

# **THE USE OF MAPS IN THE OPERATIONS OF EDO STATE DIRECTORATE OF LANDS AND SURVEYS, NIGERIA**

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## **ABSTRACT**

The need for development planning that will be all embracing in Edo State is increasingly becoming very important. There are a lot of rural areas that are completely left out in most of the development plans such that they do not ever seem to attain any socio-economic growth. This study is therefore geared towards evaluating the role of mapping and maps in the alleviation of the problems that are identified. In this regard the practical importance of maps in the planning and development of public utilities, policy making and implementation, exploration and exploitation of natural resources, allocation of facilities and infrastructure to various areas and environmental management of Edo State, is highlighted in the paper.

## **1. INTRODUCTION**

The need for an improved socio economic planning for the purpose of sustainable development both at the micro and macro levels has gained more attention in recent times. In Edo State, just as in other states in Nigeria, improved socio-economic planning has been identified as a function of the ability of planners and policy makers to effectively locate and identify the physical and human resources within the state, coupled with a knowledge of their spatial distribution and ways of exploring and exploiting these resources for the purpose of sustainable development. The importance of maps in this situation cannot be over-emphasized. According to Olomo, Ufuah and Akpan (1998), maps are essential and indispensable tools in any development and planning programme both at the national and regional levels. This implies that the level of development of the state lies largely on the level of mapping activities.

Maps are used for various purposes, which apart from development planning, include property delineation; location of resources, portrayal of land use and land use distribution, showing of population characteristics, soil, topography, boundaries of towns and local government areas; land dispute settlements and administration. This shows that for any state to attain sustainable development of both the physical and human features especially socio-economic growth, mapping and the use of maps must be embraced. As a matter of fact, maps can be regarded as a form of information system which will provide virtually any information relating to the geographical landscape. With the aid of maps, trends in geographical and socio-economic landscape can be followed. This is made possible because maps store information related to these landscapes and thus by comparing maps of the same area made at different time period, we can observe without great difficulties the changes that have taken place as well as plan for future changes in a positive manner.

It is clear that the development of a country's surveying and mapping industry is a first step towards economic development. This point could be better illustrated with the following words:

In planning the tackling of the problems and the development of a country's resources, maps are depended upon since they lay on the table the whole country, state, local government area and the settlements in a way that is not possible for us to see even on the ground (Adalemo, 1998).

Of great importance in this study is the fact that the efforts to incorporate population data in social and economic planning is a relatively recent phenomenon in Nigeria and consequently in Edo State (Adepoju, 1983). This could therefore explain why importance had not been laid on mapping and map revision in the state.

The need for development planning that will be all embracing in Edo State is increasingly becoming very important. There are a lot of interior rural areas that are completely left out in most of these development plans such that they do not ever seem to attain any socio-economic growth and the state government in some cases are not even aware of what the situation in these places are. For this singular reason, no solution can be proffered to the problems of these rural dwellers. The state of public utilities and their rate of deterioration have also been attributed to the inability of the authority in charge to monitor new trend in the characteristic of the population they serve and new trend in the spatial attributes of the state. This accounts for the serious problems encountered in areas such as water and power supply, most of which are still based on the development plans and data of past decades.

This study is therefore geared towards evaluating the role of mapping and maps in the alleviation of the problems that are identified. The practical importance of maps in the planning and development of Edo State is highlighted in this paper.

## **2. THE STUDY AREA**

Edo State was created on August 27, 1991. Edo was one to the two states carved out of the defunct Bendel State of Nigeria. Her sister state is Delta State. There are at present Eighteen (18) Local Government Areas in Edo State as shown in Table 1. Edo State lies approximately between Latitude  $05^{\circ}44'N$  and  $07^{\circ}34'N$  of the Equator and between Longitude  $06^{\circ}04'E$  and  $06^{\circ}43'E$ . It is bounded in the South by Delta State, in the West by Ondo State, in the North and North East by Kogi State and in the East by Anambra State (Segynola, 1993). Edo State covers an area of  $19794 \text{ km}^2$  and has a total population of 2,159,848. Consequently, she has a population density of 109 (based on the 1991 census figure). Her administrative headquarter, which is also the traditional headquarter, is Benin City.

The major relief regions in the State include; the swamps/creeks, the Esan Plateau, the Orle valley and the dissected uplands of Akoko-Edo Local Government area, which reanges from 183 meters to 305 meters above sea level. The soil type in the state is generally the reddish yellow kind of ferrasols. This varies from area to area in the state. The vegetation also vary from the rain forest type in the Benin low lands to Savanna in the Akoko-Edo uplands (Segynola, 1993). The two distinct seasons, the wet and dry seasons, are caused by the rain-bearing South West Monsoon from the Atlantic Ocean and dry and dusty Harmattan (North-East trade) wind from the Sahara desert respectively. These wind types also impose seasonality upon agricultural production.

There are a lot of ethnic groups in the state and diverse socio-cultural heritages. According to Segynola (1993), over 100 festivals are celebrated annually in the state between March and September. Edo State is equally rich in arts and crafts ranging from woodcarvings and bronze casting to brass casting and pottery. Weaving is also a major craft peculiar to the peoples around the Northern part of the state. There are also diverse mineral resources, which include limestone, marble, crude oil, economic trees and granite among others. Social infrastructure such as amusement parks, hotels, tertiary institutions and recreational facilities are available in the state.

**TABLE 1: Edo State Local Government Areas and Population (1991)**

S/N	Name	L.G.A. H/Quarters	Total Area (Sq Km)	Population		Total	Density
				Males	Females		
1.	Akoko-Edo	Igarra	1263	59,421	64,945	12,366	98
2.	Esan Central	Irrua	436	60,921	67,592	128,511	295
3.	Igueben	Igueben					
4.	Esan north-East	Uromi					
5.	Esan South -East	Ubiaja	1371	43,847	45,639	89,486	65
6.	Esan West	Ekpoma	650	45,537	46,211	91,748	141
7.	Etsako East	Agenebode	1419	67,968	75,935	143,903	101
8.	Etsako Central	Fugar	1360	65,208	65,718	130,926	96
9.	Etsako West	Auchi					
10.	Oredo	Benin City					
11.	Egor	Uselu	1215	397,296	383,680	780,976	643
12.	Ikpoba Okha	Idogbo					
13.	Ovia North-East	Okada					
14.	Ovia South-West	Iguobazuwa	3380	42,554	38,466	81,020	24
15.	Owan East	Afuze	1230	75,517	75,582	151,099	73
16.	Owan West	Sabongida	826				
17.	Orhionmwon	Abudu	2389				
18.	Uhunwode	Ehor	2062	116,622	110,726	227,348	51
Total			19,794	1,082,718	1,077,130	2,159,848	109

Source: Segynola (1993)

### 3. EDO STATE DIRECTORATE OF LANDS AND SURVEYS

The Edo State Directorate of Lands and Surveys is located along kilometer 1 Sapele Road, Benin City that is the Headquarter of the State. It has an annex, which is located close to Ekiosa Market in the same compound with the Edo State Development and Property Agency (EDPA). The Directorate has eighteen out stations, which are located in the eighteen local government headquarters within the state. The various sections that make up the Directorate, which are mainly involved in mapping, are: Cartographic; press, town planning, photogrammetry and mapping and survey sections. Each of the sections is headed by a senior staff who oversees the activities of the section. The entire Department is headed by the State Surveyor General who is assisted by a Deputy Surveyor General and an Assistant Surveyor General (Ashofor, 1999).

#### 3.1 History of the Edo State Directorate of Lands and Surveys

The Edo State Directorate of Lands and Surveys was established in 1964 to oversee issues that boarder on lands and land related property. The major task placed in the hands of the directorate at the time was to carry out surveys and monitor land acquisition in the defunct Midwestern Region. The directorate at the time was regarded as Ministry of Lands and Surveys and was headed by W.H. Young, between 1964 and 1967. When the Midwest state was created in 1967, a Nigerian Surveyor S.J. Ojeikere headed the directorate. He headed the directorate for 6 years and was later succeeded by Surveyor A. Umoru who also created the office of Surveyor-General in 1984 (i. e. after 10 years). It was during the tenure of Umoru as Surveyor-General that Bendel State was created in 1976. The Surveyor-General presently is Surveyor (Dr.) S.A.A. Okpaise. He has been the head since 1984. During this period, the directorate has been referred to as Department of Lands and Surveys, Bureau of Lands and Surveys and presently as the Directorate of Lands and Surveys. The entire Directorate answers directly to the State Governor.

The directorate presently has a boundary committee that is responsible for the maintenance of state and local government boundaries. The town planning section is responsible for the control of land acquisition and land use. Cartographic section is responsible for map production. This section specifies and draw maps of various parts of the state and also determines the scale of the maps. The press section is subdivided into 3 areas, namely the photographic, lithographic and printing. They are responsible for the printing of maps and other documents required both by the directorate and the state government. The section also undertakes printing work for other ministries and the public with a fee attached. The photogrammetry and aerial mapping section is responsible for the acquisition of aerial maps. This section compiles

relevant data from aerial maps for the purpose of map production. The survey section is responsible for survey work within the state. It functions mainly to undertake survey for the government and for individuals.

### **3.2 Functions of the Edo State Directorate of Lands and Surveys**

The functions of the Edo State Directorate are numerous. They range from the enforcement of the land use decree of 1978 and insurance of certificate of occupancy, to surveying, mapping and sales of maps. The functions of the directorate are listed below:

- (1) Enforcement of the Land Use Decree of 1978: In 1975 and 1976 respectively, the government set up the Anti-inflation Task Force and the Rent Panel. The two bodies were laden with the task of carrying out studies, which were both directly and remotely linked to land. The outcome of the two separate studies by the bodies showed that the land tenure system in Nigeria was contributing in a large way to the inflationary tendencies in the country. The tenure system was also a major hindrance to rapid economic development of the country. Their recommendation was that all lands should be vested in the state. In 1978, the Land Use Decree was promulgated by the General Olusegun Obasanjo's Military administration. The decree was principally focused on making land available for agricultural and industrial development and it also aimed at making land available for individuals in need of them. The decree removed the land from traditional land owners and placed it in the hands of State Governors and Local Government Authorities. Other aims of the Land Use Decree are to; (1) provide a uniform land tenure system in the country, (2) make land easily and cheaply available to all Nigerians and the government for development purposes and (3) check the practices of land speculation, whereby some wealthy individuals took trade in land as their calling. In the implementation of this Act, State Governments set up Land Use and Allocation Committees as provided for in the Act. Sub committees were also set up at Local Government levels. Their job was the implementation of the Act with respect to urban and rural areas respectively. Most states including the defunct Bendel State dissolved committees in 1979. Their functions were promptly handed down to ministries. In Edo State, the Directorate of Lands and Surveys functions in this regard. The directorate therefore grants the right of occupancy to individuals and establishments by issuing what is known as certificate of occupancy (C of O) at a fee which is called the 'Application Fee'. This is done after the survey of the land has been carried out. This therefore makes it possible to monitor the way land is allocated and deal with illegal land occupants.
- 2) Production and sales of Maps and Prints. This is one of the major functions of the Directorate of Lands and Surveys. The department produces maps at different scales and on different themes. Some of the maps produced so far include: political maps, road maps, natural resources and industries maps, social infrastructure maps, population maps, topographic maps (with inter-state, local government and communal boundaries), layout maps (of mostly urban areas), photo maps (mosaics from aerial photographs), and site – maps (plans).
- 3) The Town Planning Section is responsible for planning mostly urban areas. For instance, Benin City has been planned and subdivided into high density areas, low density areas, commercial areas, Government Reserved Areas (GRAs).
- 4) It undertakes the collection of rent on government property within and outside the state.
- 5) Determination and enforcement of land use regulation.
- 6) Generation of revenue for the government.

### **3.3 Factors Militating Against the Operation of the Directorate**

The major problem militating against the operation of the Edo State Directorate of Lands and Surveys is that of inadequate funding, which results in other problems: First, inadequate number of field-operation vehicles. This results in retarded rate of field work and consequently the efficiency of the directorate in this regard is affected.

Secondly, inability to acquire recent models of the required equipment. This is particularly evident in the cartography section where the small letterpress is still employed in lettering instead of the use of computer-aided technology. Lack of computers is also a major problem created by lack of fund. This is responsible for slow output of the directorate. Thus, the

inability of the directorate to employ Geographical Information System (GIS) techniques to its operation limits effectiveness. GIS will give the directorate the opportunity to view the phenomena on the “earth surface” and data sets as integrated rather than segregated components. This will make planning for provisions and different components more integrated and easier (Nsofor, 1997). However, the problem of data handling poses a serious hindrance to the operations of the directorate. In the first place, data are still manually sourced and secondly data handling and storage is still limited to paper files. Up-dating or revision of maps is also a serious problem.

Thirdly, inability of the directorate to send staff members for training and refresher courses which will enhance the working capabilities. Generally, there is shortage of personnel, low income level, and lack of incentives for the workers, finally, all the factors stated above are as a result of neglect by the state government. The government is yet to show been interest in the warfare of the staff and conditions of equipment.

### 3.4 Areas Covered by Mapping in Edo State

The areal coverage of maps and other mapping products in Edo State by the Directorate of Lands and Surveys span a wide range. This includes almost all the socio-economic sectors in the state. This is necessary if the Directorate must be effectively and efficiently involved in the development of the state. According to Olomo, Ufuah and Akpan (1998) mapping creates the availability of a detailed inventory of the resources of a region and helps to identify disadvantaged areas. This implies that for effective and lasting solutions to be proffered to the wide range of problems which development seeks to alleviate, there must be adequate coverage of the state, local governments and villages (rural areas in particular) through mapping. Some of these problems are rural in respect of industrialization, agricultural modernization, job creation, transport development and provision of adequate housing and shelter for the inhabitants. This is apart from public utilities supply (portable water, electricity, roads and telephone services).

According to Madumere (1999), the present President of the Nigerian Institute of Surveyors (NIS) at their 1999 Annual General Meeting, “no meaningful development can take place in a nation without adequate survey information. Survey and mapping provide the vital service essential for physical planning and indeed, economic development of any state”. Simply put, meaningful planning and execution of sustainable development projects is a function of adequate and up-to-date mapping of the state. Some sectoral usage of mapping products is presented in Table 2.

**Table 2: Some Sectoral Usage of Mapping Products**

Sector	Applications
Agriculture	Cultivation inventory, vegetation cover, soil study, river dams and irrigation, land use monitoring, crop yield monitoring, marine resources.
Forestry	Forest mapping, forest inventory, change detection, forest development and timber production for export and domestic uses.
Political / Administration	Interstate, L.G.A. and community boundary demarcation, consistency delimitation.
Transport / Aviation	Roads, Airport Runway design, railways design and rural road network
Planning	Urban and Regional planning, urban renewal and change studies, feasibility study, land use mapping, land administration, location of industries.
Population census	Planning, enumeration areas delineation Demographic studies.
Local Government	Taxation, land use, new town development, utility services.
Education	Facilities planning, instructional/learning aids, (e.g. school Atlases), location of institutions
Sports Development	Facilities planning, development and management.

**Source: Adapted from Olomo, Ufuah and Akpan, 1998.**

## 4. THE APPLICATION OF MAPS IN THE OPERATIONS OF THE EDO STATE

## DIRECTORATE OF LANDS AND SURVEYS

The operations of the Edo State Directorate of Lands and Surveys affect a wide range of activities within the State. These activities range from commerce, agriculture and education, to revenue generation, industry and planning. Mapping input in censuses, elections and election campaigns and environmental matters also show how much the Directorate of Lands and Surveys is involved in the state. Although most of the operations of the directorate are to a large extent limited by outdated maps, yet the application of maps in development has not in any way been reduced. According to Madumere (1999), surveying and mapping provide the vital service essential for physical planning and indeed, economic development of any state or nation. Surveying and mapping happen to be the major components of the operations of the Directorate of lands and surveys in Edo State.

### 4.1 Mapping and Public Utility Planning and Management

Public utility is defined as any of several industries that supply essentially energy, communication or transportation services to the society. Major utilities classified as public industries are electricity, natural gas, water and sewage, telephone and telegraph and urban mass transit (Ufuah and Olomo, 1998). The public utilities that affect man to an inestimable degree are water and electricity and perhaps urban mass transit and telephone; the use of these facilities cut across every class of men. Their importance makes their planning and management quite inevitable (Uluocha, 1998), and thus must be approached with a high level of accuracy if their objectives must be met. Utility mapping will ensure that adequate utility maps are provided. These maps store and communicate locational information on the source, physical network, distribution lines, associated facilities and end-users of public utilities. Table 3 is an example of typical data sets held in a utility map. There are other types of maps used alongside the utility maps especially at the planning stage. They include thematic maps and land use maps. The proper planning, execution and maintenance of these utilities with the aid of maps would result in efficient utilization of resources, non-duplication of projects and maximum benefit to the society (Ufuah and Olomo, 1998).

### 4.2 Mapping and State Development

Mapping provides the vital service essential for physical planning and economic development of any state (Mandumere, 1999). There is therefore a need to guide the growth and development of Edo State through the use of master plans and base maps. It is important to note that orderly planning and execution of development projects are dependent on adequate survey data and up-to-date maps at appropriate scales. Maps can also serve as inventories of the vast natural resources and overhead investment, which can be used to propel development of Edo State in the right direction. Currently, the exploration and exploitation of solid minerals in Edo State are being aided with relevant maps at different levels.

### 4.3 Mapping and Property Development

Maps serve as a vital component of both public and private property development. The Edo State Directorate of Lands and Surveys produces and provides several types of maps including cadastral maps, which are used for development of properties. The Edo State Development and Property Authority (ESDPA) goes about her duty with the aid of relevant maps at various scales. Without maps, property development will be equal in effect to taking a leap in the dark, lots of hard earned money will go down the drain and the state will be worse off.

**Table 3: Typical Data Sets Held in a Utility Map**

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Source	E.g. Borehole, stream, river, dam, refinery, power station/sub station.
Delivery Lines	E.g. Pips, Cables, roads (trucks), marine
Nodes:	E.g. Terminals, Junctions, control stations, depots, step down transformers.
Street network:	E.g. Streets, roads, close, crescent.
Measurement:	E.g. Size (diameter) of pipes and cables distance (length) of delivery lines or

segments thereof, number of lines Orientation (direction) of lines, Capacity [Power (kv)] of transformers.

End-Users: E.g. Industries, homes, and commercial ventures.

Base data: E.g. Geographic Unit boundaries (Zone, District, under taking);  
Cadastral data (Land parcel boundaries, building outlines);  
Contours; Control points (Benchmark, spot heights,  
trigonometric stations).

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**Source: Uluocha, (1998).**

#### **4.4 Mapping and Revenue Generation**

The Edo State Directorate of Lands and Surveys aids revenue generation through various operations, which include surveys, collection of rent on government property and state land, preparation of certificate of occupancy, collection of town planning fees and deeds registration fee. Mapping for other organizations, sales of maps and prints such as aerial photographs are also sources of revenue to the state government through the directorate. The revenue generated by the Edo State Directorate of Lands and Surveys in the year 1998, in respect of surveys and sales of maps and prints, was about half a million naira.

#### **4.5 Mapping and Land Use Determination**

Mapping helps the Directorate of Lands and Surveys and the Edo State Government to determine and enforce land use regulations. With the aid of land use maps and layout maps, residential land use areas are delimited, while industrial land use and Central Business Districts (CBDs) are shown. These land use maps also make possible the delineation of other forms of land use such as forestry, agriculture and mining. The land use maps are therefore used as tools for enforcing land use regulations.

#### **4.6 Mapping and Law Enforcement**

Law enforcement agencies such as the police and Federal Road Safety Commission (FRSC) in Edo State make use of mainly street maps to mark off areas with high rate of criminal offences and crime prone areas. Although most of the maps used by these agencies are not very accurate in terms of up datedness and other cartographic technicalities, crime and crisis management and prevention are aided with map.

#### **4.7 Mapping and Land Dispute Settlement**

Cadastral mapping provide the vital data required by government both at local government and state levels for the settlement of land disputes between individuals and communities. The certificate of occupancy issued by the Directorate of Lands and Surveys to legal owner of the parcel of land in dispute lends weight to the approved (stamped) plan possessed by the legal owner of the said land parcel. The Cadastral map or plan or plan will not only show the land but will also show its areal extent.

#### **4.8 Mapping and Distribution of Social Amenities**

With the aid of maps, government is able to adequately distribute social amenities. The maps show where the amenities already exist and communities that are lacking. With the aids of maps, government ensure that there is no duplication of projects while population density maps ensures that the project is located where it will serve the entire community best. Density maps also ensure that 'Undersized' or 'Oversized' amenities are not located in any community.

#### **4.9 Mapping and Censuses**

Population maps, political maps topographic maps and road maps among others ensure that whole communities are not left out in census. Accurate maps also help the census commission to ensure that enough manpower and materials are provided and sent to the right directions. The EA maps also help enumerators to go about their job with ease.

## **5. IMPLICATIONS OF UNAVAILABILITY OF UP-TO-DATE MAPS**

The age and reliability of a map is shown by the marginal information of the map. Thus, any map that is outdated cannot be said to be reliable particularly for planning. The unavailability of up-to-date and comprehensive maps of Edo State has been, and is still a major hindrance to sustainable development, the productive utility of natural and socio-economic resources, and effective environmental protection.

Inability to regularly update maps also prevents the government from being able to serve the people adequately. For instance, some facilities provided for some communities in Edo State are based on outdated political and population density maps. Consequently, these facilities are either a source of communal clashes or an obviously larger population than such facilities can ever support over utilizes them. Tourism and recreation has also been adversely affected by unavailability of up-to-date maps. This is because areas of tourist attraction, potential tourist centres, hotels and recreation centers which were either established or discovered after the previous production or update of maps are yet to be shown in any map. Consequently, only vague idea of their existence is available to those who would otherwise have been interested, this in turn has negative impact on revenue generation.

## **6. CONCLUSION**

No nation or state can effectively and productively use its land and natural resources without detail survey maps (Madumere, 1999). This implies that the growth and development of any state lies in the ability of the mapping machinery of the state to live up to expectation. This author is fully convinced that the output of the Directorate of Lands and Surveys cannot exceed its status. Consequently, if the government is planning for proper development of the state, it therefore has to first plan for the growth of the Directorate especially its mapping activities. The future of mapping in the directorate is a bright one particularly as a result of the recent awareness of the government of the indispensable nature of mapping input in development planning and execution. This implies a boost of mapping activities and mapping input in the operations of the Directorate as a result of the increase in the usage of mapping products in every sector of governance.

We therefore recommend that maps should be regularly updated and made available to end-users. This will not only aid policymaking but will also help monitor new trends in the environment and aid education especially at tertiary level. Geographic Information System (GIS) and digital mapping facilities along with skilled manpower should be provided for the Directorate.

## REFERENCES

- Adalemo, I.A. (1998): "Cartography and Information Technology: What are the Prospects?" in Balogun, O.Y. and Uhuocha, N.O. (eds), *Cartography and the challenges of the 21<sup>st</sup> Century in Nigeria*. NCA, Lagos. Pp. 1-6.
- Ashofor, U.O.S. (1999): *An Evaluation of the Edo State Directorate of Lands and Surveys*. Unpublished Thesis, Ambrose Alli University, Ekpoma.
- Madumere, H.U.J. (1999): "On Mapping and Land Resources Inventory", in *The Guardian*, July 19, 1999. Quotation of the speech delivered at the Annual General Meeting of the Nigerian Institute of Surveyors, July 17, 1999, Osun State.
- Nsofor, G. (1997): "Strategic Choices and Planning of a GIS for Nigeria", in Ikhuoria, I.A. (ed.) *Cartography and GIS for Sustainable Development*, NCA, Benin City. Pp. 56-72.
- Olomo, O.R., Ufuah, M.E. and Akpan, D.V. (1998): "Appraisal of the Federal Survey Department, Nigeria", in Balogun, O.Y. and Uluocha, N.O. (eds.), *Cartography and the challenges of the 21<sup>st</sup> Century in Nigeria*, NCA, Lagos. Pp 7-23.
- Segynola, A.A. (1993): "Edo State", in Udo, R.K. and Mamman, A.B. (eds.), *Nigeria: Giant in the Tropics*, Vol. II.
- Ufuah, M.E. and Olomo, O.R. (1998): "The Use of Maps in Planning Public Utilities in Benin City", in Balogun, O.Y. and Uluocha, N.O. (eds.), *Cartography ad the challenges of the 21<sup>st</sup> Century in Nigeria*. NCA, Lagos. Pp. 193 – 203.
- Uluocha, N.O. (1998): "Mapping for Utility Management in Nigeria", in Balogun, O.Y. and Uluocha, N.O. (eds.), *Cartography and the challenge's of the 21<sup>st</sup> Century in Nigeria*, NCA, Lagos. pp. 183 – 192.

## **Biography**

Dr. Matthew Eigbe UFUAH was born on the 11<sup>th</sup> November, 1960 at Uromi in Edo State, Nigeria. After his primary and secondary education at Ekekhen and Ubiaja respectively, he proceeded to University of Nigeria, Nsukka (UNN) in 1982. In 1986, he obtained his B.Sc. Degree in Geography, while in 1991 he obtained his M.Sc. Degree in Geography with specialization in Cartography. He obtained his Ph.D. Degree also in Geography with specialization in Cartography from Ambrose Alli University (AAU), Ekpoma in 2000.

Meanwhile, in 1989, he joined the staff of A.A.U., Ekpoma as Cartographer in charge of Cartography Laboratory of the Department of Geography and Regional Planning. In 1991, he converted his appointment to lecturing as Assistant Lecturer and rose to Senior Lecturer in October, 2001. Currently, his publications are being assessed for the post of Reader (Associate Professor) of Geography (Cartography). Also, he is the present Sub-Dean of the Postgraduate School, Ambrose Alli University, Ekpoma.

Dr. Ufuah is a member of the Nigerian Geographical Association (NGA) and Nigerian Cartographic Association (NCA). Presently, he is a member of the National Executive Council (NEC) of NCA. He was the Chairman, Committee on Thematic Mapping. Currently, he is the Assistant Editor of the NCA's official Journal, Nigerian Journal of Cartography and GIS. He has participated in several workshops seminars and conferences, including the International Cartographic Conference (ICC 2003) held in Durban, South Africa, where he presented two papers. His main research emphasis is on the application of maps in environmental as well as socio-economic management and development, map production and map prevision. Also, he has special interest in GIS and Remote Sensing applications to land use studies and map updating. He has contributed several articles on cartographic issues especially on Nigerian situation at both local and international levels.