, Ovia- Osese and the new yam festival. Figure 3.1 shows the Road Network Connectivity Vis-À-Vis Hotels in Lokoja and Tourists Destinations.



RESEARCH DESIGN

The researcher adopts the geographic analysis of road network connectivity and accessibility with the use of simple Shimbel index framework to analyse the level of road network accessibility and gamma index framework in the analysis of road network connectivity. Secondary data was also collected and analyzed with the use of simple percentages. Also, oral interview was employed to compliment the secondary data for authentication purpose.

METHOD OF ANALYSIS

The use of Shimbel index to analyse road network accessibility requires that a matrix-table be constructed such that the number of these attractions and hotels are listed horizontally from left to right and vertically from top to bottom. Each number is cross checked with an associated number and the number of nodes between these corresponding numbers is then recorded in the space between the associated values.

Gamma index on the other hand is formulated to assess the level of road network connectivity. It is always expressed in percentages (%). The connectivity level that is less than 49% is an indication of low level of road network connectivity, 50 % represents an average level of connectivity and 60% and above denote high level of road network connectivity.

ANALYTICAL FRAMEWORK

The study relied extensively on the use of Shimbel index, Gamma index, Percentages, graphs and Pearson Moment Correlation for the analysis of the relationship between road network connectivity and tourists' patronage in Lokoja metropolis.

DATA PRESENTATION AND ANALYSIS



The focus of this section specifically is on geographic analysis of road network connectivity and level of patronage among hotels and tourist attractions in Lokoja metropolis. The presentation of topological characteristics of any road network connectivity in graphic form has become a widely accepted procedure in the analysis of transportation networks (Kansky, 1963).

In view of the above, this study adopts the simple Shimbel index framework to analyse the level of road network accessibility of tourist attractions in section 4.2 of the study. Section 4.3 of the study presents the use of Gamma index framework in the analysis of road network connectivity among the tourist accommodations and attractions. Finally, section 4.4 is denoted to the level of tourists' patronage among the tourist centers.

Road Network Accessibility Using The Shimbel Index

The Shimbel index defines the shortest path among pairs of nodes, vertices to a point among all the nodes in the network which denotes centrality or accessibility. This is done with the use of a matrix table. The lowest number in the matrix table gives the most accessible route. Hence, the matrix tables 1 -17 denote the number of tourists' attractions and accommodation facilities of interest and are presented as follows:

1. Confluence Beach Hotel
2. Kogi Hotel Ltd.
3. Plaza Hotel
4. Liberty Hotel
5. Nataco Hotel
6. Confluence Motel
7. Olu Royal Hotel
8. Diato Hotel
9. Rock Garden Hotel
10. Halim's Hotel and towers
11. Big Brothers Hotel
12. River Niger and Benue Confluence point
13. The spot where the Royal Niger company flag was lowered down
14. The iron of liberty
15. The biggest European cemetery in Nigeria
16. Mount Patti
17. World war Cenotaph

The icon  triangle in the road network map of Lokoja in fig 4.1 is used to denote hotels, while the circular icon  represents tourists' attractions. The numbers of these attractions are listed horizontally from left to right and vertically from top to bottom. Each number (an attraction) is cross – checked with an associated corresponding number and the number of nodes between these corresponding numbers is then recorded in the space between the associated values. These numbers are then added up horizontally to obtain the shimbel index.

The matrix of the Shimbel index table is presented in table 4.1. For example, node 2 has 24 as its shimbel index. This node has the least shimbel index of all the nodes in Lokoja metropolis and thus represents the most accessible hotel. Therefore Kogi Hotel Ltd. is the most accessible hotel among all the hotels and tourists' attractions that are examined. Furthermore, node 17 has 28 as its shimbel index which makes it the 2nd most accessible tourist attraction in Lokoja metropolis. That is, World War Cenotaph is the 2nd most accessible attraction in Lokoja after Kogi hotel Ltd.

Table 1: A Matrix Table Drawn to Determine the Road Network Accessibility of Hotels and Tourists Attractions in Lokoja Metropolis with the Use of Shimbels Index

Attractions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	Position
1	0	2	3	3	3	3	2	3	1	1	2	2	4	5	3	4	3	44	8 th
2	2	0	1	1	1	2	1	1	3	1	1	3	1	2	2	1	1	24	1 st
3	3	1	0	1	1	2	2	1	4	2	2	4	1	2	2	1	1	30	4 th
4	3	1	1	0	1	2	2	1	4	2	2	4	1	2	1	1	1	29	3 rd
5	3	1	1	1	0	1	2	1	4	2	1	4	1	2	2	2	1	29	3 rd
6	3	2	3	2	1	0	2	3	4	2	1	4	2	3	3	2	2	39	8 th
7	2	1	2	2	2	2	0	2	3	1	1	3	3	4	4	2	2	36	7 th
8	3	1	1	1	1	2	2	0	4	2	2	4	1	2	1	1	1	29	3 rd
9	1	3	4	4	4	4	3	4	0	2	3	1	5	6	4	3	4	55	11 th
10	1	1	2	2	2	2	1	2	2	0	1	2	3	4	2	2	2	31	5 th
11	2	1	2	2	1	1	1	2	3	1	0	3	2	3	3	2	2	31	5 th
12	1	3	4	4	4	4	3	4	1	2	3	0	5	6	4	3	4	55	11 th
13	4	1	1	1	1	2	3	1	5	3	2	5	0	1	1	2	1	34	6 th
14	5	2	1	1	2	3	4	1	6	4	3	6	1	0	1	3	2	45	10 th
15	3	1	1	1	1	2	2	1	4	2	3	4	1	2	0	2	1	31	5 th
16	2	1	1	2	2	2	2	1	2	2	2	2	2	3	2	0	1	29	3 rd
17	3	1	1	1	1	2	2	1	4	2	1	4	1	2	1	1	0	28	2 nd

Source: Field Survey, 2012

Next to it is Liberty hotel, Nataco hotel, Diato hotel and Mount Patti that represent the 3rd most accessible tourists' accommodations and attraction in Lokoja metropolis. All these hotels and tourists' attractions have 29 as their Shimbels index.

The next on the table is Plaza hotel that has 30 as its Shimbels index and hence represents the fourth most accessible. The Plaza hotel is closely followed by Halim's hotel and towers, Big Brothers hotel and the Biggest European Cemetery in Nigeria. These hotels and attractions represent the 5th most accessible following the outcome of shimbels index of 31.

Interestingly, the famous spot where the Royal Niger company flag was lowered down is the 6th most accessible with shimbels index of 34. The next to it is the Olu Royal hotel with Shimbels index of 36. The Confluence hotel with shimbels index of 39 represents the 8th most accessible, the Confluence Beach hotel is the 9th most accessible with index of 44, while the Iron of Liberty is the 10th with Shimbels index of 45. Finally, Rock Garden Hotel and River Niger and Benue confluence point represent the least accessible because they both have the highest Shimbels index of 55; they are the most inaccessible.

The implication of this analysis suggest that for tourists patronage to be enhanced in Lokoja metropolis, efforts should be made to develop Kogi Hotel Ltd. which is now moribund to at least a 5 –star hotel being the most accessible, while all other hotels and attractions be developed according to their position of accessibility as predicted with the use of shimbels index.

Road Network Connectivity Using the Gamma Index

The Gamma index focuses on the connectivity of road networks. In the context of city planning, the road networks with a high value of the gamma index are well laid out in terms of the abundance of roads to choose from. Also, from the point of view of road network connectivity to tourists' attractions and accommodations, a high value of the gamma index indicates that there is high connectivity level to those attraction sites.

The Gamma index is defined as the ratio of the actual number of links to the maximum number of nodes on a graph. Given the number of nodes, the maximum number of links is $3(v - 2)$. Hence, the gamma index is defined as follows:

$$\gamma = \frac{e}{3(v-2)} \quad 0.1 \leq \gamma \leq 1$$

This is always expressed in percentages and the connectivity level that is less than 49% is an indication of low level of road network connectivity. When it is 50%, it is averagely connected and when it is 60% and above, it means there is high level of road network connectivity.

Following the highlights above; $e = \text{Number of edges} = 57$
 $v = \text{Number of vertices} = 46$
 Hence, $\frac{e}{3(v-2)} = \frac{57}{3(46-2)} = \frac{57}{132} = 0.4 = \underline{\underline{40\%}}$

Interpretation

The result of Gamma index above explains the level of road network connectivity in Lokoja metropolis. The gamma index of 40% is an indication of low level of road network connectivity among the tourists' attractions and hotels in the metropolis. This may not be far from the fact that the city is surrounded with Hills and Rivers. In fact, most of these attractions are located at Hills top and Lokoja which also harbours both Rivers Niger and Benue that limit the space available for network connectivity planning. Evidence from the study conducted by (Lean and Goodall, 1977) revealed that road network connectivity system in relation to tourists' patronage are determined by accessibility. The greater the accessibility of a destination, the greater the comparative advantage to tourists. Hence, the low level of road network connectivity among tourists' attractions in Lokoja metropolis suggest that there is low level of tourists' patronage because poor road network leads to poor accessibility; then poor transportation system leads to poor level of patronage; hence, low level of services and then low road density. For example, Table 4.2 clearly shows the average monthly patronage of the hotels and tourists' attractions in the study area. The level of patronage of hotels is higher than the tourists' attractions except the Rivers Niger and Benue confluence point that has an average of 32 as its monthly patronage. Equally, looking at the matrix table on Figure 4.1, the level of accessibility of most of the tourists' attractions is also poor after considering their row totals on the table with the use of Shimmel index analysis. Therefore, the greater the accessibility of a destination, the greater the patronage and vice versa. Studies conducted by (Ogunsanya, 1986; Oduwaye, 2004 and Omoogun, 2006) are all in agreement with this outcome.

Table 2: A Table Drawn to Determine the Average Monthly Patronage to Hotels and Tourists Attractions in Lokoja Metropolis.

S/N	HOTELS AND TOURISTS' ATTRACTIONS IN LOKOJA	AVERAGE MONTHLY PATRONAGE	PERCENTAGE %
1	Confluence Beach Hotel	32	6.7
2	Kogi hotel Ltd.	45	9.4
3	Plaza hotel	0	0
4	Liberty hotel	28	5.8
5	Nataco hotel	33	6.9
6	Confluence Motel	35	7.3
7	Olu Royal Hotel	41	8.5
8	Diato hotel	44	9.2
9	Rock Garden hotel	36	7.5
10	Halim's hotel & Towers	42	8.8
11	Big Brothers hotel	38	7.9
12	River Niger & Benue confluence	32	6.7
13	Royal Niger flag	15	3.1
14	The Iron of Liberty	14	2.9
15	European Cemetery	10	2.1
16	Mount Patti	23	4.8
17	World War Cenotaph	12	2.5
	TOTAL	480	100%

Source: Field Survey, 2012

Cognate effort was also made to assess the level of tourists' patronage both at the attractions as well as the hotels. The table 4.2 above shows the average monthly patronage at the tourists' destinations and the hotels. The figures were compiled from various visitors records obtained at various attraction sites and hotels. On the average, it is revealed that hotels are more patronized when compared to attraction sites. While about 78% guests patronize hotels on monthly average, only 22% tourists visit the attraction sites on the monthly average. The only explanation base on this study is not far from the fact that most of the hotels are well connected by road networks and more accessible compared to the tourist attractions that are scattered all over the metropolis. A cursory look at Figure 4.1 and table 4.2 also revealed that Kogi Hotel Ltd. has the least total on the matrix table with a Shimmel index of 24 which makes it the most accessibility hotel and table 4.2 shows that it has the

highest number of patronage of 45 monthly average and 9.4% of all attractions and hotels in the metropolis. This implies that there is a positive relationship between road network connectivity and level of patronage in Lokoja metropolis to a large extent. In the same vein, Olu Royal hotel, Diato hotel and Halim’s hotel and towers have low totals on the matrix table which means that they are more accessible and which positively affects their levels of patronage. Similarly, Rock Garden hotel and Rivers Niger and Benue confluence point are the least accessible yet their level of patronage is moderately above expectation; thus, the level of road network accessibility may not completely explain the level of tourists’ patronage in Lokoja metropolis.

Determining the Relationship between Road Network Connectivity and the Level of Patronage Using Pearson’s Product Moment Correlation Coefficient (Pearson R)

Pearson’s correlation coefficient (r) is to measure the precision of the linear relationship between two variables. For any observation, r ranges from -1 and +1. If r = 1 or -1, the relationship is perfect. That is, all variables are linearly and perfectly moving in the same direction such that if r = +1, as variable y increases; x also increases.

Mathematically, r is define as :

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Since the relationship is of the form $y = f(x)$ as predicted by statistical theory where y is the dependent variable and x is independent, it shows that from our observation; the level of patronage is represented as y while the observation for road network accessibility is represented as x.

The table 3 below shows this distribution

S/N	Hotels & Tourist Attractions in Lokoja	Average Monthly Patronage {y}	Level of Accessibility {x}
1	Confluence Beach Hotel	32	44
2	Kogi hotel Ltd.	45	24
3	Plaza hotel	0	30
4	Liberty hotel	28	29
5	Nataco hotel	33	29
6	Confluence Motel	35	39
7	Olu Royal Hotel	41	36
8	Diato hotel	44	29
9	Rock Garden hotel	36	55
10	Halim’s hotel & Towers	42	31
11	Big Brothers hotel	38	31
12	River Niger & Benue confluence	32	55
13	Royal Niger flag	15	34
14	The Iron of Liberty	14	45
15	European Cemetery	10	31
16	Mount Patti	23	29
17	World War Cenotaph	12	28

Therefore, using the Pearson momentum coefficient, the following calculation is made to determine the relationship between road network accessibility and level of patronage in Lokoja metropolis.

Hence:

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

$$r = \frac{17(17047) - (599)(480)}{\sqrt{[17(22491) - (599)^2][17(16486) - (480)^2]}}$$

$$r = \frac{289799 - 287520}{\sqrt{(382347 - 358801)(280262 - 230400)}}$$

$$r = \frac{2279}{\sqrt{(23546)(49862)}}$$

$$r = \frac{2279}{\sqrt{1174050652}}$$

$$r = \frac{2279}{34264.42}$$

$$r = 0.0665$$

$$r = \underline{\underline{7\%}}$$

Interpretation:

Following the Pearson moment correlation co-efficient of 7% as calculated above, it means that there is a very low relationship between the level of road network accessibility and level of tourists’ patronage in Lokoja metropolis.

Therefore in determining the relationships between road network connectivity and tourists’ patronage in Lokoja metropolis; certain factors could have limited the relationship as seen from the result of Pearson moment correlation coefficient that was used to measure their relationship. This study is therefore in contrary to that of (Ogunsanya 1986; Oduwaye 2004 and Omoogun 2006) finding that the greater the accessibility of a destination, the greater the patronage and vice versa.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

SUMMARY OF THE STUDY

The study has investigated extensively into the road network connectivity and level of tourists’ patronage in Lokoja metropolis with a view to orientate government, private investors as well as major stakeholders on the importance and usefulness of road network connectivity and accessibility in sighting a facility or an attraction. The research work is organised in five chapters with chapter one highlighting the background, objectives, scope of the study and research questions raised to guide the study as well as the significance of the study. In the course of the study, five fundamental questions were raised which the study is able to provide answers.

Firstly, a question was raised as to the level of tourists’ patronage with road network connectivity system in Lokoja metropolis, after the detailed analyses was conducted with the use of gamma index, it was discovered that there is low level of road network connectivity among the tourists attractions and hotels in Lokoja metropolis.

Secondly, a question as to the spatial pattern and trend of road network connectivity system in the study area was also raised and the topological distribution of Lokoja metropolis revealed that the city is surrounded with Hills and Rivers. In fact, most of the attractions are either located at top or close to hills and their spatial distribution has also been linked by the confluence of Rivers Niger and Benue.

Thirdly, a question as to the constraints that tourists face with road network connectivity in the study area was also raised and evidences from oral interview revealed that the road transport network is shared by many users and this leads to congestions. Tourists and business men alike are time conscious and a little delay could hinder their mission for the trip. Tourists going to Lokoja, the Kogi state capital always have tough time on the road for hours especially the Gwagwalada –Lokoja road.

Finally, a question as to the specific contributions of road network connectivity system to tourists' patronage in the study area was also raised and it was found that road network connectivity alone could not explain the level of patronage in the area.

CONCLUSION

Following the empirical and theoretical analysis carried out in this study to determine the relationship between road network accessibility and tourists' patronage in Lokoja and also with the use of Pearson Moment Correlation, it was discovered that the result (7%) is too low to establish a strong relationship between variables. This therefore suggests that there are other factors that determine the level of tourists' patronage in Lokoja.

RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDY

In order to have effective and sustainable road network connectivity system and improved level of patronage in Lokoja metropolis, the following recommendations are however made.

1. Adequate and well managed parking lots should be constructed to serve the tourist sites. Non availability of parking lots was observed to be a discouraging factor to the patronage of these tourist sites.
2. Concerted efforts should be made both by government as well as private organisations and donor agencies to construct a standard and world class bridges and fly-overs that directly connect the major roads that lead to the hotels and tourists' attractions.
3. To encourage more patronage, the Kogi road maintenance agency should identify dilapidated roads (especially those that lead to these hotels and attractions) and focus her attention on their rehabilitation and expansion to ease road congestions.
4. The various narrow (colonial) bridges that are on some of the major high ways in the study area should be demolished and standard ones are reconstructed to replace them even the Muritalla Mohammed bridge that connects Lokoja with the Federal capital territory, Abuja.
5. Since the connectivity index of road network in the study area is still very low going by findings from gamma index. It is recommended that more rural access roads should be constructed and even earth roads upgraded to pave way for easy movement of people, goods and services in the study area.
6. Government policy on hospitality outfits in the state should be strengthened and deviations should be strictly checked.
7. The management of hotels, ministry of culture and tourism, hotels and tourism board and National Museum in the state must ensure that proper statistical records as regards visitors and tourists are adequately kept in order to enhance sustainable tourism development.
8. Since the present study revealed that road network connectivity could not completely explain the level of tourists' patronage in Lokoja, future study should look into other factors that account for the level of patronage among hotels and tourists' attractions in the area.

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