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Assessment of Geo-Spatial Tourism Facilities on Sustainable Development in Jos North Local Government Area of Plateau State

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Abstract

The study assessed Geo-spatial tourism facilities on sustainable development in Jos North Local Government Area. Specific objectives are to generate maps of public and private tourism facilities and to assess the location and the spatial distribution of the tourism facilities, determine the pattern of tourism distribution in the study area, model the accessibility to tourism facilities, and identify a suitable location of tourism facilities in the near future. This was carried out through the use of GIS to show the pattern of distribution of tourism facilities. A total of 30 tourism sites were considered at random. This includes accommodation, lakes, museums, parks and gardens. The finding reveals, spatial distribution of the tourism facilities on the plateau, the ownership of the tourism facilities and the pattern of distribution of the tourism facilities, that basically means they are mostly clustered, that they are owned by the government and the private sector, while the government tourism facilities it are 8 in number, that of the private facilities are 22 in number out of the 30. This suggest that government has little or no interest in tourism, while the private see tourism as a profit making ventures, that their pattern of distribution was found to have a spatial agglomeration pattern and an uneven distribution within Jos North Local Government, convention facilities and tourism were

closely spatial related, where facilities are scattered over space and linear, where facilities development follow straight line pattern usually along important roads. It is therefore, recommended, that the potentials of GIS as an analytical tool can be utilized to determine and measure access to tourism facilities, that all archived data in the tourism ministry's be updated, digitized and geo-referenced. That there is urgent need to train more experts in the field of tourism provision in the art of spatial data acquisition and management, this would increase the opportunities to realized the full social and economic potentials of the tourism industry. Sustainable tourism development creates the opportunity for government and all stakeholders in the tourism sector to aim at ensuring long-term prosperity and quality of life for future generation. Sustainable tourism development also creates opportunities to preserve natural and cultural heritages of tourist and local people in ways that address development problem and reduce risks to the environment and ways of life.

Keywords: Geo-Spatial, Tourism Facilities, Sustainable Development Sustainable Development, Jos North, Spatial Distribution.

Introduction

Background to the Study

Tourism industry is the biggest and largest industry in the world that is fast growing, tourism right now is a business institution that gives place for events to people when they want to relax or when they are on holiday. However, tourism is originally seen as sightseeing and for relaxation, with tourism effect, its basically a way of bringing people together from different parts of the word, by mutual interactions, apart from sightseeing and interactions, tourism also influences wealth creations and its a means of modifying values and behaviors, with the effects of behavior and values modification in way of enhancing social relationship among the visitors and the locals, this influence gives an impact on societal change, it has been proven by different authors that there is a big empirical evidence that exist between the society and tourism as a whole.

Tourism developments as a multidisciplinary nature influence the culture and other areas of the society (Bhatia, 1993). Tourism as a whole involve the activity of travel from one destination to another, visiting places, lodging in a hotel because tourism provides accommodation for guests and

also tour guides, with all these mentioned above, tourism industry has gone above buying and selling of gift items and aesthetics.

Tourism is defined by the world tourism organization (NSCB, 2004), as the act of travelling for the purpose of recreation and the provision of services for this act. It further explained that a tourist is someone who travels at least eighty kilometres (fifty miles) from home for the purpose of recreation. To an ordinary man on the street, tourism could be seen as just that act of visiting places for the purpose of sightseeing and enjoyment. But in real sense tourism is more than just sightseeing, tourism involves people travelling to a staying in place outside their usual locality or environment for not more than one consecutive year for business leisure and other purposes that relate to exercise of an activity reward from within the place visited.

Tourism is a major revenue generation sector that has not been fully harnessed in Nigeria. This is because we have failed to see the potentials in the tourism industry. Adedunrin (2002), proved through a research that tourism alone if its properly harnessed could earn the nation more than what the nation is currently earning from crude oil, Nigeria as a developing country in West Africa has much potentials of rich tourist attractions as it is blessed with a number of tourist attractions centres situated in hole of the country in the 36 states of the federation and the federal capital territory (FCT) Nigeria over the years has taken some bold steps to diversify its mono-cultural economy through the promotion of tourism. Some of these measures include the adoption of the National Institute for hospitality and Tourism (NIHOTOUR) in Bagauda Kano, and the National Travel Bureau (NTB), a tour operating company of NTDC, the adoption of a tourism master plan and the inauguration of the National Tourism Council with the president as the chairman (Ayeni, 2012).

The effort Government is putting in place will have just been a waste if the data of these tourist attraction centres were not properly captured, effectively stored updated and presented in a way that the tourist will understand. This information can only be generated, sored, updated, analysed and presented by information systems which is capable of managing spatially Geo-referenced data.

Geographic Information System (GIS) offers itself as a tool that support and helps stakeholders in the tourism industry to ensure a speedy and up-to-date production of tourism map, performs queries and analysis on complex and very large volume of spatial and non-spatial tourism data.

Statement of the Problem

Several problems have militated against the growth and development of tourist industry in Nigeria. It is quite obvious that since the discovery of oil (black gold) in the 50s, all eyes were only focused on petrol dollar. The easy money from oil which accounted for more than 90% of gross national income, any other sector of the economy was taken for granted. The money from oil was so huge in the 70s that it was said that the problem of Nigeria then was how to spend the money available. Of recent though, tourist industry has been receiving government attention, but the political will to set the ball rolling had been the greatest impediment. In Nigeria, government employment most often, are regarded as a share of national cake as no one is prepared to bake. Most people are employed in government service not that the individual is qualified, but based on Quota system that enable the federating state to bring individuals to fill vacant position not on merit. In Nigeria, federal characters, Quota system, Educational dis-advantaged areas; people with special consideration and Nepotism are some of the qualifications for employment and therefore tourist industry have had its fair share of those mundane considerations that have hindered its growth.

Many studies have addressed the recognition of tourism impacts when tourism is being evaluated. Mettueson and Wall (1982) suggested conceptually that tourism development generated economic, physical, and social impacts in the destination area. Liu, Sheldon, and Var (1987) justified the economic benefits and the cost of social, cultural and environmental impacts of tourism. There are a number of tourism facilities in Jos the Plateau State capital, but it has not been established whether these tourism facilities are equally distributed in terms of accessibility. The basis of the study is to establish whether these tourism facilities are adequately and equally distributed within the reach of the dwellers in the study area.

Finally, finance is another area of concern. The period of honey moon is over when money was not our problem but how to use it. Some politicians have shamefully siphoned the common wealth of the nation that salaries of over bloated, civil service could no longer be paid and woo of tourist industry continue to nosedive to the detriment of the common man.

Objectives of the Study

The broad objective of the study is to assess the spatial distribution of tourism facilities on sustainable development in Jos north LGA of Plateau State. The specific objectives are to:

i. Generate map of public and private tourism facilities and to assess the location and the spatial distribution of the tourism facilities.
ii. Determine the pattern of tourism distribution in the study are;
iii. Model the accessibility to tourism facilities and;
iv. Identify a suitable location of tourism facilities in the near future.

Study Area

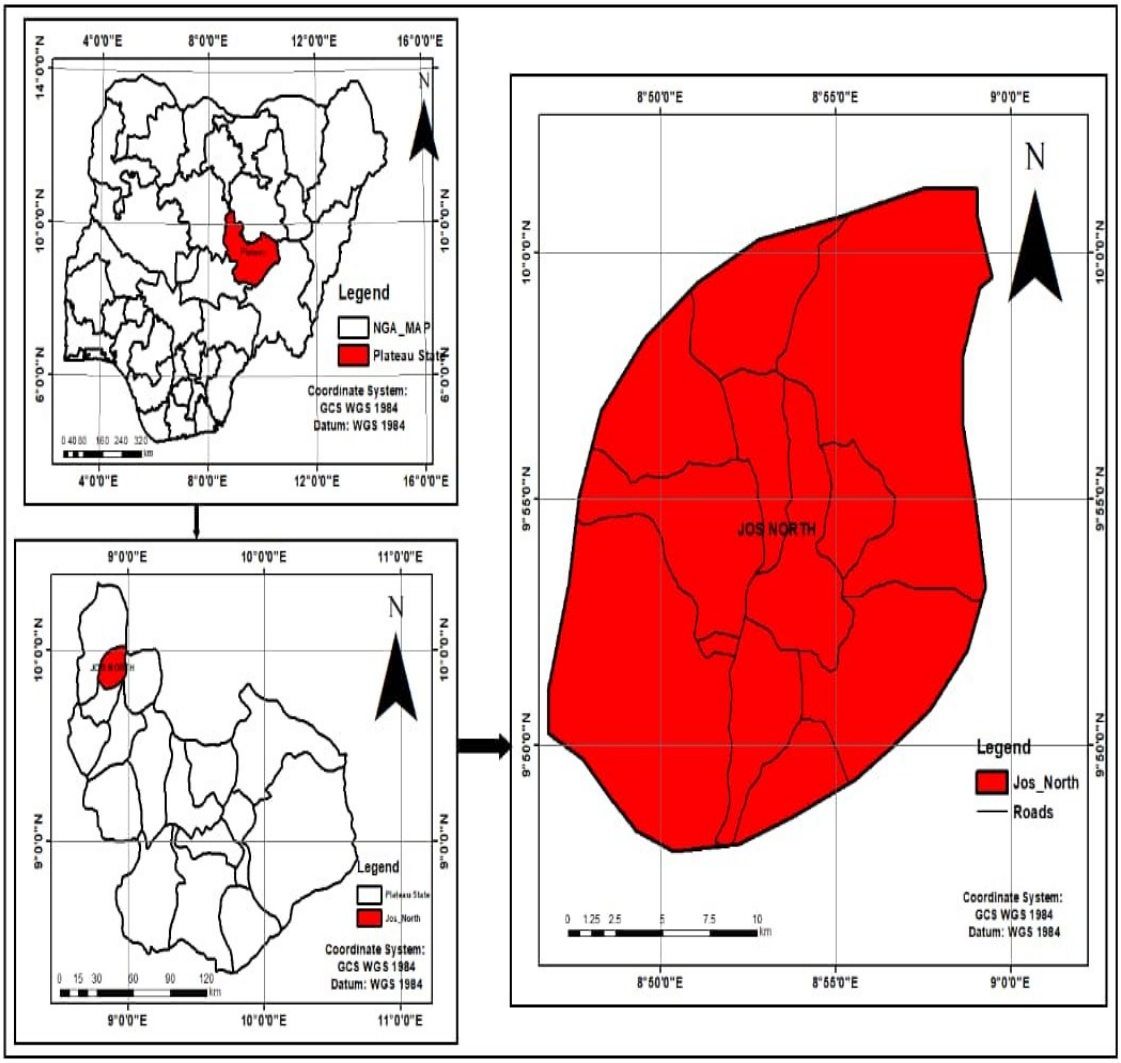


Figure 1: Map of Nigeria Showing Plateau State
Source: Ministry of Land Survey and Town Planning, Jos, Plateau State

Location and Size

The study area covers 2 L.G.A (namely Jos north and Jos south).Jos north has an area of 291 square km and a population of 492,300 at the 2006 census. Whereas

Jos south has an area of 5104 square km and a population of 306,716 at the 2006 census. Jos north lies on a geographical coordinates of latitude 9° *55"* N and longitude 8° *54"* E whereas, Jos south lies on latitude **90** 46" N and longitude 8° 48"E. It is called the Jos greater metropolis because of the developmental pattern and the urbanizing stretched linking the two local government areas.

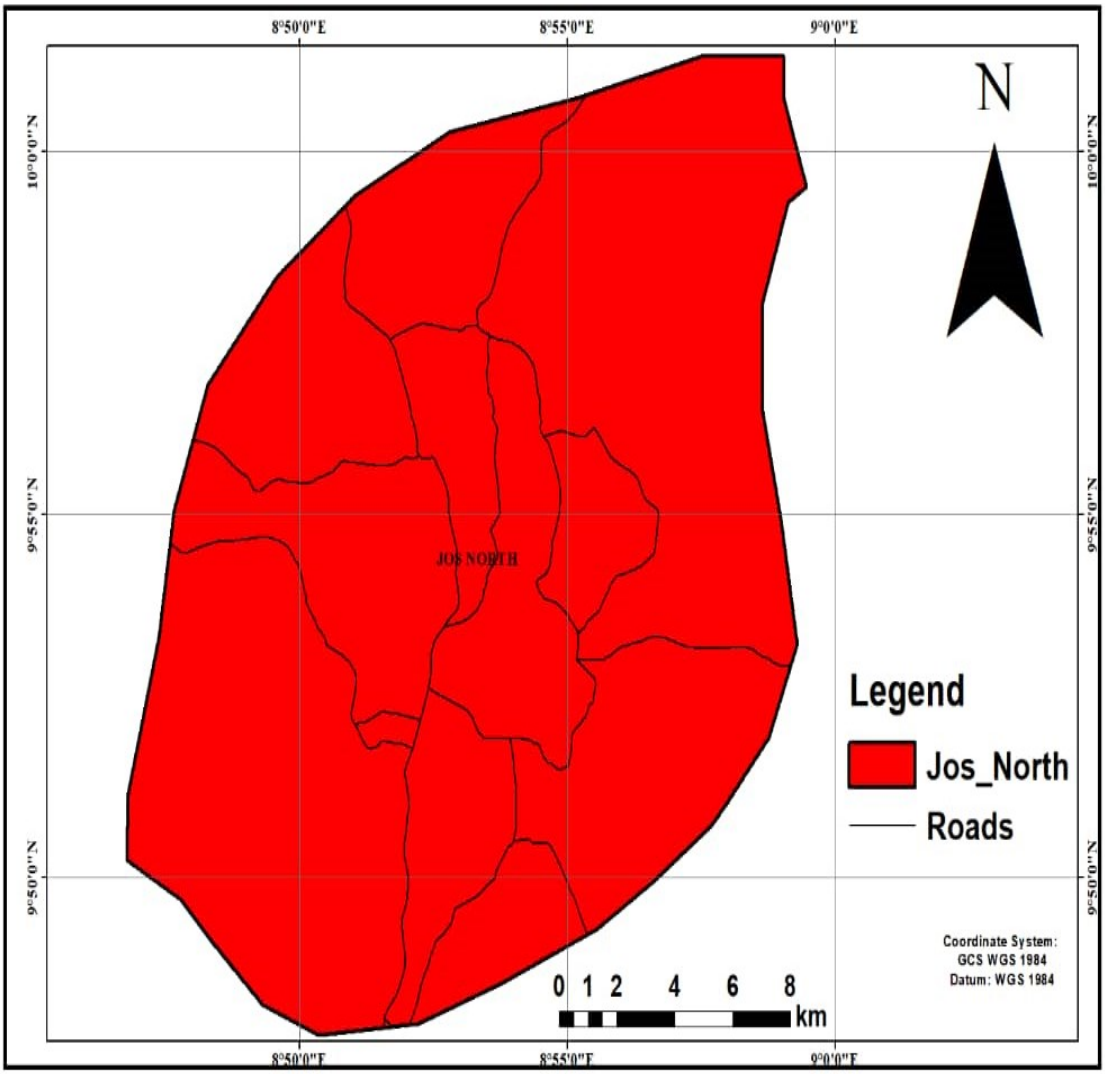


Figure 2: Map of Plateau State Showing Jos North
Source: Ministry of Land Survey and Town Planning, Jos, Plateau state

Research Methodology

Data Type and Source

This is the procedure adopted in this research work to achieve the overall result and findings.

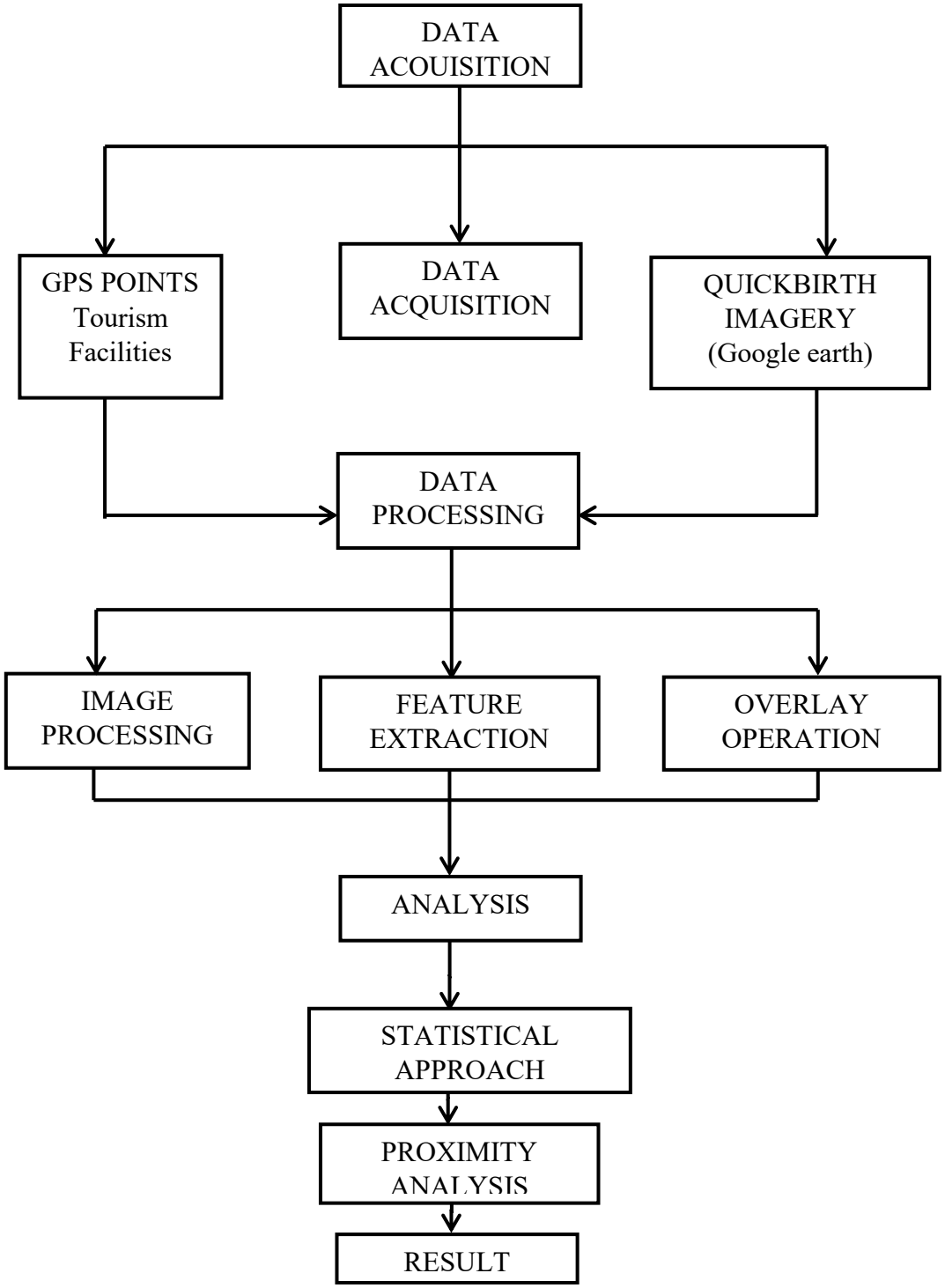


Figure 3: Cartographic Model

Data Acquired and Source

For this study, the administrative map of Jos was obtained from National Space Research and Development Agency (NASRDA), satellite image of Jos city

acquired from Google maps/ Google earth, for the assessment of tourism facilities on sustainable development in Jos North Local Government Area of Plateau State. Field work was also carried out to generate maps of public and private facilities and to assess the location and spatial distribution of the tourism facilities, determine the pattern of tourism distribution, model the accessibility to tourism facilities and; identify a suitable location of tourism facilities in the near future, using a hand held GPS as navigation tool to take point of the location of the facilities.

Table 1: Data Acquired and Source

S/N	Name	Scale	Format	Type	Source
1	Quick Bird	3m	TIFF	Secondary	Google Earth
2	Administrative	NA	.shp	Secondary	Ministry of Land Survey
3	Names of Tourist Centers	NA	Excel	Secondary	Plateau State Ministry of Tourism
3	GPS pont of Tourism Centers	NA	Excel	Primary	Field
4	Literature Review	NA	Txt	Secondary	Web, Journal, books, newspaper

Data Processing

The data gotten from Google earth was geo-referenced. This term is commonly used in GIS to describe the process of associating physical map or raster image of a map with spatial locations and the point were overlaid on the geo-referenced Google earth satellite image and administrative maps using ArcGIS 10.1 software. On screen digitization was carried out in ArcGIS 10.1 soft environment to generate vector model. Roads were digitized as line features, tourism facilities as point features. The spatial data was organized in layers to produce a single visual map of the tourism facilities containing all information that could be required by persons needing to visit a tourism facility.

GIS Database Development

Creation of spatial data Database tourism industry is rapidly becoming a leading destination for tourists. Government efforts are already under way through the institution of tourism to develop and maintain this sector to become a major source of revenue for development in the country. It is evident that the country's tourism potentials have not been fully explored and marketed. Verka and Angelina (2008).The importance of GIS database development is stemmed from data demands of database which are closely interrelated and this need to be structured

for easy integration and retrieval (Healey, 1991 as cited by Zubair, 2011). Thus, a well-designed spatial database will help in achieving reliable information, storage and retrieval at will, an up-to-date and well defined functions which allow (spatial) quary and reality modelling or simulation to be accomplished.

The design phase has three parts, which are; conceptual data modelling, logical design and physical design especially as explained below;

a. **Conceptual Model:** The conceptual design is a concise description of the data requirements of the users and includes detailed description of the data type, relationship and constraints.

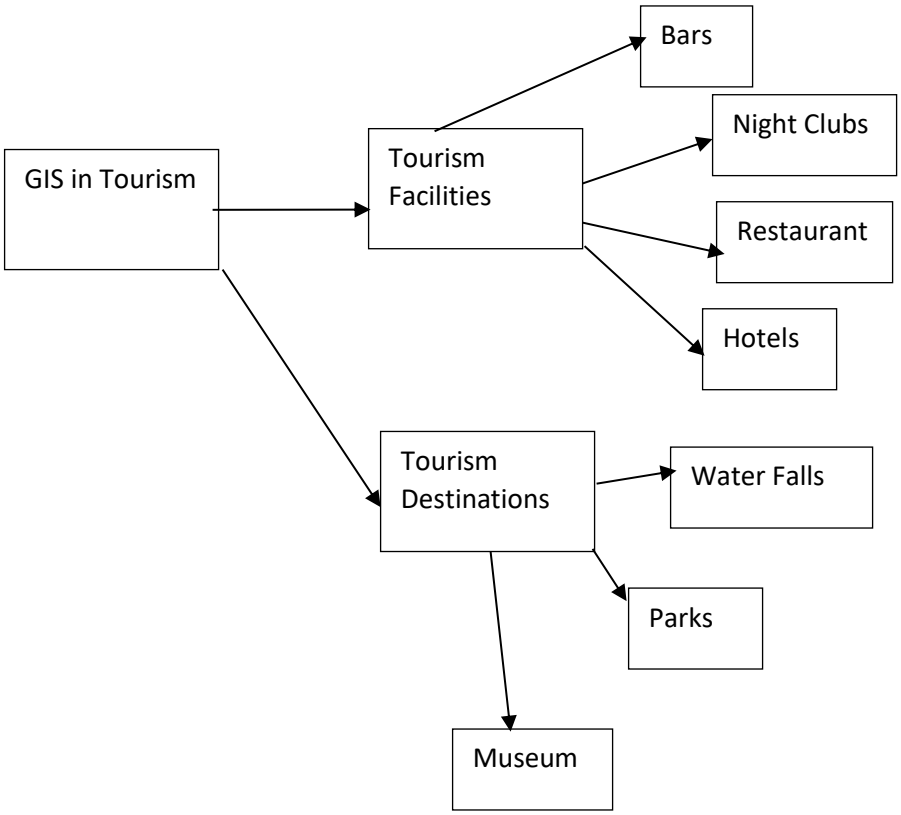


Figure 4: Conceptual data

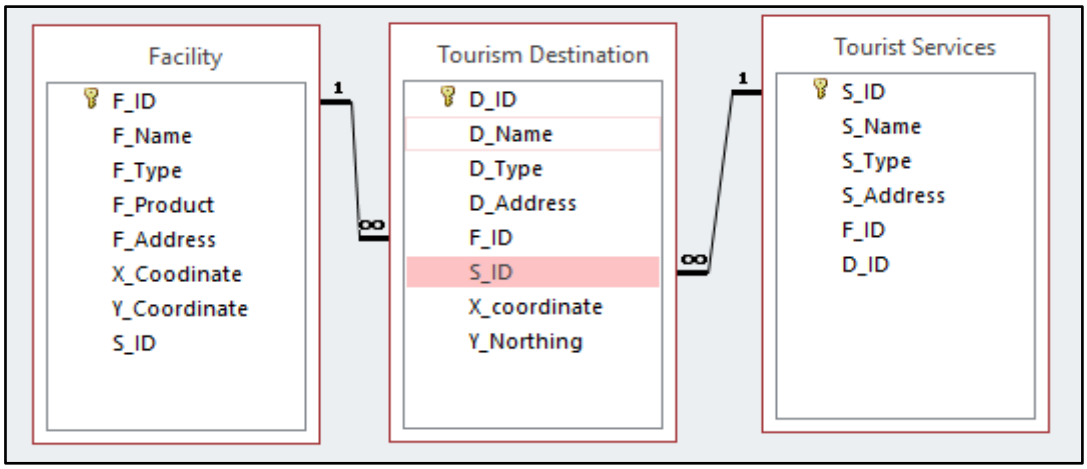
Table 2: Conceptual data modelling to tourism facilities

Conceptual Data Model	Description
Feature-id	Integer
Name of feature	Text
Address of feature	Text
Type of feature	Text

b. **Logical Model:** Logical design is a phase in database design, the conceptual data model is transformed into data structure capable of being represented in the computer. In a relational data model, the data are separated into tables, each table contains item called, field. Fields are object (attributes of entities). The logical design is meant to provide redundancy free dataset

Table 3: Logical data modelling for tourism facilities

	Logical Data Model	Description
Entity names		
Entity relationship		
Attributes		
Primary keys		



c. **Physical Data Model:** This is the stage of which the data is being mapped into the implementation software. It defines the specific storage structure and access paths to the database.

Table 4: Physical data modelling for tourism facilities

Attribute	Data Type	Width
Names of tourism	Text	30
Address of tourism	Text	40
Type of tourism	Text	10
Ownership	Text	10
Northings	Integer	10
Easting	Integer	10
Altitude	Integer	5

The data generated was analysed using descriptive analysis; this was employed to describe the main features of the data collected and to summarize the data set. Also, tables and charts were used to give overall sample size and number of tourism centers. GIS analysis employed cut across the overlay analysis and data integration. The map of the study area was over-laid with the distribution of the tourism facilities to all the key variables allows the study to view these relationships simultaneously in the geographic space of the study area.
The overlay analysis in GIS makes possible the integration of data having different geographies example, the road map of a city can be overlaid with the map showing districts where tourism centres exist.

Buffer Analysis

The buffer analysis was used to analyze the distance and to suggest future locations of tourism facilities. In GIS, a buffer is a zone that is drawn around any point, line or polygon that encompasses all of the area within a specified distance of the feature. This zone is drawn by a GIS in the form of a new polygon. So-called negative buffer may also be used for polygons to specify a distance inward from the boundaries of the area feature. Essentially, buffer analysis is tool which has been to find regions that are directly connected to specified object and useful for finding regions of space that are nearest to each of a set of irregularly distributed sample locations.

Tools and Software to be Used

A Geographic Information System (GIS Software) is designed to store, retrieve, manage, display and analyze all types of geographic and spatial data. GIS software lets you produce maps and other graphic display of geographic information for analysis and presentation. Materials and equipment that were used basically are; a hand held GPS Navigator, and three software's was used for this project viz.

a. **ArcGIS-:** Like many GIS software, ArcGIS creates map that requires categories organized as layers. Each layer is registered spatially so that when they're overlaid one on top of another, the program lines them up properly to create a complex data map. The base layer is almost always a geographical map, pulled out of a range of sources depending upon the visualization needed (satellite, road map, etc). This was used to geo-referencing, digitizing and overlaying of features to form a single visual map. It was used for carving out

Jos city center from the whole of the state using both the admin and local government map. This was also used to compliment the display and processing of the data.

b. **Microsoft Word:** MS Word enables users to do writer-ups, create documents resumes, contracts, etc. This is one of the most commonly used programs under the office suite was used basically for presentation of the research.
c. **Microsoft Excel: This is** a software program created by Microsoft that uses spreadsheets to organize numbers and data with formulas and functions. It was used to create a database which had parameters such as ownership and category, the parameters were entered into ArcGIS 10.1 software and was used to create an attribute table.

Statistical Approach

The statistical approach involves defining phenomena in terms of numbers and using the number to either implies or deduce causes and effects. Statistics are used to summarise and describe the data from studies where the data are collected in the form of numbers

Average Nearest Neighbor

The average nearest neighbor tool measures the distance between each feature centroid and its nearest neighbor's centriod location. It then averages all these nearest neighbor distances. If the average distance is less than the average for a hypothetical random distribution, the distribution of the features being analyzed is considered clustered. If the average distance is greater than a hypothetical random distribution the feature are considered dispersed. The average nearest neighbor ratio is calculated as the observed average distance divided by the expected average distance (with expected average distance being based on a hypothetical random distribution with the same number of features covering the same total area).
The average nearest neighbor ratio is given as:

$$ANN = Do/De$$

Where Do is the observed mean distance between each feature and its nearest neigbor and De is the expected mean distance for the features given in a random pattern.

Analysis of Ratio of Man to Facility

Ratio = population/facility

Jos = 437,217/30 = 14,574 persons

In this analysis, the value of population in a LGA and the number of tourism facility in the area is rationed. This gives the number of tourist that is a tourism facility in the city of jos can accommodate.

It can be seen that from the population and tourism facility data gathered, it is observed that in Jos a tourism facility can provide service to about 14,574 persons. In the distribution of tourism facilities, population figure is a major factor to be considered. The implication of this is that some of the tourism facilities in Jos city will suffer more usage and may collapse in the shortest time. The available manpower working in these tourism facilities will also be overloaded with too much workload which means that not all tourist may be attended to, thus death awaits some emergency patients before medical attention is given.

Data Presentation

The findings obtained from data presentation, analysis and interpretation is the major thrust of any research work. Therefore, the researcher has put in place an appropriate mechanism to ensure that data are presented logically in order to facilitate proper analysis and interpretation of results obtained from GIS.

Spatial distribution of Tourism Facilities on the Plateaus

The spatial distribution of tourism facilities was considered in order to examine the pattern of their distribution in the area. Figure 4:1 shows that 30 tourism facilities attractions were captured for the study across Jos North Local Government. This includes accommodations, lakes museums, parks and gardens. In looking at all these tourism facilities, 22 are private owned, while 8 are government owned. Basically they are mostly clustered.

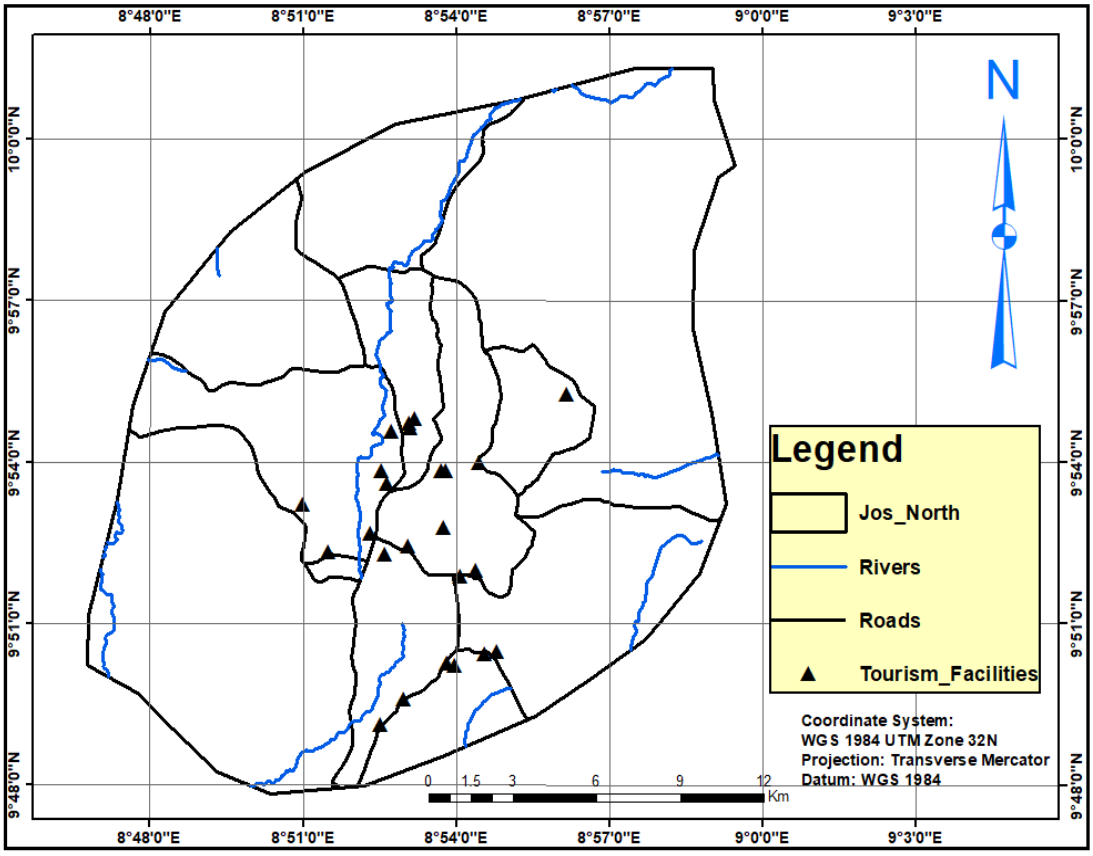


Figure 5: Jos North local Government Area showing the study area and some tourism sites

Source: Authors Field survey (2019)

Availability Factor

Availability refers to the extent to which a system provides facilities (which is the structural form) and services (which refers to process) that meet the needs of the people (Cambell, Roland et al. 2000).

In order to achieve the set objectives of this study, some tourism facilities were taking into consideration, about 30 functional tourism facilities in Jos Local Government Area; as at the time this research was conducted. Government tourism facilities sampled were eight (8) and about twenty-two (22) private. Table 4.1 below shows the inventory list of tourism facilities in the study area as at 2019.

Point Pattern Analysis

The concept of point pattern analysis can be best expressed using Zero-dimensional points. Which are used for geographical features that can best be expressed by a single point reference; in other words, simple location. For example, the locations

of wells, peak elevations, feature of interest or trailheads. Points convey the least amount of information of these file types. Points can also be used to represent areas when displayed at a small scale. For example, cities on a map of the world would be represented by points rather than polygons (Wikipedia, the free encyclopedia, 2011). In GIS, point maps are used to indicate locations of structures, towns, facilities, it is created as a layer that with all the relevant attributes attached to each point. This study employs the use of point maps to display tourism facilities in the study area.

Figure 4.2 below shows 30 tourism facilities in the study area. Eight (8) of the tourism facilities are owned by Government and about twenty-two (22) Private. Area with high social and economic groups of people has high concentration of tourism centers. This is because, they maximize profit and also likely to reside where basic infrastructures such as electricity supplies, portable water supplies, and good road network are readily available. Jos town has the highest concentration of tourism facilities.

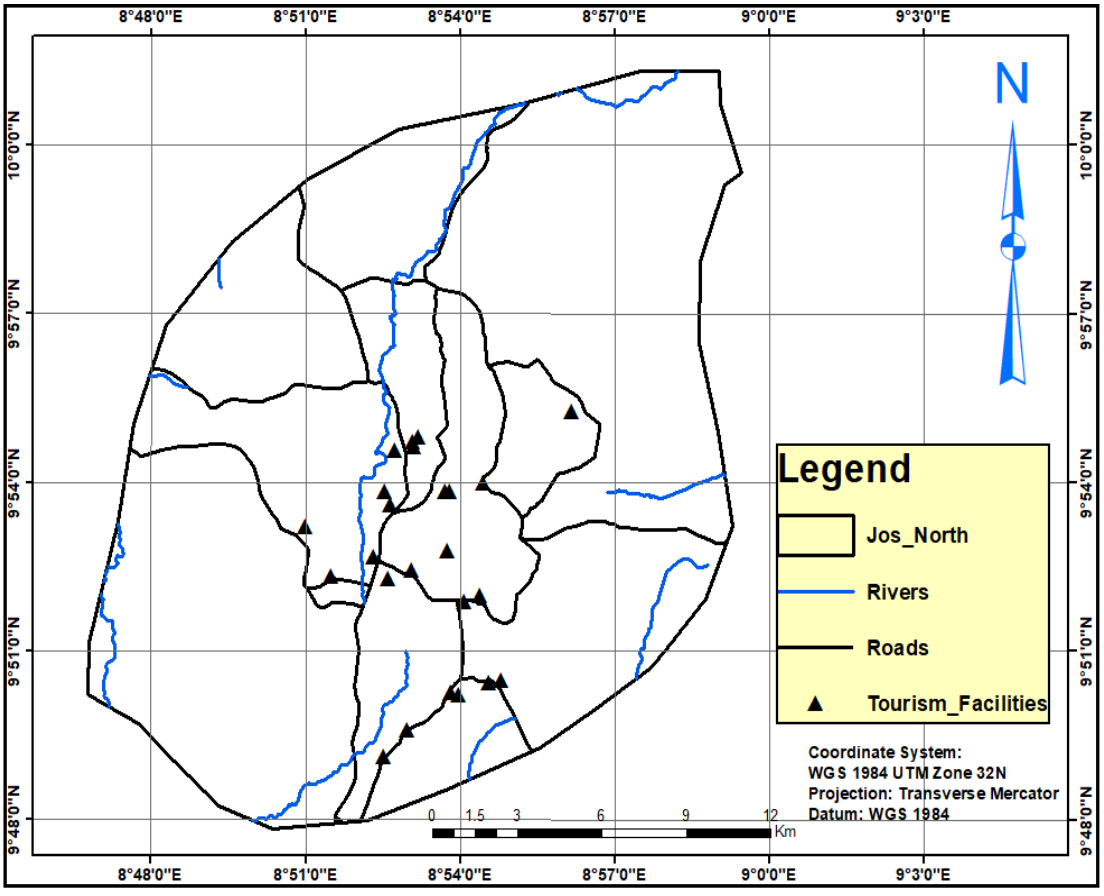


Figure 6: Jos North Local Government Area showing all tourism facilities
Source: Authors Field Survey. (2019)

Ownership

The ownership arrangement for constructed facilities not only generate the capital and requirements for new facilities, but also influence the management of the construction and operation of these facilities. While it is difficult to conclude definitely that one or another organizational or financial arrangement is always superior, different organizations have systematically chosen the ways in which constructed facilities are financed, designed and constructed. Moreover, the selection of alternatives investments for constructed facilities is likely to be affected by the type and scope of the decision-making organization. Some of the these systematic differences, particularly with regards to public versus private organization are considered. An extended example shows that tax shields high public borrowing costs and private financial leverage may be sufficiently advantageous for private firms to overcome the effects of partial capital subsidies and lower required rates of return for public organizations. Thus, private ownership and operation of infrastructure may prove to be a desirable social alternative to public ownership under some circumstances even without considering difference in the w\efficiency of operation.(Chris and Tung 1985) There are two types of ownership of tourism facilities in the study area. They include

a. Government tourism facility

b. Private tourism facility

Government Tourism Facility

At the opposite end of the spectrum from privately owned tourism facilities is the 'government owned tourism facilities. These facilities are operated as a branch of government. They include. Hotels, parks and gardens, recreational centers among others. As a result, these types of centers are very sensitive to the needs of the community; some would say they are overly sensitive or politicized. They try to maximize the 'direct' benefit of the center to local residents (public service) rather than maximizing the 'economic' benefits for the local economy (economic development). This can be accomplished in many ways including: subsiding, making the place free to assess for gate events with civic activities such as meetings of non-profit groups or political rallies; hiring only local residents so that the economic benefit stays in the community; requiring vendors to be local businesses; and employing more, rather than fewer, people relative to their size. In figure 4.3 below, there are 8 Government tourism facilities in the study area. This suggests Government has little desires on tourism

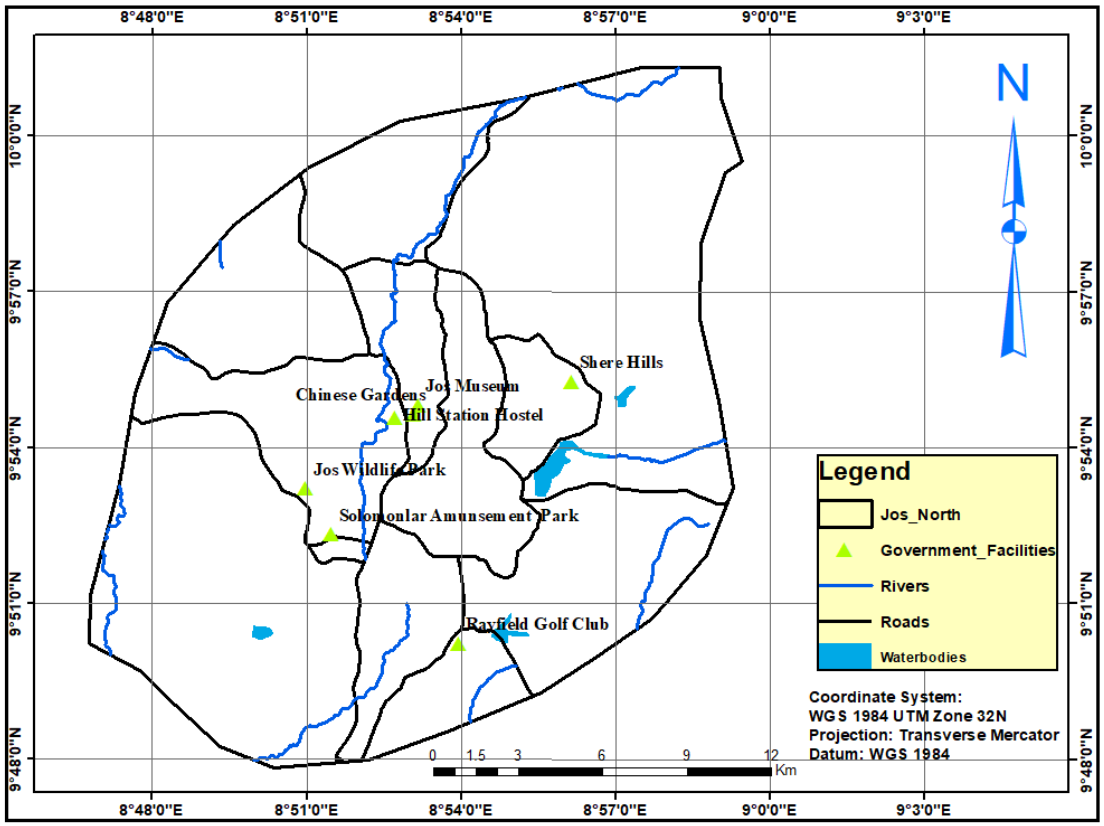


Figure 7: Jos North Local Government Area Showing Government tourism facilities

Source: Authors Field Survey (2019)

Private Tourism Facilities

These are set of tourism facilities that are privately owned either by individuals, groups, or communities. They are usually located where population is high, social activities is active and sometimes areas where basic amenities such as good roads, electricity and water supply are available. This form is operated like a business enterprise with profit being its primary objective while utilizing an entrepreneurial strategy to reach this objective. Private facilities seek to bring business to the masses that will yield the greatest revenues and, thus, profits. Competing in a field of contenders that are heavily subsidized, private facilities leverage efficient staffing, flexible booking policies, and value added services to minimize their cost and maximize revenues. Private tourism facilities tend to attract a greater proportion of consumer shows and social functions such as wedding gathering, parties or gate events such as concerts. These types of events are more profitable for private tourism facilities than government owned tourism facilities, because

they are willing to pay higher rant. This suggests that, they are profit making ventures. The research revealed that about twenty-two (22) private tourism facilities were sampled. This is shown in figure 4.4 below.

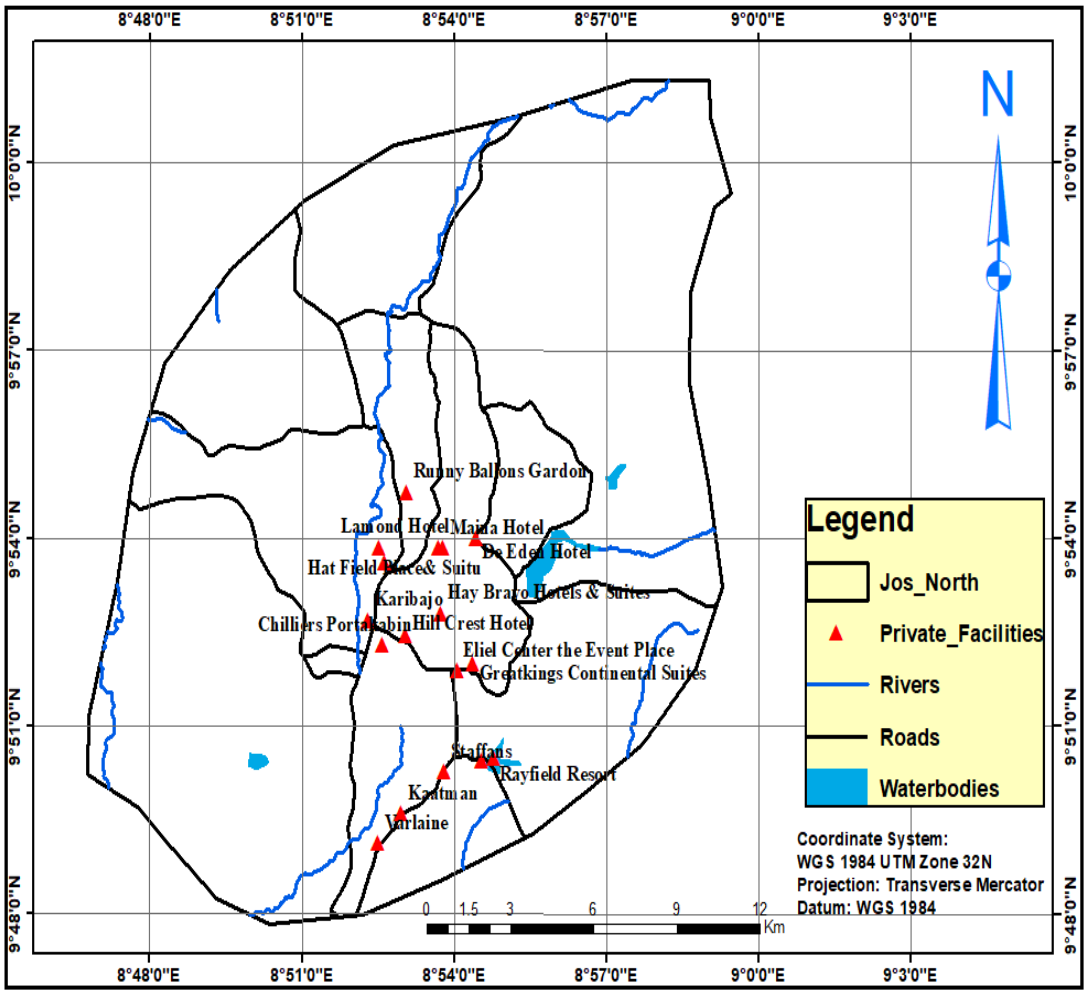


Figure 8: Jos North Local Government Area Showing Private tourism facilities

Source: Authors Field Survey (2019)

Data analysis

Prior to the derived data sets about prevailing tourism facilities in the study area, various geospatial analyses were carried out on the derived data sets to determine the following:

- The pattern of the distribution of tourism facilities in Jos city
- The proximity of selected Communities to available tourism Facilities within a reasonable distance of 2km,

The number of persons to each tourism Facility based on 2006 LGAs population figures

The Pattern of Distribution of Tourism Facilities

This research describes the spatial layout of convention facilities with tourism facilities in Jos north local government of plateau state through the application of ArcGIS analysis software, over space. It is usually in response to number of location factors. This could be, easy access to/from nearby settlement, availability of good roads, and social amenities among others. This study revealed the following patterns; tourism facilities were found to have a spatial agglomeration pattern and an uneven distribution within jos north local government, plateau state. Convention facilities and tourism were closely spatial related where facilities are scattered over space and linear: where facilities development follow straight line pattern usually along important roads.

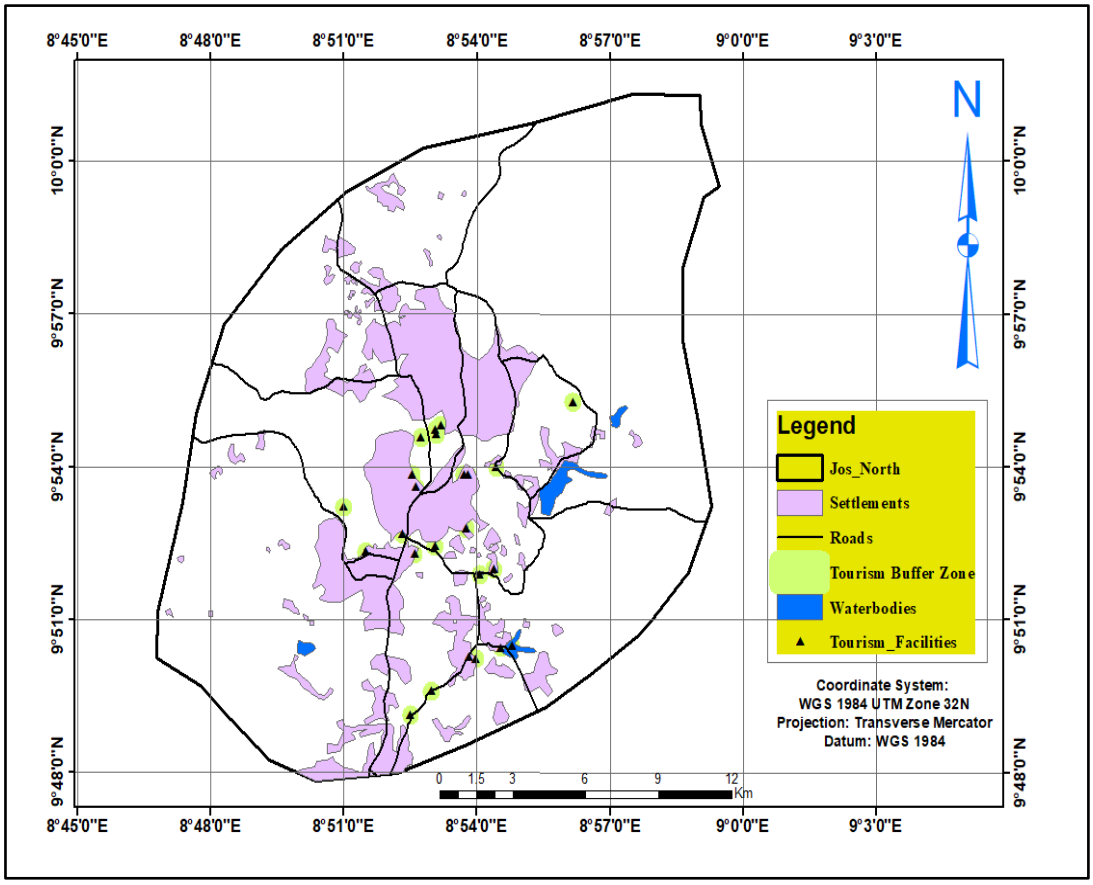
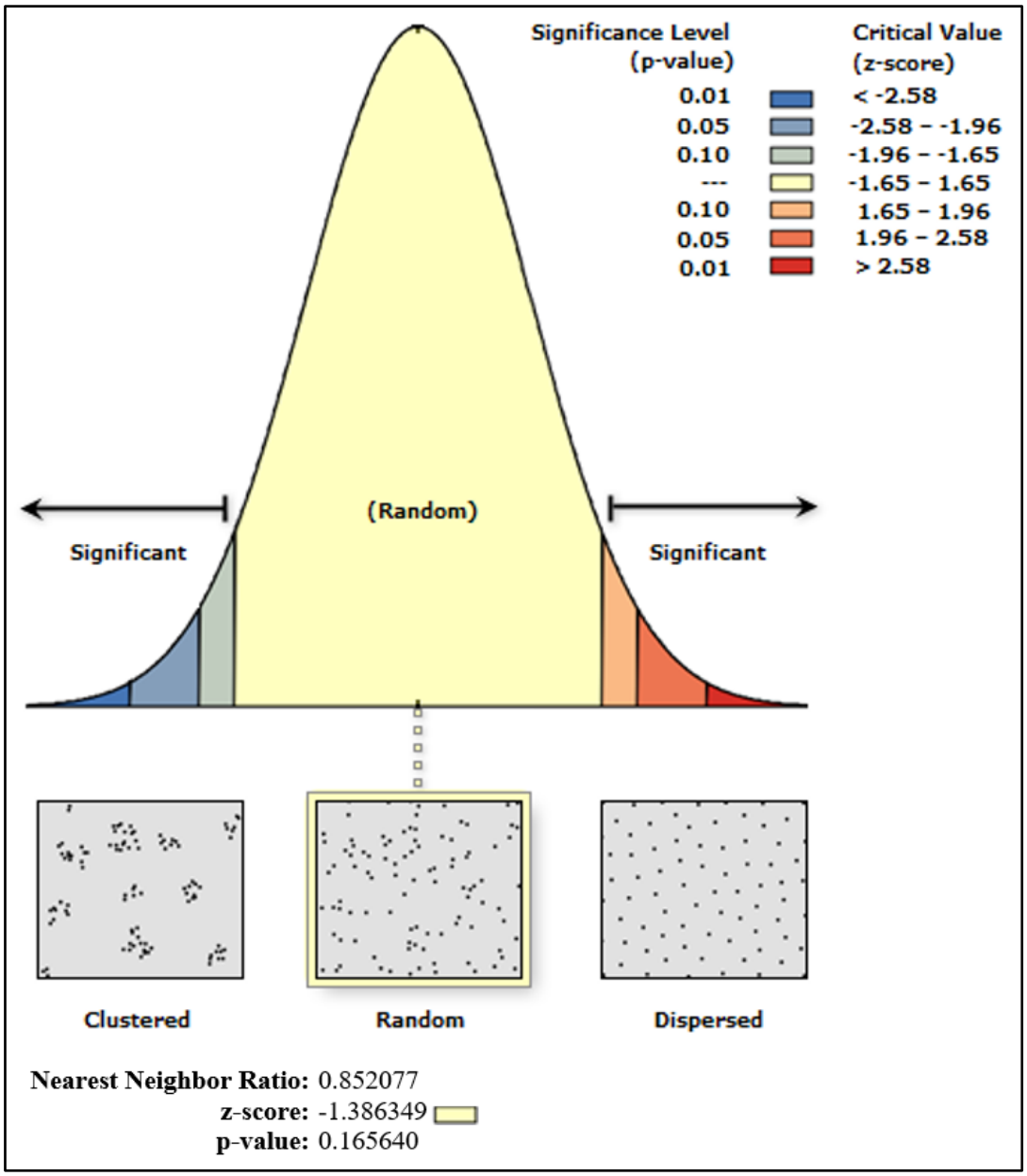


Figure 9: Show the distribution pattern of tourism facilities in the study area. Source: Authors Field Survey (2019)

Average Nearest Neigbor

This is used to analyse the statistical data of point. Specifically this test is used to determine if a point pattern is dispersed, Random or clustered. This analysis only look at spatial pattern of point it does not look at their values stored on the point. If the index is 1 then we have a random pattern, if the index is less than 1 then we have a clustering meaning that Do is less than De. If the index is greater than 1 then our point is dispersed. The average nearest neighbor is given as: ANN= Do/De. In figure 4.6: given the Z-score of -1.3863488715, the pattern does not appear to be significantly different than random. This can then be said to be randomly clustered.



Source: field work survey (2019)

Database of Tourism Facilities in Jos Local Government Area

Database is an organized system that allow data storage, manipulation and retrieve data from the system. GIS database provides comprehensive framework and organization of spatial as well as non-spatial data and has become a focused tool to help planning and decision making (WHO, 2004).

The study identified both Public and Private Tourism facilities that are spatially distributed on the field. The geographical coordinates of tourism facilities were established. Attributed data were collected and a GIS-database was generated as displayed.

Table. 5: Database of Tourism Facilities in Jos Local Government Area

Table

Tourism Facilities

FID	Shape *	X	Y	Z	DESCRIPTIO
0	Point ZM	487363	1095555	121	Chinese Gardens
1	Point ZM	492981	1096709	130	Shere Hills
2	Point ZM	485374	1089578	0	Azi Nyako Youth Center
3	Point ZM	487531	1095881	119	Jos Museum
4	Point ZM	484456	1091294	128	Solomonlar Amunsement Park
5	Point ZM	488971	1087429	130	Rayfield Golf Club
6	Point ZM	486725	1095431	124	Hill Station Hostel
7	Point ZM	483543	1092916	132	Jos Wildlife Park
8	Point ZM	487324	1095714	121	Runny Ballons Gardon
9	Point ZM	486178	1095146	0	Country Home Hotel
10	Point ZM	485967	1091944	129	Karibajo
11	Point ZM	486464	1091211	129	Chilliers Portakabin
12	Point ZM	486292	1085389	124	Varlaine
13	Point ZM	490024	1087827	130	Mee's Palace Events Centre
14	Point ZM	490468	1087905	129	Rayfield Resort
15	Point ZM	487146	1086256	125	Kaatman
16	Point ZM	488693	1087491	129	Staffans
17	Point ZM	489825	1094362	124	De Eden Hotel
18	Point ZM	488656	1094066	122	Maina Hotel
19	Point ZM	488483	1094092	122	Hat Field Place& Suitu
20	Point ZM	488591	1092143	128	Hay Bravo Hotels & Suites
21	Point ZM	489724	1090678	128	Greatkings Continental Suites
22	Point ZM	489151	1090469	128	Eliel Center the Event Place
23	Point ZM	487303	1091507	129	Hill Crest Hotel
24	Point ZM	486534	1093629	125	Usiju World Event Center
25	Point ZM	486369	1094088	125	Lamond Hotel
26	Point ZM	485780	1083425	0	Yelwa Club
27	Point ZM	487990	1094192	0	Shawarma and Grills
28	Point ZM	485374	1083425	0	Jossy Royal Hotel
29	Point ZM	485362	1096252	0	Netcafe Restaurant and Bakery

1 (0 out of 30 Selected)

Tourism Facilities

Community-Based Proximity to Tourism Facility

The proximity analysis intends to determine the number of tourism facilities within 2km radius from the dwellers. This gives an insight into which facility, members of a community can quickly visit in the shortest distance in times of need. As a result, relevant GIS software tool has been used to identify the number of tourism facilities that are within 2km radius to the dwellers. This can easily be achieved through a transformation operation known as buffering. Given any set of objects, which may include points, lines, or areas, a buffer operation builds a new object or objects by identifying all areas that are within a certain specified distance of the original objects,

Proposing New Tourism Facilities

Having carried out analysis on the existing tourism facilities in Jos North Local Government Plateau State, it would be worthwhile to assess the need of establishing other tourism facilities in Jos with the growing population. The population of the city is increasing due to the rural-urban migration and influx of people that have been on the increase in recent years. Therefore, existing facilities won't go round for all, and the necessity of establishing others is essential. Although, proximity of the existing facilities to the users and access to road and water is to some extent satisfying the criteria of WHO (Worl d Health Organisation), but population is not. The WHO (1997) set out a criterion for sitting tourism facilities based on population. An area with a population of 500 people should have access to at least one tourism facility with the main equipment. Although there are some facilities equiped to the standard required, the population of the city is growing dramatically between 2006 and 2015. Considering this population increase, we suggest additional facilities be made. However, our proposition here have considered some areas with high population such as Tudunwada and Nasarawa areas that have grown dramatically. Significant population increase due to new settlements have been observed in these areas recently compared to other parts of the town.

The new proposed tourism centres should be government owned due to the ratio of government to private tourism centres. The proposed site for the new tourism facilities is shown on the map below alongside the existing tourism facilities of both public and private.

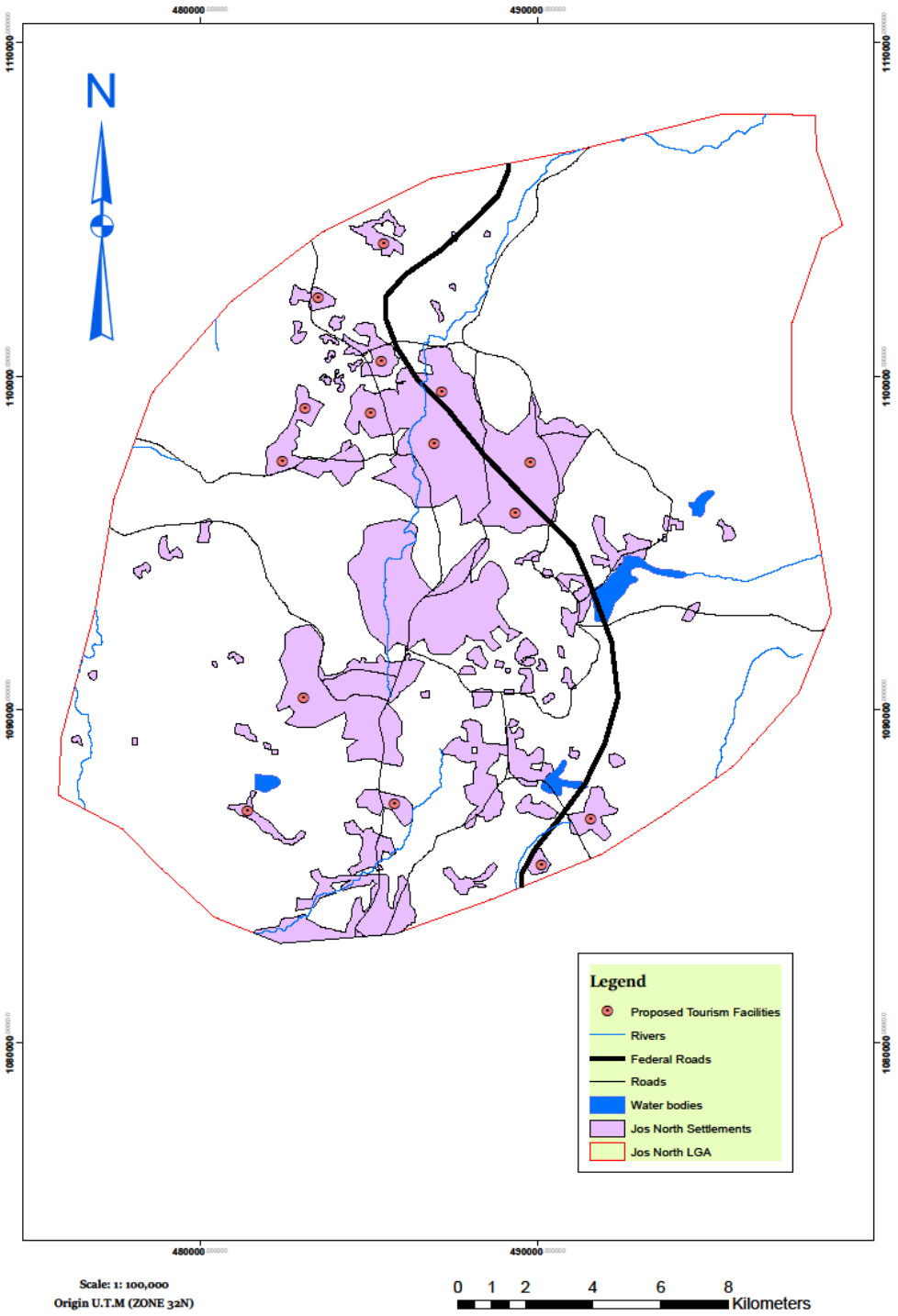


Figure 11: Map of Jos North Local Government Showing Suggested Proposed Tourism Sites

Source: Field Work Survey (2019)

Conclusion

In conclusion the result of the various analysis carried out in this research have show that, the spatial; distribution of tourism facilities was considered in order to examine the pattern of their distribution in the area. Out of 30 tourism facilities 22 where private owned 8 were government owned, that the study revealed the following patterns; tourism facilities were found to have a spatial agglomeration pattern and an uneven distribution within jos north local government, plateau state. Conventional facilities and tourism were closely spatial related where facilities are scattered over space and linear; where facilities development follows straight line patterns usually along important roads. Having carried out analysis on the existing tourism facilities in jos north local government, plateau state, it would be worthwhile to assess the of establishing other tourism facilities in jos with the growing population.

Recommendations

The most important challenge for sustainable tourism development concerns the perspective and expectations that all stakeholders, particularly government policy-makers, have about tourism's contribution at the local, regional and national levels. Many developing countries view tourism as a vehicle for economic development, given its potential to earn foreign exchange, create employment, reduce income and employment disparities, strengthen linkages among economic sectors and help to alleviate poverty.

1. The challenge facing policy-makers is to have a broader perspective and better understanding that there can be both positive and negative effects from tourism development.
2. That the potentials of GIS as an analytical tool can be utilized to determine and measure access to tourism facilities.
3. That all archived data in the tourism ministry be updated, digitized and geo-referenced.

References

A strategy for tourism and sustainable developments. World leisure and recreation 32(3), 12-18, 1990
Adedunrin, 10 (2000) Digital mapping of Tourism Zones in Nigeria. National concord, Thursday march 23, 2000
Alister mathieson and Geoffrey wall 1982. Tourism: Economic, Physical and Social impacts.
Annals of tourism research volume 20, issue3, 1993, pages 583-600 Planning for tourism business districts.
Annals tourism research 1985 vol 12 NO 4 pp 603-618 ref. Point pattern analysis of accommodation in Toronto.
Antonia besculides, Martha E Lee, Peter J McCormick Annals of tourism research 29 (2), 303-319, 2002. Residents perception of the cultural benefits of tourism.
Ayeni, Dorcas; Ebohon, O.J 2012-09 Exploring sustainable tourism in Nigeria for developmental growth.
B bynum boley journal of hospitality and tourism education 23 (4), 22-23, 2011

Babalola and oluwatoyin, 2014 spatial pattern of tourism facilities and tourist behavour in asaba delta state; tourism and hospitality management, Eduproject,com,ng
Bas Boers, Stuart Cottrell tourism geographies 9 (1) 1-21, 2007. Sustainable tourism infrastructure planning: A GIS-supported approach.
Beech, and Chadwick -2006- pearson education The business of tourism management.
Bullen, A. G., Essien, C. K., and Akpama, S. I. (2011). "Cultural tourism: A Veritable Tool for Socio-Economic Development of Cross River State", *Policy Alert: Journal of Public Policy Analysis,* Vol. 4, No. 1. March.
Bultler, R. W. (1993)."Cultural tourism: An Evolutionary Perspective", in Nelson, J. G., Bultler, R. and Wall (1993) Editors, *Cultural tourism and Sustainable Development: Monitoring, Planning and Managing,* Department of Geography Publication Series, No. 37, Waterloo: University of Waterloo.
C Cooper, J Fletcher D Gilbert A Fyll, S Wanhill 2005 –person education toursism; principles and practice.
Colin hunter and howard green (1995) Tourism and the environment: a sustainable relationship?
Cooper, C., Fletcher, J., Gilbert, D., and Wianhill, S. (1999). *Cultural tourism: Principles and Practice,* 2nd ed. Longman.
Cracolici, peter nijkamp, rietveld tourism economic 14 (2), 325-342 2008 Assessment of tourism competiveness by analyzing destination efficiency.
Determinants of Tourist arrivals in Africa: a panel data regression analysis Willem A Naude, Audriea Saayman Tourism Economies 11(3), 365391, 2005
Dougles G Pearce geojournal 19(3), 257-262, 1989 Internal and domestic tourism interfaces and issues.
Ebin, C. O. (1999). "Environmental Protection and Resources
Eluwa G.I.C. et'al, (1988) *A History of Nigeria For Schools and Colleges,* Africana First Publishers PLC.
Establishing a Measure of Touristic Attractiveness as a Tourist Destination Charles E Gearing, William Swart, Turgut Var. Journal of Travel Research 12 (4), 1-8, 1974
Esu, 2015; sanni 2009 www.emerald.com. The hospitality business in Nigeria issues, change and opportunities.
Etuk, E. J., Eze, F. J., and Esu, B. B. (2012). "Marketing of Cultural tourism Services in Nigeria: A Study with Special Reference to Cross River State", *Marketing Journal,* National Institute of Marketing of Nigeria, Vol. 1, No. 1, June.
Exploring Sustainable Tourism in Nigeria for development growth Dorcas Ayen, Ojeibohon.
Ezema, I. C. (1993). "An Integrated Approach to Cultural tourism Development in Nigeria, in Choker, B. A. (1993) editor, *Environment and Cultural tourism in Nigeria,* Lagos: National Library of Nigeria Cataloging in Publication Data.
Fagbile, A. (2001). "Repositioning Nigeria Economy through Cultural tourism: Strategies and Options", *Nigerian Cultural tourism*1(1).
Geoffery, crouch, JR Brent Ritchie journal of business research 44 (3) 137-152, 1999 tourism, competitiveness and societal prosperity.
Infrastructure and sustainable Tourism Development in Nigeria.
International Journal of Research in Tourism and Hospitality (IJRTH) volume 3, issue 2, 2017, pp 5-19 ISSN 2455-0043 http://dx.doi.org/10.20431/24455-0043.0302002. www.arcjournals.org.
IOSR Journal of Humanities and Social Science (IOSR-JHSS) Volume 24, Issue 1, serv 6 (January, 2019) 7280 e-ISSN: 2279-0837, P-ISSN: 2279-0845. www.iosrjournals.org.
Isc Environmental Education (Part II). Goyal Brothers Prakashan, 2010
Issa Ebrahimzadeh Marzie Darari, Analysis of tourism facilities, Distribution and its optimization based upon Askworth-tunbridge and Getz models using Gis' case study; semnan in historical, Vol2, No3, 2014, pp. 47-56
John CS Tang, Narisara Rochananond Attractiveness as a Tourist Destination; a Comparative Study of Thailand and Selected Countries. Socio-Economic Planning Science 24(3), 229-236, 1990
Journals of cultural geography 11 (1), 39-55,1990 Recreation business district in guif of mexico seaside resorts. Klars .j. meyer-arendt.
Julius O Gbakeji; Location theory and public facilities: A case study of health-care facilities in Ugheu South Local Government Area of Delta State, Nigeria
Kehinde, E. O. (1993). "Towards Evolving a Valuable Concept of Cultural tourism", in Choker, B. A. (1993) editor, *Environment and Cultural tourism in Nigeria,* Lagos: National Library of Nigeria Cataloging in Publication Data.
Laetitia M Navarro Rewilding abandoned landscapes in Europe. Rewilding European landscapes, 3-23, 2015
Liu , Sheldon and var 1987. Annals of tourism research volume 14, issue 1, 1987, pages 17-37 resident perception of the environmental impacts of tourism.
Madhaur Chokal ingam, a Auroubindo Ganersh problems encountered by Tourists Business and Economic Horizons (BEH) 3 (1232-2016-101107), 68-72, 2010
Nielson, H., and Spenceley, A. (2011). "The Success of Cultural tourism in Rwanda: Gorillas and More", in Chuhan – Pole, P, and Angwafo, M. (2011) editors, *Yes Africa Can: Success Stories from a Dynamic Continent,* Washington D.C: The World Bank.
NSCB Tourism taper, 2004 what is tourism? Retrieved may 5, 2006 from: httwwwnscb.govph/glossary/tourism asp
Nwidum, F. (2007). "Hospitality and Cultural tourism Industry in National Development: The Role of the Personal Secretary", *The Enterprise, International Research Journal for Development,* January – July, Vol. 9, No. 1.
Ojiako J.C sager M and Igbokwe E.C location and spatial analysis of tourism facilities in Abuja municipal area council, Fct, Nigeria using GIS Approach.
Okoli, C. I. C. (2003). "Sustainable Entrepreneurship in the Cultural tourism Sector: Challenges of the Nigerian Investment Environment, *Journal of Business and Social Science,* Vol. 11, No. 1, July.

Opportunities and Limitations of GIS – based modeling of solute transport at the regional scale peter a burrough Application of GIS to the modeling of Non-point Source Pollutants in the Vadose Zone 48, 19-38, 1996.
Peter Jackson; history and historiography of post-mongol central Asia and the middle east; studies in honor of john e woods 3, 2006
Preservation: Vital Tool for the Growth of the Cultural tourism Industry", in Ajiah-Obi, F. N. (2001) *Environmental Protection and Management: Planning Process and Strategies,* Calabar: Clear Lines Publication.
Robert JA Goodland ; the urgent transition to environment sustainability. Publish for environmental general authority, Tripoli; 2013 ISBN 978-097921789-0-6.
Seers, D. (1969). "The Meaning of Development", Paper presented at the Eleventh World Conference of the Society for International Development, New Delhi.
Stephen LJ Smith. Annals of tourism research 12 (4), 581-602, 1985. Location of tourism.
Stephen page, MTHEA SINCLAIR Built environment (1978), 125-137, 1989 tourism and accommodation in London: alternative policies and the docklands experience.
Sustainability in hospitality and tourism education: towards an integrated curriculum.
Tang and rochananond; Attractiveness as a tourist destination; a comparative study of Thailand and selected countries socio-economic planning sciences 24 (3), 229-236, 1990
Tim coles, C Michael hall, David Timothy Dural philosophical issues in tourism 80-100, 2009. Post –disciplinary tourism.
Timber bulletin, 2005; forest product annual market review 2004-2005.
Todaro, M. P. and Smith, S. C. (2006). *Economic Development,* 10th ed. Harlow, England: Pearson Education Limited.
Trends and issues in sport event tourism. Tourism recreation research 22(2), 61-62, 1997
United Cites and Local Governments, "Culture: Fourth Pillar of sustainable Development"
United Nations, "Report of the World Commission on Environment and Development". General Assembly Resolution 42/187, 11 December 1987, Retrieved.
Utilisation of GIS technology for tourism management in Victor Island Lagos European scientific Journal January 2013 edition Vol.9 No3 ISSN: 1857-7881(print) e-ISSN 1859-7431
Uwingeli, P. (2009).*Personal Communication,* Chief Park Warden, Volcanoes National Park, November 3.
Victor Eruotor: The Economic importance of tourism in developing countries. Cases study Lagos, Nigeria
Wall, G. and Mathieson, A. (2006). *Cultural tourism: Change, Impacts and Opportunities,* Harlow, England: Pearson Education Limited.
Ward, J., Higson, P. and Campbell, W. (1996). *Advance Leisure and Cultural tourism,* 2nd ed. UK: Stanley Thomas Publishers Ltd.
Willem A Naude, Andrea Saayman; Determinants of tourist arrivals in Africa; A panel data regression analysis. Tourism economic 11 (3) 365-391, 2005.
World Commission on Environment and Development (1987). *Our Common Future*, Oxford: Oxford University Press.