

Adoption of Digital Mapping to Tourism Potentials: A Case Study of Ondo State Tourist Map

AJIROTUTU, JACOB OLAYINKA

Surveying and Geo-informatics Department, Rufus Giwa Polytechnic, Owo, Ondo State Nigeria

Abstract: Ondo state is blessed with a variety of potential tourist attraction that are of historical, culture and artistic values. There is a maze of creeks, rivers and lakes in the coastal area while lowlands, rugged hills and crops of few hills abound in the northern areas, all these are mapping entities which have not been put on map. Tourist map is significantly lacking in comprehensive, accurate and up-to-date in Ondo State. The study is to produce a digital Tourist Map of Ondo State, displaying tourist centres using Geographic Information System technologies. A well structured tourism database for Ondo State will also be designed and created. Recommendations would be made on how tourist maps could be cheaply produced and easily updated.

Keywords: Tourism, tourist map, digital map, Geographic Information System (GIS).

1. INTRODUCTION

Maps have such a multiplicity of uses. There are specific (thematic) maps and general (topographic/atlas) maps, maps for the historians, for the meteorologist, for the sociologist, for the tourist, and so on without limit [1]. Anything that can be spatially conceived can be mapped. A map has nearly unrestricted potential utility.

The need for maps generally cut across all aspects of national affairs. In the spatial sciences, maps serve as data stores, sources of information, a basis for inferring additional data, means of displaying the result of analysis, frameworks for analysis and interpretation, graphical means of communication and process models [2].

1.1 Tourism: Tourism denotes the temporary, short term movement of people to destinations outside the places where they normally live and work and their activities during the stay at this destinations [3]. Much of it is a leisure activity.

The development of tourism therefore involves:

- i. Producing a framework for raising the living standard through economic benefits of tourism;
- ii. Developing an infrastructure and providing recreational facilities for visitors and residents; and
- iii. Establishing a development programme consistent with the cultural, social and economic philosophy of the host country.

Outline the goals and attainments of tourism as:

- i. Tourism increases the income of the host region;
- ii. Tourism increases foreign exchange earnings;
- iii. Tourism generates employment;

- iv. Tourism stimulates investment and increases tax revenue;
- v. Tourism is a means of redistributing wealth;
- vi. Tourism promotes national understanding, unity and stability;
- vii. Tourism benefits broad section of the host population;
- viii. Tourism contributes to the balance of payments;
- ix. Tourism contributes to the economic development; and
- x. Tourism erases cultural bias and promotes the upliftment of our cultural heritages.

1.2 Geographic Information System (GIS): The demand for up-to-date maps and other geographical information products is growing rapidly. This is caused by the pressure of urbanization, resource exploitation and management, the development of agriculture etcetera. As a result of advancement in Computer and Space Technologies, the solution to the above are now easily carried out by GIS.

Geographic Information System: an automated system for creating, editing, analyzing and displaying spatially referenced data. A GIS has the ability to manipulate different spatial datasets simultaneously [4].

1.3 Statement of the Research Problem:

Tourism mapping is one of tourism development that has not received serious attention in Nigeria. According to [5] 'tourism is still in its infancy considering the large accumulation of resources which are yet untapped and the institutional structure which is yet to be regulated to compete favorably with other fast growing tourism destinations'. [6] confirmed this by saying "In Ondo State, much has not been gained in tourism economically, subject to the fact that their tourism potentials are yet to be harmonized nor located for easy accessibility and marketing". [7] stressed that, 'there is no extant tourism map of Lagos State that shows the locations and distributions of the numerous tourist attractions and allied facilities'. This grave picture has not changed even today. Visit to the Ministry of Trade and Commerce, Akure confirmed that, most of tourism data are in written format, there is neither analogue nor digital tourist map of Ondo State. This present poor state of tourist mapping and use of maps in tourism management aroused the interest in the study.

1.4 Objectives of the Study:

The specific objectives of this study are:

- i. to produce a digital tourist Map showing locations and distributions of the tourist attractions and allied facilities,
- ii. to design and create a broad and well structured tourism database for Ondo State, and;
- iii. To make recommendations on how to make tourist maps cheaply available and up-to-date..

1.5 The Study Area:

Ondo State was created in 1976 from the former Western State and it originally included what is now Ekiti State, which was carved out in 1996 by late General Sanni Abacha. Ondo lies between longitude 4 ° 30" and 6 ° East of the Greenwich Meridian 5 ° 45" and 8 ° 15". The state covered the total area of the former Ondo Province, created in 1915 with Akure as the provincial headquarters. Ondo State took off formally on 1st April, 1976, consisting of the nine administrative divisions of the former Western State, which then were Akoko, Akure, Ekiti Central, Ekiti North, Ekiti South, Ekiti West, Okitipupa, Ondo, Owo and now eighteen local governments [8], [11].

The state is predominantly occupied by the Yorubas who speak various dialects of the language such as the Akoko, Akure, Apoi, Idanre, Ijaw, Ikale, Ilaje, Ondo and the Owo. Ondo State, which is indeed a microcosm of the Nigerian nation, is blessed with resourceful, industrious and hospitable people. Her crop of educated elite has led to its being classified as one of the most educationally advanced states in Nigeria. With a population of 3,441,024 comprising 1,761,263 males and 1,679,761 females, the people of the state are mostly subsistence farmers, fishermen and traders [10] as shown in table 1. The life patterns of the people represent an embodiment of culture, ranging from the local foodstuff to the mode of dressing, dancing, wood crafts, such as, carved house posts and decorated doors. The culture

of the Ondo State people speaks volumes. Antiquities and artifacts are also preserved in palaces of traditional rulers some of which have been declared as National Monuments..

Ondo State which has a land mass of about 14,788.723 Square Kilometres and it geographically lies entirely in the tropical belt. The state is bounded in the north by Ekiti and Kogi States; in the east by Edo State; in the west by Oyo and Ogun States and in the south by the Atlantic Ocean [8].

The tropical climate of the state is broadly of two seasons which are the rainy season between April and October and dry season between November and March. A temperature throughout the year ranges between 21 °C to 29 °C and humidity is relatively high. The annual rainfall varies from 2,000mm in the southern areas to 1,150mm in the northern areas. The state enjoys luxuriant vegetation with high forest zone (rain forest) in the south and sub-savannah forest in the northern fringe.

Table 1: Population Distribution of Local Government Areas in Ondo State.

1	Local Govt. Area	Local Headquarter	Govt.	2006 Population
1	Akoko North-East	Ikare		175,409
2	Akoko North-West	Oke-Agbe		213,792
3	Akoko North-East	Isua		82,426
4	Akoko South-West	Oka		229,486
5	Akure North	Iju-Itaogbolu		131,587
6	Akure South	Akure		353,211
7	Ese-Odo	Igbekebo		154,978
8	Idanre	Owena		129,024
9	Ifedore	Igbara-Oke		176,327
10	Ile-oluji/Oke-Igbo	Ile-Oluji		172,870
11	Ilaje	Igbokoda		290,615
12	Irele	Irele		145,166
13	Odigbo	Ore		230,351
14	Okitipupa	Okitipupa		233,565
15	Ondo East	Bolorunduro		74,758
16	Ondo West	Ondo		283,672
17	Ose	Ifon		144,901
18	Owo	Owo		218,886
	Total			3,441,024

Source: National Population Commission, 2006.

Table 2: Coordinates for Geo-referencing

Point	Geographical Coordinates		Rectangular Coordinates	
	Latitude	Longitude	Easting (m)	Northing (m)
1	8 ⁰ 4' 5"	4 ⁰ 22' 35"	217100	449700
2	8 ⁰ 3' 49"	6 ⁰ 25' 43"	443300	449700
3	5 ⁰ 50' 06"	6 ⁰ 25' 10"	443300	203189
4	5 ⁰ 50' 18"	4 ⁰ 22' 38"	217100	203189

Source: Fieldwork, 2017.

2. RESEARCH METHODS

The following data sets, sources and method are adopted for data collection.

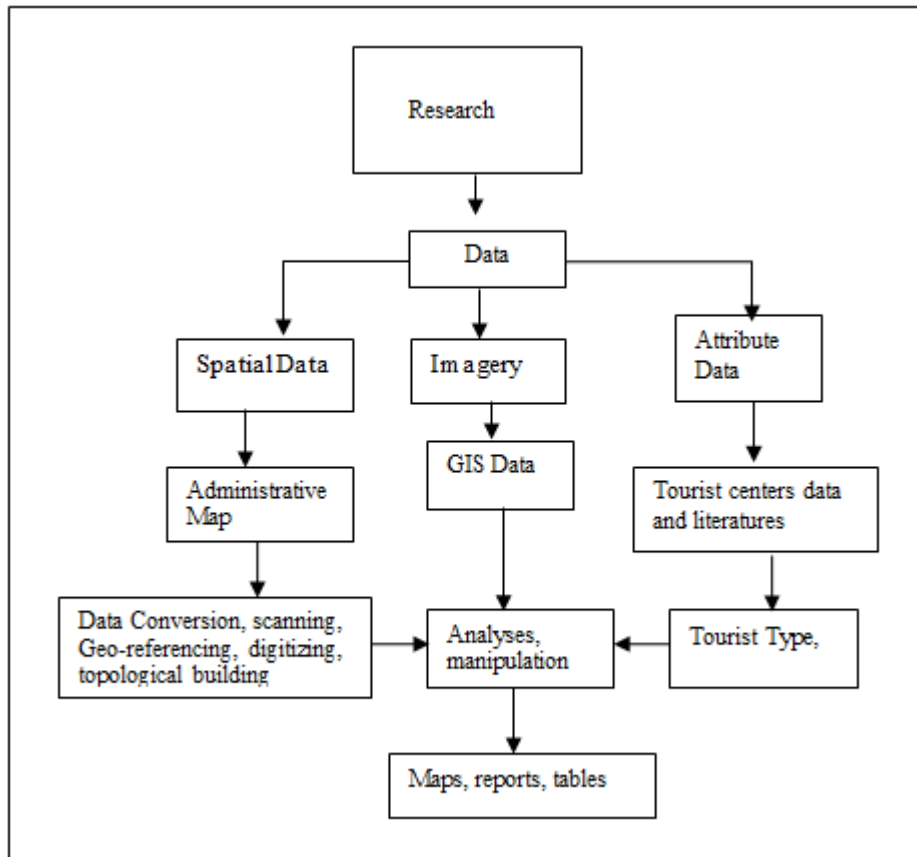


Fig.1: Systematic Diagram of Research Methodology (Source: Fieldwork, 2017)

The administrative map of Ondo State [9] was obtained. This help in providing data on geographical location of boundaries, roads, place names, rivers and the like.

2.1 Data Input, Manipulation and Analysis:

The Administrative Map of Ondo State was obtained to serve as base map upon which other thematic data (tourist data) is been plotted. The map was scanned and saved as “Ondo Admi jpeg” format and imported into AutoCAD Land Development environment [12].

2.2 Geo-referencing: This was done using the rubber sheet tool of AutoCAD Land Development to orient the map into its true geographical position. The following geographical coordinates were picked from scanned Administrative Map of Ondo State, which were used during geo-referencing these were transformed into rectangular coordinates for easy geo-referencing (Table 2).

2.3 Digitization: Before digitizing, layers were firstly created for the following features:

Line -Boundary (State and Local Government boundaries), main roads, minor roads, tracks, and rivers;

Point - Towns, LGA Headquarters and Tourist centres, and;

Polygon - Ocean, water body e.t.c. as shown in Figure 2.

After the layer creation, on-screen digitizing commenced, during this process, the layer to be digitized was made current and the map element was traced out. This process was repeated until all layers were digitized.

Precaution was taken during each of this stage and that is to make sure that base map is zoomed enough to avoid parallax during digitizing.

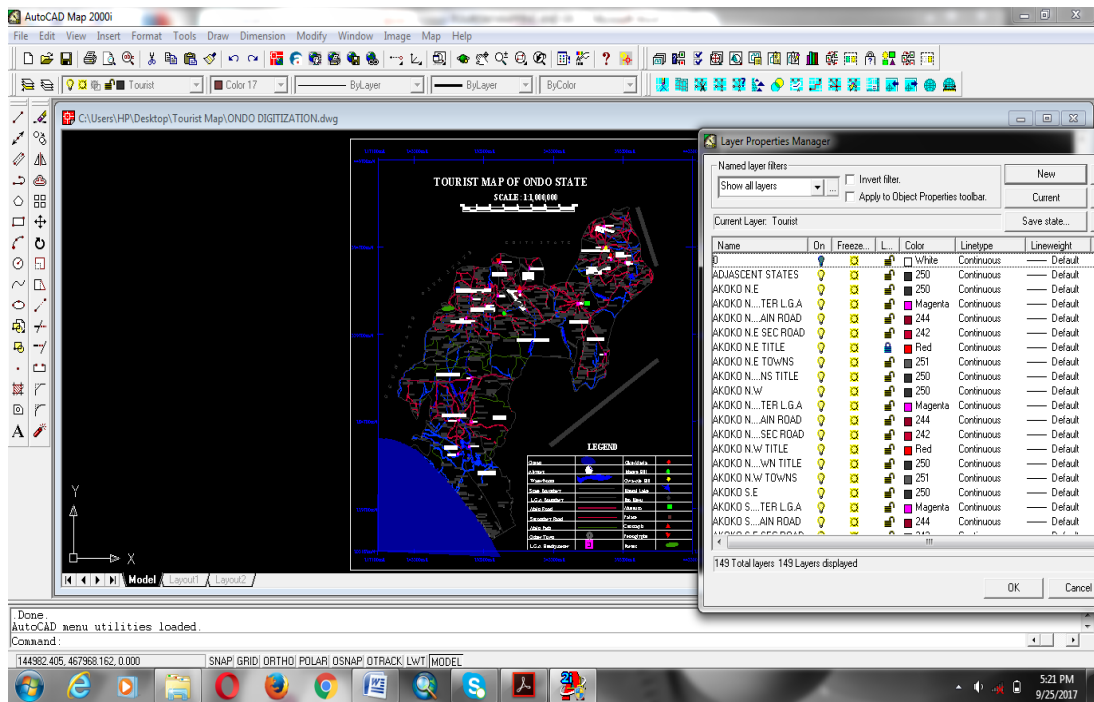


Fig. 2: Categories of Layers Created

2.4 Symbolization: The symbols adopted for the work is geometric symbols (circles, squares, pentagon and triangles) hue is also used to differentiate the data, especially when data are related as shown in Figure 3.

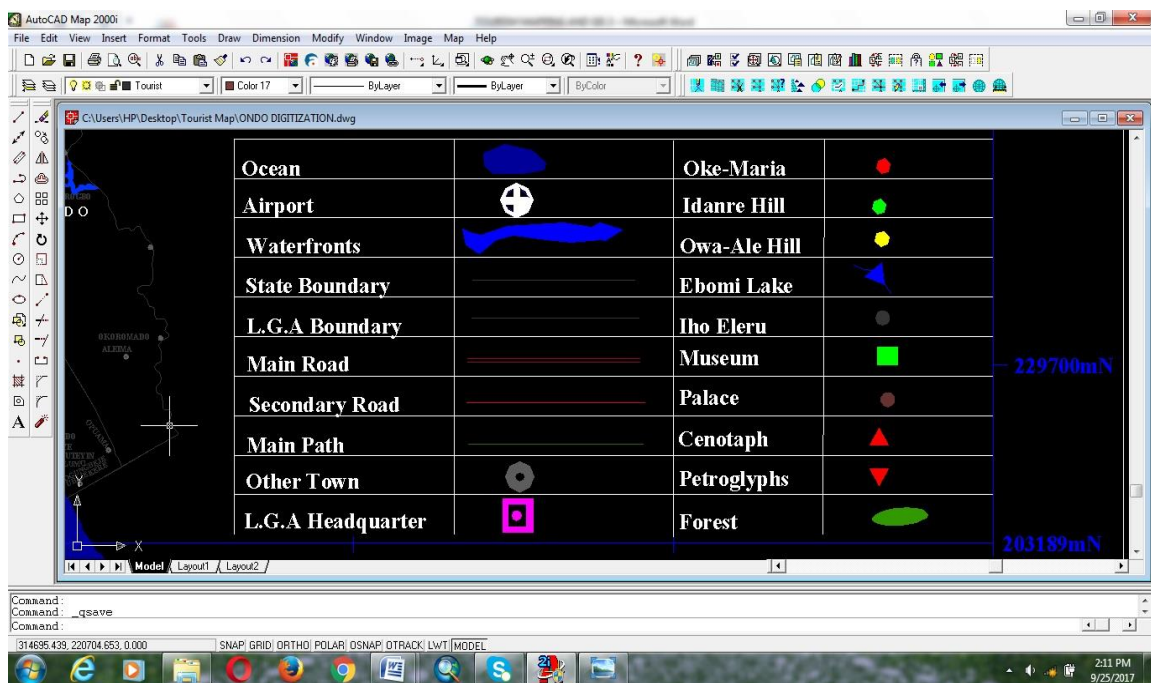


Fig. 3: Symbols adopted for the Tourist map

3. RESULT AND DISCUSSION

Major Tourist Centres in Ondo State as shown in the table 3 are of importance in the study area. The outcome of the fore-going data processing is thus a digital Tourist Map of Ondo State, Scale: 1:1,000,000 in soft copy (Fig. 2). At a glance, the map depicts the different tourist locations, types and other facilities available within the state. Hard copy print out of the map containing this is possible, but this will require a much larger sheet.

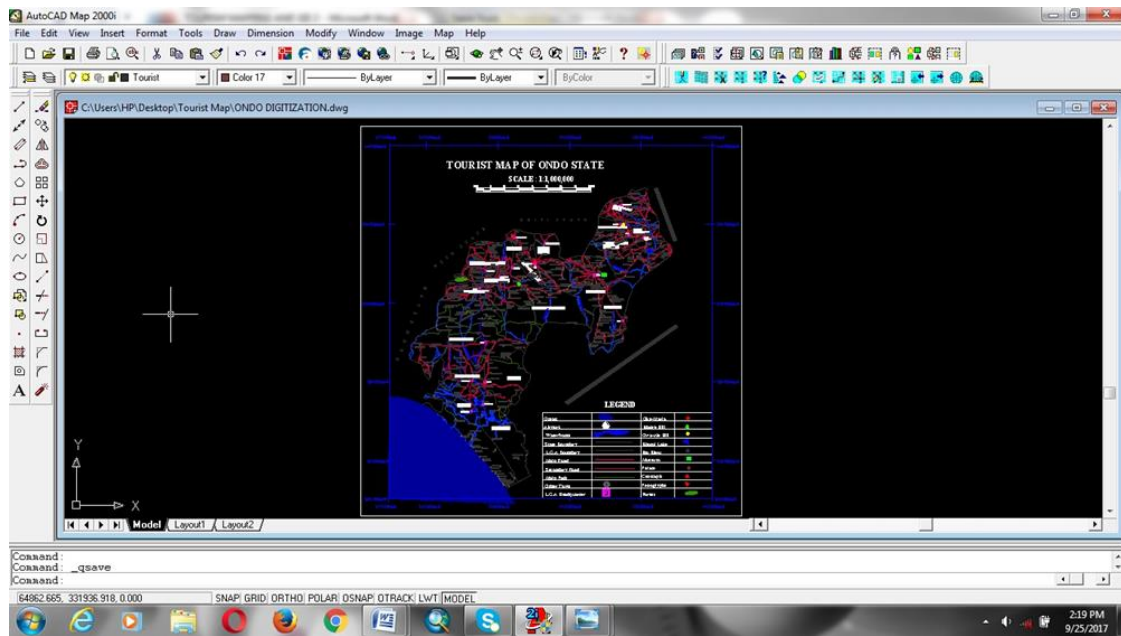


Figure 4: Tourist Map of Ondo State

Table 3: Tourist attractions in Ondo State

Tourist Attraction	Location	Level of Development
HILL AND HIGHLAND		
Idanre –Hill,	Idanre	Not Developed
Oke-Maria	Oka-Akoko	Partly Developed
Owa-Ale Hill,	Ikare-Akoko	Not Developed
SPRING/LAKE		
Ebomi Lake,	Ipesi -Akoko	Not Developed
CAVE		
(Cave of Ashes; Iho Eleru)	Isarun	Not Developed
BEACH/WATER FRONTS		
Waterfronts, Creeks and Lagoons throughout	Igbokoda and Riverine areas	Not Developed
MUSEUM AND MONUMENTS		
Owo Museum of Antiquities,	Owo	Partly Developed
PALACES (historical monuments)		
Deji Akure, Palace,	Akure	Not Developed
Olowo Palace	Owo	
CULTURAL		
Arigiya festival, Imole, Ajagbo, Igogo, Agheregbe, Olokun, Egungun, Omojao, Orosun, Obitun, Ogun, Olofin, Ere, Malokun, New Yam festivals	Towns and villages in Ondo State	
Alagbaka Cenotaph,	Akure,	Not Developed
Igbara-oke Petroglyphs	Igbara-oke	
FOREST		
Igbo Olodumare	Oke-Igbo	Not Developed

Source: Ministry of Tourism and Culture Akure and Fieldwork, 2017

Idanre Hills: Idanre hills are presently the most popular tourist centre in Ondo State. The site has been accorded topmost by the state government in her tourist development programs since the year 1998 to date. The hills divide Idanre into old settlement at the top of the hills while the new settlement is at the base of the hills. The hills are awe-inspiring and picturesque with steep sided bare insulators. It offers a beautiful view of Idanre settlement down the hills.

"Oke Idanre" consists of unique peculiarities and various attractions to tourists. These include:

- i. The 17th Century Kings Palace.
- ii. Intriguing 'Agboogun' footprints on the rock.
- iii. Strange written words on the rock
- iv. Ark of Noah
- v. Guest Chalets
- vi. Great 640 Steps

The ancient king's palace is believed to have been built in the seventeenth century. The palace commands unique features, which possesses architectural value. Within the palace are the ancient clans and designs of various types which symbolize customs and culture of Idanre people and the Yoruba at large. The footprint of a great ruler of Idanre (Oba Agboogun) is also on the top of the hill. The Oba then invoked his power into the foot on soft eruption (Lava flow). This left behind a footprint on the rock. It is widely believed that any size of foot, either big or small is bound to be accommodated by the print. It is believed that the footprint changes invisibly in shape and size but anyone whose foot could not be accommodated in the footprint is either a witch or wizard.

The position of this print on the hills is not easy to locate. The writing on the rock is strange and clumsy that no one has ever understood its meaning, even when it is conspicuous. In the recent time, those letters are becoming invisible to the naked eye. It was also gathered that Archaeologist believed that the writing must have taken place before the eruption. This is a symbol widely believed by the people of Idanre to be the famous Ark of Noah in the Bible. History is yet to ascertain or denies the authenticity of this believe. However, the awe-inspiring object is fascinating enough to attract first time visitors for a second visit to the tourist centres.

In depicting location of Idanre Hill a pentagon shape with green infill was used to differentiate it with other hills within the study area.

Oke Maria (St Mary's Hills): Oke-Maria is a tourist center effectively occupied and managed by the Roman Catholic Mission. The hill is located at Oka-Akoko, the Local Government Headquarters of Akoko South West. It was gathered that Oke Maria was discovered in 1916 as a place good for special devotion, spiritual retreat and prayers. This centre is dedicated to offer prayers to the Blessed Virgin Mary. On the map, Oke-Maria is shown with pentagon shape with Red infill.

Owo Museum of Antiques: This is a national museum that has many wood and ivory carvings, brass and bronze works etc. The museum has been preserved to serve as a place for visitors to have a taste of historical values of the people of Owo and the neighbouring towns and villages. Owo museum is shown on the map with Green Square.

Deji of Akure Palace: The palace of Deji of Akure has been declared the second National Monument in Ondo State by the Federal govt. The mighty palace located in the heart of Akure, the state capital now contained eighteen court-yards namely: Uha lila, Uha ajukoto, Uha Ogoga, Uha Mese, Uha Ibura, Uha ado Aya, Uha agboro, Uha Agaba, Uha Layo, Uha Leke, Uha awa Gun, Uha Jimifonnun" Uha Ikomo, Uha ado lie, Uha Orile, Ula Agbeto, Uha Ori Ojuto, Uha Ogoro. Each of the court-yard is used for specific ceremony or for the living of the Oba's household. For example 'Uha lila' is used for ceremonial occasion such as reception for important dignitaries while 'Uha Ojukoto' is used for the installation of chiefs and Uha Ibura' for oath-taking.

It is interesting to note that the massive palace were knowledgeable in, what is described as, the art of modern landscaping, because each of the ground floor of courtyards is higher than the other, allowing the free flow of the rain-water from one courtyard to the other, and finally emptying itself into the main courtyard, known as 'Ua Nla', and from there to the city's main drainage system. The Unique drainage system of the massive Palace has prevented the collapse of the walls of the courtyards unlike other Palaces in --Yoruba land, whose courtyards lacked proper drainage system thereby resulting into water-logged courtyards and basement of the walls after any drainage.

There are three main entrances to the main Courtyard, 'Ua Nla' facing the main road; one for the males, one for the females, while the central one is for the Royalty i.e. the Oba. Palaces of traditional rulers are indeed a true symbolic relic of the people's tradition and culture. In designing symbol for the palace, circle filled with Brown colour was used.

Egungun (Masquerade) Festival: The egungun festival is very popular in Yorubaland where masquerades are considered to be spirits of dead ancestors entertaining people. The festival which takes place in almost all cities, towns and villages in the state, helps to showcase colourful and energetic cultural display.

Cave Ashes, Isharun: This is the cradle of the West Africa's oldest pre-historic man. It was acclaimed as where the skeleton of the oldest pre-historic man was excavated by Professor Thurstan Shaw, an archeologist from the University of Ibadan. The symbol used for the cave on this map is a Black circle.

Ebomi Lake: The Lake is located at Ipesi in Akoko South-East and it is about 115km from Akure – the state capital. The lake which is 1.6km long and 40m wide has fascinating historical antecedent according to the locals. The word “Ebomi” is an adulteration of a Yoruba word “Abami”. Ipesi people believe that the lake has a spiritual power which had protected the villagers in the past during wars. They equally believe that the soldiers of the unseen spirit in the lake had fought and won several wars for them in the past. Also, the lake's deities give the villagers different gifts like fish, children, fowls and abundant farm yield; it has supernatural power to heal all sorts of diseases. In this regard, there is a priest to appease it for maximum protection of Ipesi people. The symbol designed for this lake is a blue triangle with a line crossing the triangle.

Igbokoda Waterfronts: This is situated in Ilaje Local Government Area and it is one of the longest territorial water in Nigeria. However, at this waterfront which is about 142km from Akure, there is a fishing terminal which would definitely interest tourists. Blue colour is designed for the waterfronts.

Igbo-Olodumare: Igbo Olodumare is an ancient forest preserved by the state government for tradition and historic reasons. This tourist site is located in the northern part of Oke-Igbo Town, Oke-Igbo is a neighbouring settlement to Ondo Town. Major attractions in the forest have been influenced by the historic write-ups of Late D.O. Fagunwa (Yoruba foremost fiction writer) which has given credence to the supernatural importance of the forest in the preservation of culture and tradition.

It was also gathered that, Igbo-Olodumare is never combustible by drought, no matter the length of the drought. It is equally believed that the spirit of this forest is a security to the people of Oke Igbo. Other peculiarities of this forest include; ‘Enu-Ibode’ (Entrance gate), Ireke-Onibudo (cane sugar farmland), great cave of Akoni-Meje (house of seven warriors). This forest is significant for its spiritual value as it was believed in the past that demons and spirits existed in the forest. It is an ideal place for camping, film shooting, picnic, and birds watching. Green Oval shape was designed to represent this forest.

Olowo's Palace, Owo: The palace is the largest in Yoruba land covering a 99 hectare piece of land to the west of the town. There are over 100 ancient courtyards of which 17 are still intact. For the palace, circle filled with Brown colour was used to locate the feature.

Eatery, Shopping mall, Hotels, restaurants, e.t.c.: These are currently one of the fastest growing businesses in West Africa. They offer different hospitality services and are spread across the major towns in Ondo State.

4. RECOMMENDATIONS

The Following recommendations are put forward generally on the tourist centres:

Ondo State government can cheaply and quickly produced Tourist Maps with relevant cartographic base materials such as topographic maps, township maps, radar imageries, aerial photographs and orthophoto maps showing some natural and cultural features. With minimal investment in data acquisition/conversion and equipment (like automated mapping and GIS facilities) coupled with appropriate political and legal backing from the State Government, tourism maps can be cheaply and quickly produced.

Also, visit to most of these tourist centres shows that the State government should ensure that these tourist centres are linked with good roads to allow easy accessibility of tourists from all parts of the world. This would be a good marketing strategy to attract patronages to the tourist centres.

In addition, maps awareness capable of attracting tourists from near and far should be duly created. Like creation of this type of tourist map on the website displaying the facilities available for the tourist.

Finally, the State government in conjunction with private investors should fund production of maps especially tourist map to make map available and up-to-date to attracts investors into the state.

5. CONCLUSION

It is an indisputable fact that tourism is a factor of development, due to this fact; Ondo State Government should conserve and maintain her available tourist centres and the resources.

This research work has assessed the tourism potentials in Ondo State, Nigeria graphically. The State government can boast of its tourism potentials if they are well developed efficiently managed and properly mapped. Remember “Oil is Exhaustible but Tourism is Sustainable”: With the country’s economic recession, the price of oil has continued to decline at world’s market. Hence, the slogan “Oil is Exhaustible but Tourism is Sustainable”.

It is high-time we have to look inward in the country and try to tap and map the potentials of tourism like other developed countries without petroleum.

REFERENCES

- [1] Olomo, R.O. (1997): *Modern Comprehensive Practical Geography*. PON Publishers: Agbor, Delta State, Nigeria; 224 pp.
- [2] Ayeni, B. (1997): New Trends in Cartography: Expert Systems and Multimedia Electronic Imaging and Mapping in Ikhuoria, I.A. (ed) *Digital Map Production Techniques and GIS*, Nig. Carto Asso, Benin City; pp 16-31.
- [3] Giwa, E.O. (1993): “The Role of Tourism: In the Scio-economic Development in Nigeria” in Ondo State Polytechnic, Owo; *Forum Series Lectures*, Vol 1, pp 66-89.
- [4] GIS Definitions http://www.uwyo.edu/wygisc/more_giscience/gis_definitions/
- [5] Munzali A. Dantata 2011: Tourism Development in Nigeria: Challenges and Prospects for Resource Diversification. <https://www.scribd.com/doc/53329130/TOURISM-DEVELOPMENT-IN-NIGERIA#>
- [6] Omole, F.K., Amodu, I.E., Olanibi, J.A and Emmanuel, A.A. (2013): Marketing the Tourist Potentials in Ondo State, Nigeria for Effective Development. *Journal of Tourism, Hospitality and Sports - An Open Access International Journal* Vol.1 2013 63
- [7] Uluocha, N.O. (1999): “Mapping for Integrated Management of Tourism Resources in Lagos State” in Balogun O.Y. and Soneye, A.S.O. (eds) *Cartography in the Service of Government*, A Special Publication of the NCA, CARTOGRAFIX LTD: Lagos; pp 71-82.
- [8] The Tourism Potentials of Ondo State. <http://www.cometonigeria.com/region/south-west/ondo-state/>
- [9] Ministry of survey, Akure (1998): The administrative map of Ondo State, Scale 1:400,000
- [10] National Population Commission 2006 Provisional Result for Ondo State.
- [11] Ministry of Tourism and Culture, Akure: Ondo State Tourist potentials.
- [12] AutoCAD Map 2000i (Land Development Software)