

# 3D Cadastre Development and Management in Delta State of Nigeria

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**Key words:** 3D Cadastre, Delta State, Nigeria

## SUMMARY

This paper is an overview of 3D Cadastre Data Development and Management in Delta State of Nigeria. The focus of this presentation is to discuss the level of development of the 3D Cadastre Data relating it to the world developed states. Details of the Delta State Geography are also presented in this paper. 3D Parcel in Delta State is Homogenous that is same combination of rights equally apply within the whole 3D spatial unit. (Van Oosterom et al 2010).

The government stake and usage are stated; with the professional input and contributions to the 3D Cadastre data development and management. It is of conclusion that 3D Cadastre high level development and management in the developed states are more of high versatility and utility than in a developing state of Delta State where 3D Cadastre is not only homogenous but not attracting much investment for its development.

The major aim of the paperwork is to share our experience and to showcase the need to know that in different parts of the world system grows in different ways as the needs of the people grow the awareness for better data developments and management become imperative.

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## 1. INTRODUCTION

3D cadastre data is a tool of sustenance for the land owners and government; tools for the land owners for their responsibilities, rights and restrictions (RRR); tools for government for land management and general taxation. The data serve as tools of documentation and records for all and sundry. In a developing state of Delta State in Nigeria; land related data development and management are still at the manual level. All data are in paper works contained in paper files and manually carried around for the land governance.

Land governance in whichever dimension is all about the governmental policies, processes and institutions of which landed property and natural resources are managed. 3D cadastre data in Delta state of Nigeria is developing; it is labor intensive and it is driving force is the revenue yielding policy of the state government; this is called Internal Generated Revenue (IGR).

Good land governance assessment framework building and development can only be sustained with a good and versatile 3D cadastre data framework. This awareness among the land professionals in the government or in private practice is at lowest ebb. The driving force in the 3D cadastre data in Delta State is not a qualitative research design based upon exploratory case studies or factors like globalization, population urbanization, good governance, climate change response, environmental management, 3D visualization/analysis technologies, wireless sensor networks, standardization and interoperability (Williamson et al, 2011). The Data is slow speed in development and it is labor intensive file works. But the driving force is taxation and high yielding revenue for the state government which does not usually reflect any visible development for the people.

## 2. GEOGRAPHY OF DELTA STATE IN NIGERIA

Delta State Total land area is 17.71km<sup>2</sup> (6.8sq.miles)

Area rank 23<sup>rd</sup> out of 36 Nigerian Federal States

Population Census of 1991 revolves around 2.6m; estimated population in 2005 was 6.7m; ranked 9<sup>th</sup> of 36 Nigerian Federal Units.

Density 145.2/km<sup>2</sup> or 376.1/sq mile

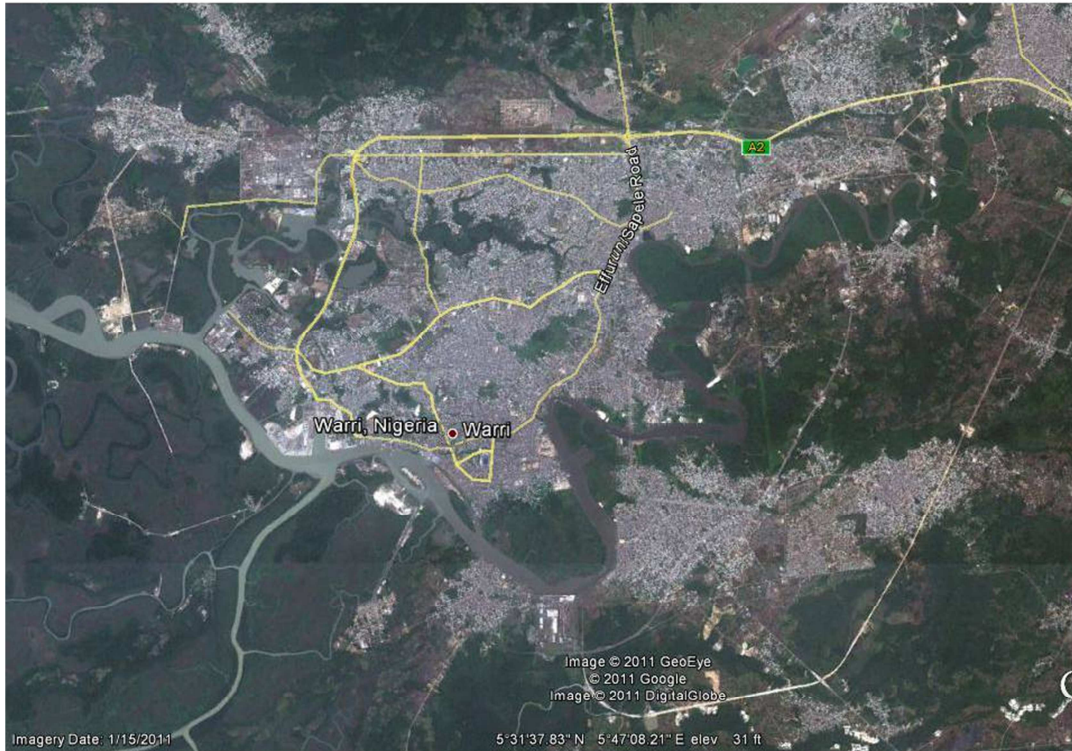
GDP (PPP) – 2007 – 16.75 billion USD

PER CAPITA 3,990 USD

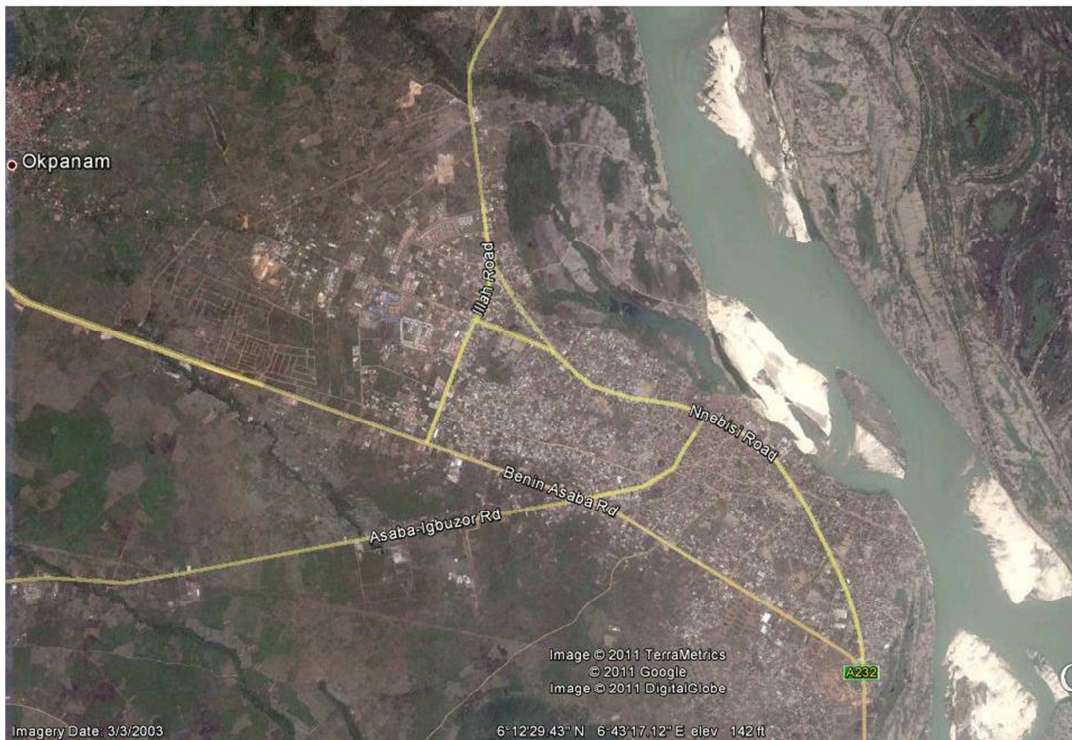
Coordinates 5° 30 ' N, 6° 00 ' E

Warri City serves as the economic base of the state with a River Port and Airport; see Fig. 1.

Asaba very close to River Niger is the Political Base for the state governance; see Fig. 2.



**Figure 1. Warri Google clip (Source: Google Earth)**



**Figure 2. Asaba Google Clip (Source: Google Earth)**



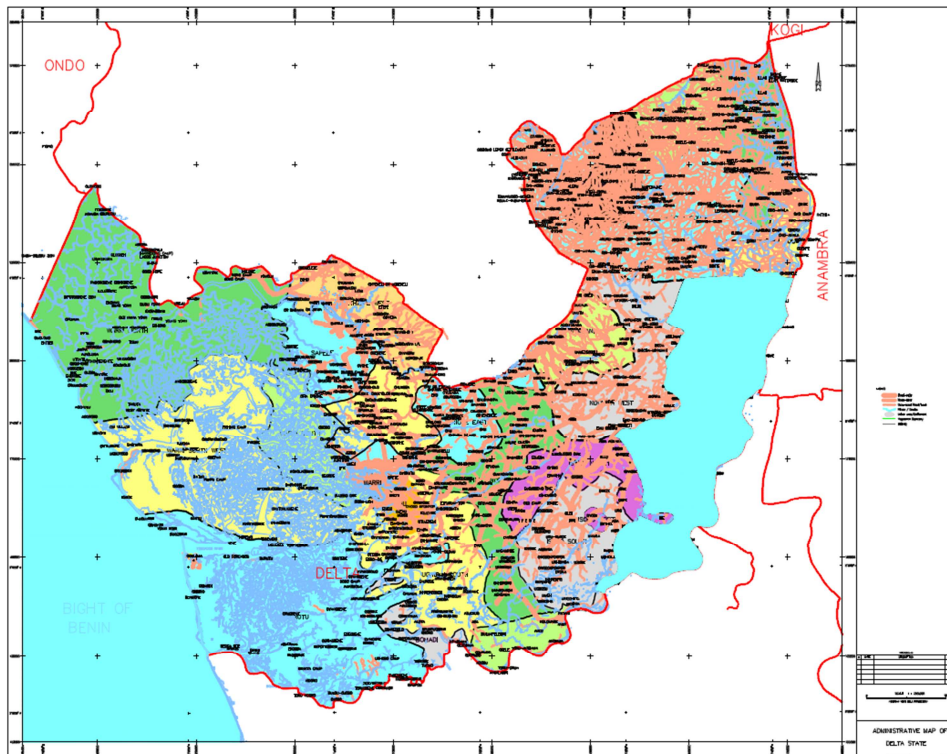


Figure 3. Map ( Sources: Hydroark Archive)

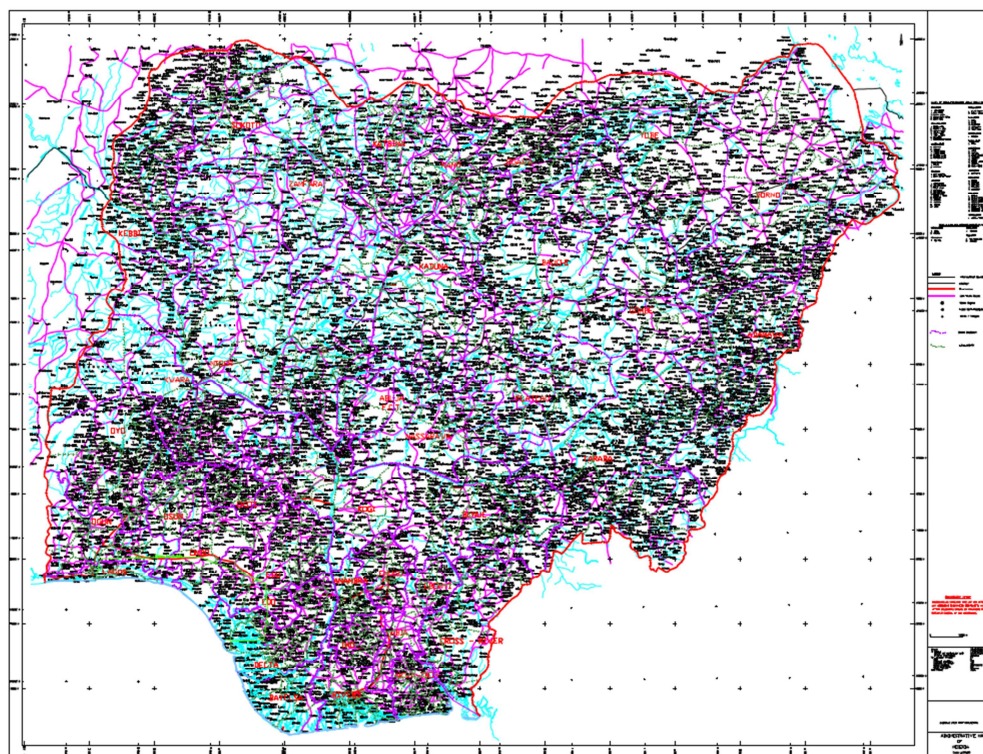


Figure 4. Map of Nigeria ( Source: Hydroark Archives)

## **2.1 Professional in the 3D data developments**

In Delta state of Nigeria; the professionals that are responsible for 3D cadastre data development are the following:

1. Land surveyors
2. Town planners
3. Architects
4. Estate managers and valuers
5. Lawyers
6. Engineers – civil, electrical, structural

Their involvements are inter and intra related and dependent; the first input is from government: with legal frameworks for all professional controls and ethical monitoring for all the bodies. Each of the professionals has regulatory council that regulates the professional practice of all cadres in the profession.

Their roles go with their professional training and expectations from the populace and the government; be it in the private practice or public servant; the professional play the same role in the state for the 3D cadastre data development and management.

## **2.2 Government ministry**

3D Cadastre Data in Delta State is under the MINISTRY OF LANDS SURVEY AND URBAN DEVELOPMENT (MSLUD).

All 3D cadastre data are related to building and not any other infrastructure for now in Delta State and they are mainly in form of paper works and general files compilations. Due to the limitations of paperwork oriented data managements and no enforceable land use laws: lands in dispute and boundary misalignment are not uncommon.

The inter play among the 3D Cadastre Data Professionals is reflected on the government ministry:

- LANDS: Estate Values and Legal Experts.
- SURVEY: Land Surveyors.
- URBAN DEVELOPMENT: Geographers and Town Planners

The Architects and Engineers are more relevant in the Private Practice; while others abound in public and private practices.

3D Cadastre high level development and management in the developed states are more of high versatility and utility than in a developing state of Delta State where 3D Cadastre is not only homogenous but not attracting much investment for its development.

## **2.3 Delta state format of 3D cadastre data development and management**

Delta state has big water spaces but all cadastre issues in 3D are limited to physical land.

Delta State FORMAT of CADASTRE DATA INPUT PRODUCTION, COMPILATION AND UTILITY for the steady growth of 3D Cadastre data development and management are is based on:

- Basic Cadastral Survey Operations of defining parcel of loads in **x, y, z** showing parcel locations, dimensions with the names of the owner.
- Building Plans drafting and Approval.

- Properties Evaluations in shape and size for revenue yielding for the state government.
- Issuance of Certificate of Occupancy.
- No legally established Title or Deed Registration



Figure 5. Ministry Copy of Certified Survey Plan ( Sources: Hydroark Archive)

Oluseye Thomas Dabiri  
 3D Cadastre Development and Management in Delta State of Nigeria

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The Survey Plans are the usual products from Survey Firms. The surveyor product which is the cadastre survey plan serves as an initial and foundational input for 3D cadastre data development in Delta state.

The second step in 3D data development is legal aspect where the survey plan shall be used for preparation of deeds. This is handled by the lawyers.

The third step in 3D data development is for the town planner to produce building plan in consort with engineers and architect.

The cadastre data development is within the hands of professionals in private practice particularly for Private Ownerships of Land while that of Public Lands are under the management of the government serving professionals.

The THREE STEP 3D Cadastre Data Development and Management in Delta State is under the MINISTRY OF LANDS SURVEY AND URBAN DEVELOPMENT (MSLUD). All 3D cadastre data are related to building and not any other infrastructure for now in Delta State and they are mainly in form of paper works and general files compilations. Due to the limitations of paperwork oriented data managements and no enforceable land use laws. Land in dispute and boundary misalignment are not uncommon even with the parcels under government records.

3D Boundaries in Delta State are the walls, floors/storeys and roof. The height and size of building are all inclusive for 3D dimensions. It is of relevance to state that all these do not form part of any registration for records and title but mainly to determine tax and ground rent payment to the state government.

Delta State is a major oil producing state in Nigeria and rank among the first three states with oil pipelines and flow lies; but there is no 3D Registration presently in the state.

### **3. 3D CADASTRE DATA DEVELOPERS**

The 3D Cadastre Data Development starts with the process of producing survey plans by Land Surveyors using specifications for Large Scale, Cadastral and Engineering Surveys in Nigeria by SURVEYORS COUNCIL OF NIGERIA (SURCON). The developers of the data are the professionals listed there up; the users here in Delta State are limited to the bankers and tax boards.

Data here are for registrations of the 3D Parcels as related to the building units as related to the ownership legal rights of the titles in the format of Certificate of Occupancy of leasehold of usual 99 years as legally embedded in the LAND USE ACT of Nigerian Law.

The Data are all in paper formats in all aspects i.e to produce, to archive, to edit, to analyse, to visualize and to edit (Van Oosterom et al 2010).

### **4. CONCLUSION AND SUGGESTIONS**

Nigeria is an emerging democratic country with a long history of military rules. The country is a FEDERAL REPUBLIC but in the runs of governance; what we practice is UNITARY system. Many things are still waiting for proper legislations: among these on the waiting list is LAND REFORM for the whole country. The LAND USE ACT that was formally of DECREE under the military rules has failed and with passage of time; it was is not

enforceable as a law of the land. Delta State as a QUASI FEDERATING UNIT of Nigeria as a country; is not free from all this constitutional crisis of LAND REFORMS AND MANAGEMENT. The 3D CADASTRE DATA DEVELOPMENT AND MANAGEMENT cannot have any impact or positive growth if the rudiments of LAND LAWS are built on equity and justice. LAND ADMINISTRATION SYSTEM is not defined very well in DELTA STATE and this is the first step in the positive direction of 3D Cadastre Data Development and Management.

Suggestions are of THREEFOLD:

1. To the government.
2. To the professional bodies.
3. To the International bodies.

The need to run holistic approach in Nigerian State is due to the political setting of Nigeria. In Delta State of Nigeria the awareness is low and the will is not there because of the LACK OF TRANSPARENCY AND CORRUPTION that presently go with LAND ADMINISTRATION. The professional bodies will serve as BRIDGE between the government and the international bodies who are always ready to help.

## **ACKNOWLEDGMENTS**

The Author of this paper thanks all members of Commission 7 for their consistency in pathway of progress on the 3D Cadastre as a Phenomenon in LAND ADMINISTRATION. I thank prof. Peter van Oosterom who was reminding me to submit this paper; I am a fieldman on Survey and General Land Administration; with very tight schedule it was not so easy to gather materials together couple with the facts that 3D Cadastre is not known in the Academic Community of Nigeria, getting local materials was not possible. And my co-author travelled on course and the paper became my sole effort. But with many materials from Commission 7 members and FIG monthly Articles; all went on well.

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## **BIOGRAPHICAL NOTES**

**Oluseye Thomas DABIRI** obtained Bsc in Geography from the Nigerian Premier University of Ibadan in 1987. He worked in Geography Department of University of Lagos as a Graduate Assistant on the Dessertification Monitoring Project of Canadian Waterloo University support/exchange programme from 1987 to 1988. Obtained Post Graduate Diploma in Surveying from Federal School of Surveying in Oyo in Nigeria in 1990. Became a Registered Surveyor under Decree 44 of 1989 and started Private Practise since then in Cadastral Survey and Land Administration Consultancy Service in Delta State. Presently the founder and Managing Director of Hydroark International Limited since 2001; a leading Survey Firm in Delta State and in Nigeria; A Member of Nigerian Institution of Survey since 1987; A member of National Geographic Society since 2002; Immediate Past Vice Chairman of Nigeria Institution of Surveyors Delta State Chapter; A National Auditor for the Association of Practicing Surveyors in Nigeria. Active member of Commission 7.

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