

GEOSPATIAL MAPPING OF WETLANDS POTENTIALS IN ILESIA, SOUTHWESTERN NIGERIA



BY

ORIMOOGUNJE, O.O.I**, OYINLOYE, R.O* AND SOUMAH, M*

**Department of Geography, O.A.U. Ile-Ife, Nigeria

*Remote Sensing and Cartographic Unit, RECTAS, O.A.U. Ile-Ife, Nigeria

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Background to the Study

- Wetlands contain numerous resources and provide services that have economic value to the populace.
- They are instrumental to flood protection; maintaining stream flow during the dry season in the semi-arid region of northern Nigeria.
- They regulate surface water quality and volume, replenish and sustain groundwater. They are also important sources of water and nutrients necessary for growing food crops, fisheries and other aquatic animals.

In most developing countries, they however continue to be poorly managed, with activities such as

- building encroachment,
- dumping of solid wastes,
- erosion causing siltation,
- industrial pollution, etc.)

- HENCE, IT IS IMPORTANT TO INVENTORISE THE PROBLEMS AND PROVIDE SUITABLE STRATEGIES FOR THE MANAGEMENT OF THE FAST DEPLETING RESOURCE, ESPECIALLY IN THE VIEW OF SUSTAINABLE DEVELOPMENT AND TO ACHIEVE THE MDGs ON FOOD SECURITY

WETLANDS ENVIRONMENT



MOSAIC OF WETLANDS MISUSE IN ILESA



Objectives of the Study

The specific objectives of this study are to:

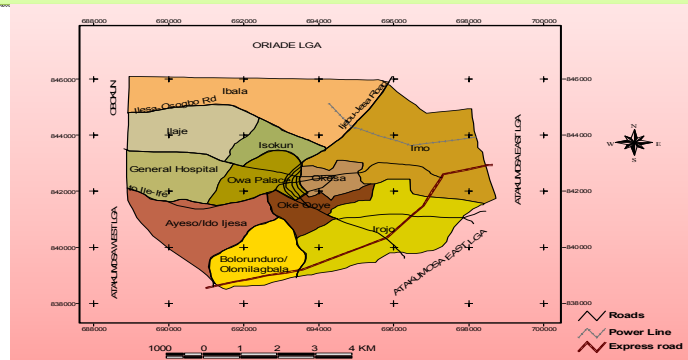
- map and generate the inventory of wetlands within the study area between 1986 and 2007;
- assess the ecological and socio-economic effects of wetland use;
- explore causes of degradation; and
- develop an integrated rehabilitation and management for sustainable environment.

Justification of the Study

- It is obvious that man's existence and well being hinge considerably on natural resources present in his environment.
- It is important to understand the processes going on within the wetlands environment.
- Therefore, efficient management of wetlands environment remains a significant tools for conserving the wetland ecosystem.
- But the experience with Nigerian wetlands is that this feature is not properly placed (Orimoogunje, 1999).
- There is therefore a need to research into the impact of urban encroachment on wetlands in the study area and present a proposal on how it can be exploited sustainably.

Study Area

- The study area lies within latitude $7^{\circ} 30'$ and $7^{\circ} 35'N$ and longitude $4^{\circ} 30'$ and $4^{\circ} 34'E$. Ilesa urban area is made up of two local government areas, namely Ilesa West and Ilesa East. Both Council areas are bounded in the North, West and South by Obokun, Atakunmosa and Oriade Local Government areas respectively.



Methodology

Methods and Materials

Input Data

Input data include:

a topographic map of Ilesa S.W. and S.E. on a scale of 1:50 000

Scanned map of Ilesa S.E. and S.W.

Satellite images (Landsat TM 1986 & 1991; Landsat ETM+ 2002)

Equipments used

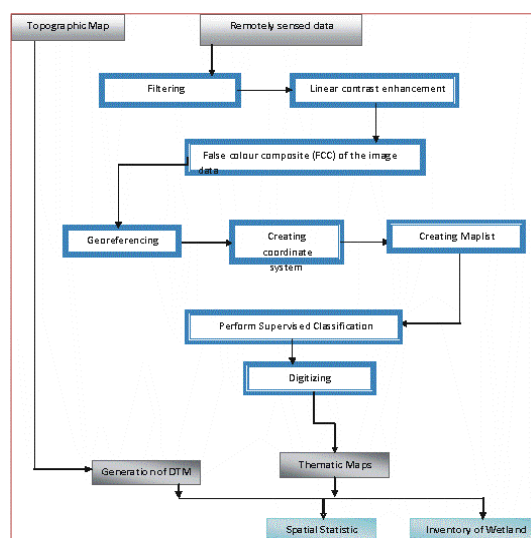
The following equipments were employed in carrying out the exercise.

Scanner; PC Pentium 4; Colour Printer

ILWIS Software (version 3.4); Arcview GIS (VERSION 3.2)

AutoCARD Map R2

Methodology cont.





Methodology cont.

- Primary data were collected on the following attributes: agricultural land activities, settlement, dense/riparian forest, wetlands, & bare soil/land;
- Image processing of the secondary data was performed while spatial analyses such as spatial statistic and accuracy were also carried out
- Primary dataset was summarized and integrated with spatial dataset
- DTM of the area was generated because of its importance in physical land use planning and in decision taking in connection with future usage.

Findings and Discussion

Land use types	1986		1991		2002	
	Areal extent (ha)	%	Areal extent (ha)	%	Areal extent (ha)	%
Bare soil/land	1401	6.49	1969	9.12	2902	10.09
Dense/riparian	8791	40.72	5915	27.40	1328	4.62
Agric. activities	7047	32.64	9017	41.76	14435	50.18
settlement	4093	18.96	4541	21.03	10012	34.80
wetlands	258	1.19	148	0.69	89	0.31
Total	21560	100.00	21560	100.00	28766	100.00

- Table 1: Landuse/land cover between 1986 and 2002
- It shows the patterns of change:
- Land use type whose areal extent had increased;
- Land use type whose areal extent had decreased;
- *Slide 5 shows the mosaic of wetland misuse and abuse*

 **Findings and Discussion** 

- Mosaic of wetland misuse in slide 5 has the following consequences:
 - ∅ Pollution in wetlands
 - ∅ Loss of biodiversity
 - ∅ Alien invasion
 - ∅ Infilling in wetlands

 **Findings and Discussion** 

- Wetland managed sustainably has the following consequences:
 - ♣ Regulation and purification of stream flow
 - ♣ Conservation of indigenous species
 - ♣ Maintenance and self renewal of ecosystem

Conclusion

Landuse activities taking place in the wetlands in Ilesha and its environ have negative effects on the functioning of the wetland. There is mis-use, over use and abuse of wetlands because they are used in an unsustainable manner.

Unless action is taken positively to influence the activities of people affecting wetlands, the result could be very serious. Therefore, to maximize the potential of wetland in the study area, the following should be taken into consideration.

- ***Awareness** education programmes concerning both natural and constructed wetlands should be pursued in the study area.
- *Government and planners should develop a motivating mechanism that includes environmental concern.
- *The management and conservation of wetlands for their long term sustainable use should be a priority.

Expand the frontier of knowledge



THANKS FOR LISTENING