

# Spatial Distribution Of Local Markets In Ife North Local Government Area

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**Abstract:** Researches have been carried out in the past, by several authors, concerning agricultural marketing without the use of geospatial techniques. This research therefore is meant to show the efficacy of Geographical Information System (GIS) in local market distribution. The role of market place as a man-made feature where goods and services are exchanged for the purpose of satisfying human needs cannot be overemphasized, especially in the general development of villages and towns. This study shows the effectiveness of GIS without the use of metrics method to determine the agricultural market locations and closeness of the markets in Ife North Local Government area. Different kinds of people bring their goods from far and near villages for sale and sustainability in this research, both primary and secondary data were collected. Primary data includes the use of Global Positioning System (GPS) receiver to collect coordinate points of the existing markets. It also involves verbal interview with market women. While secondary data were sourced from administrative maps and satellite images of the area of study, it was geo-referenced and digitized. Arc Map was used to run average nearest neighbor analysis. Base on the analysis performed, the major constraint facing the market people is poor road network which affect majority of the farmers in transporting their goods from remote villages as indicated in this study. As a result, new markets sites were proposed with the use of geospatial techniques for easy accessibility.

**Index Terms:** Minimum 7 keywords are mandatory, Keywords should closely reflect the topic and should optimally characterize the paper. Use about four key words or phrases in alphabetical order, separated by commas.

## 1 Introduction

Balancing the inputs and outputs on a farm is fundamental to its success and profitability. The ability of Geographical Information System (GIS) to analyze and visualize agricultural environments and workflows has proven to be very beneficial to farmers. Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumers [2]. Marketing systems are dynamic; they are competitive and involve continuous transformation and upgrading. Marketing has to favor customers and has to provide the farmers, transporters, traders, shareholders and every other people patronizing it with profit. Marketing is defined as a stepwise activities carried out in the movement of goods and services from the point of initial production until they are in the hands of the ultimate consumer [3]. More so, to be a bit specific, agricultural marketing can be defined as set of efficient and developmental activities that are involved in coordinating the various stages of economics activities from production to consumption. Marketing is important to both the individual and the society. Markets play an important role by improving rural areas, providing income, developing rural markets linkages and gender issues. Planners need to be more aware of how to design markets that meet community's social and economic needs and how to choose a suitable site for new markets.

In some cases, markets sites are chosen that are inappropriate and mostly result to under-use or no use of the infrastructure constructed. Market is not about just building of structures and stalls, but attention needs to be paid to how the market will be managed, operated and maintained in order to avoid failure of the market. With the use of some market tools such as efficient market information in which the farmers and traders could benefit Updated information on prices and other market factors enables farmers to negotiate with buyers and this also help spatial distribution of products from rural areas to towns and between markets [5]. Also, technical marketing efficiency which refers to the input-output relationships involved in the task of producing utility throughout the marketing system. Product forms are changed, storage and transportation functions are performed, all the necessary economic activities are financed, and the product eventually reaches the point of contact with the consumer. The efficiency with which these activities and functions are performed has been considered to be largely a function of the available technology and adoption of space technology specially to solve the problem of market locations.

## 2 RESEARCH MATERIAL AND METHOD

### 2.1 Study Area

The study area, Ife North local government area of Osun State, shares boundary with Ife East, Ife Central and Ife South with its headquarter in Ipetumodu town. It is located between latitude  $6^{\circ} 57'35''-7^{\circ} 34'25''$  N and longitude  $4^{\circ} 20'34''-7^{\circ} 34'26''$  E. It has an area of  $837\text{km}^2$  and a population of 153,694 (NPC 2006). The inhabitants of the area are predominantly farmers who specialize in the cultivation of both food and cash crops such as maize, yam, cocoyam, cassava, cocoa, kolanut, palm oil etc. They also engage in poultry keeping and livestock and other activities generating income. There soil type is moderately suitable for their crops (Fig. 2). The rainfall in the area is adequate with a relatively high humidity.

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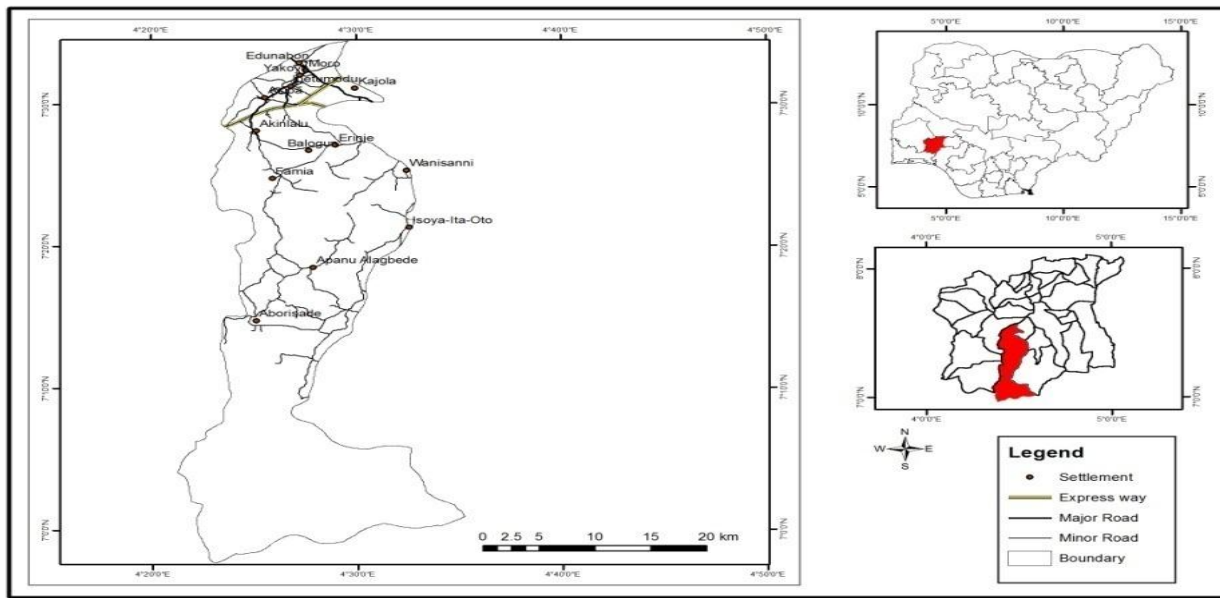


Fig.1 Study area map

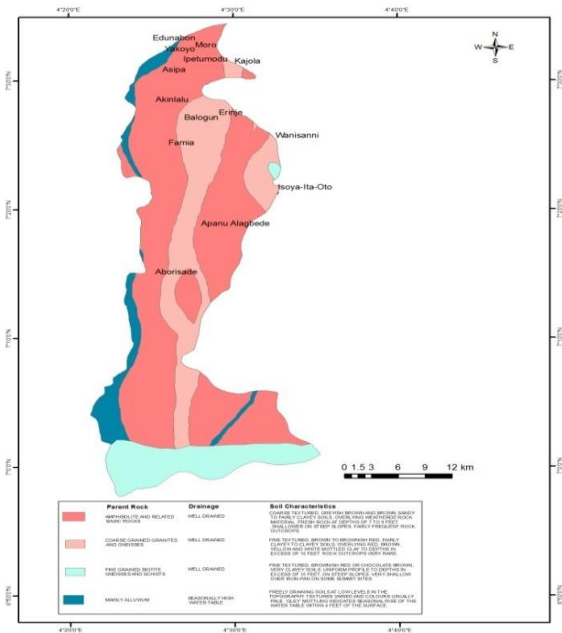


Fig.2 Study area soil map

The study area is characterized by four types of soil; lixosols nit sols, lixosols/regosols and fluvisols. And well drained except for areas with fluvisols which have seasonally high water table. The physical and chemical structures of biological activity, of soil are fundamental to sustaining agricultural productivity. Good agricultural practices and soil management improve soil fertility, minimizing losses of soil nutrients and agrochemical by a number of factors such as erosion, leaching and others [1]. The soil types are supported by various crops grown like, cassava, yam, citrus, cocoa, cocoyam, vegetable, plantain, banana

**2.2 Data and Methods**

Both primary and secondary data that contain both spatial and non-spatial attributes were used in this study. Primary data include the collection of GPS points of the markets, interview with the market women and Satellite image over the study area. While secondary data were sourced from the administrative map, soil map and archived data form Local government council. The study area boundary was extracted from administrative map of Nigeria were it serve as region of interest for subsetting other participating dataset. The GPS points of all the market were collected via field work were the coordinate point was integrated into GIS environment to create points feature showing existing markets locations. Average nearest neighbor analysis was run to assess the pattern of market distribution. The Satellite image of the area was preprocessed and classified using maximum likelihood to identified the land use and land cover over Ife North. Questionnaire was designed, distributed and analyzed for the purpose of identifying major problems facing the farmers and market patronage.

**2.3. Direct Interview of the Market Women**

Ife North local markets are periodic markets with varying market days between 4 to 5days market intervals, while some are every day. They are well known and people come from every part of the state to buy and sell. Markets are man-made features established for the use of man [4]. These study areas markets are categorized into, periodic market daily market which can be full-day, (e.g. Ipetumodu central market) morning and night market. Oke-gada is a daily market with only farm produce. While others like, Gbongan, Akinlalu, Moro, Edunabon have their market cycle days between 4-5 days' interval except Akinola that is being patronized every Friday. Farm produce and other mixed products are brought to the market for sale such as, palm oil, cassava, yam flour, and yam, cocoa, vegetable.



Plate 1: Farm produce

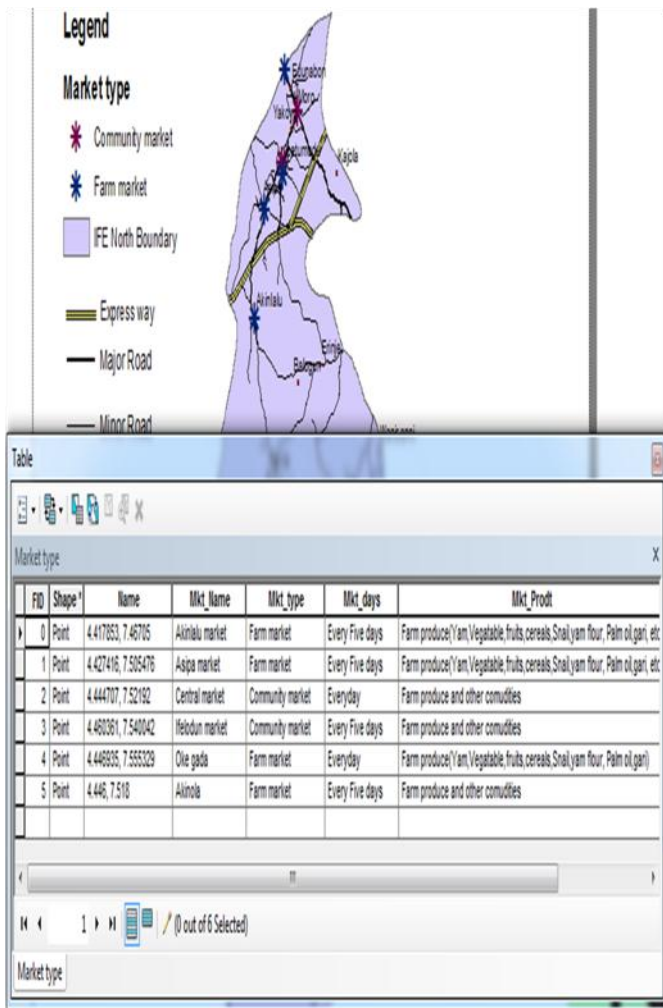


Fig.3. Database entry

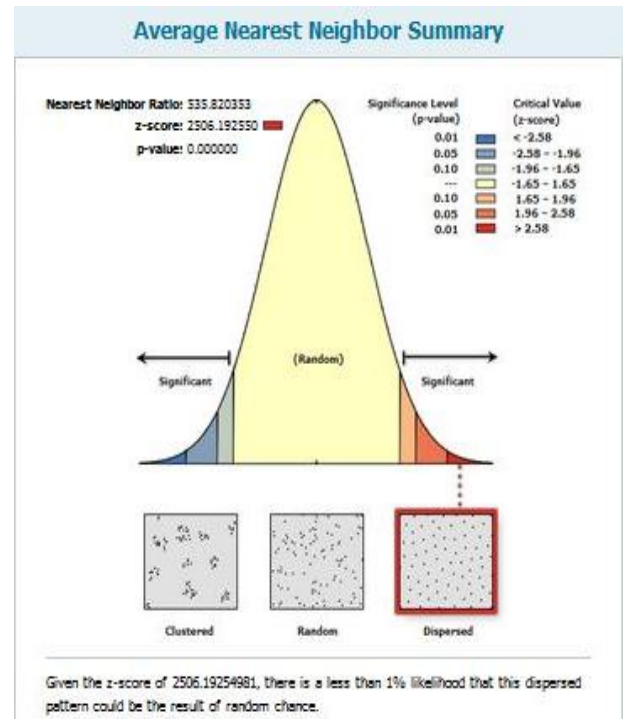


Fig. 4. Nearest Neighborhood chart

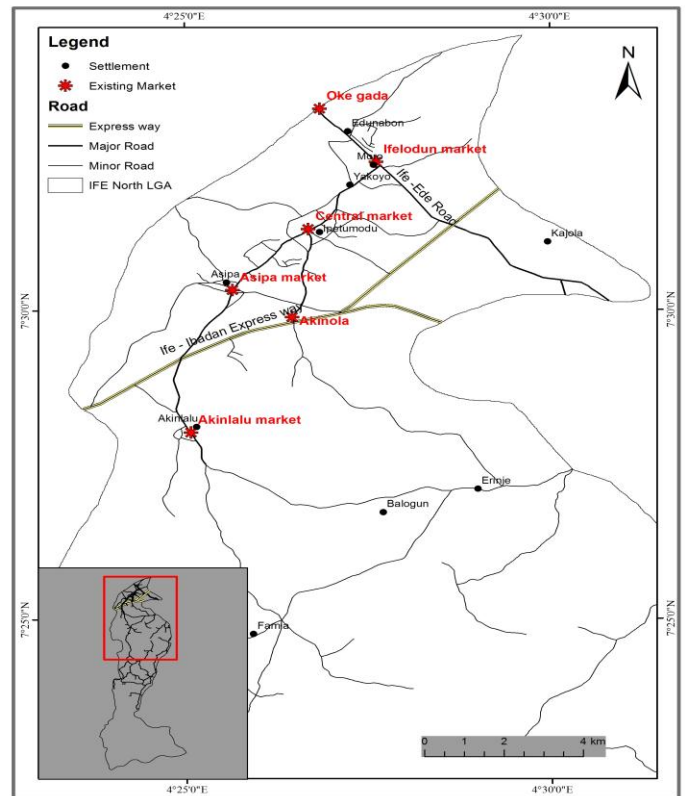


Fig. 5. Spatial distribution of existing market

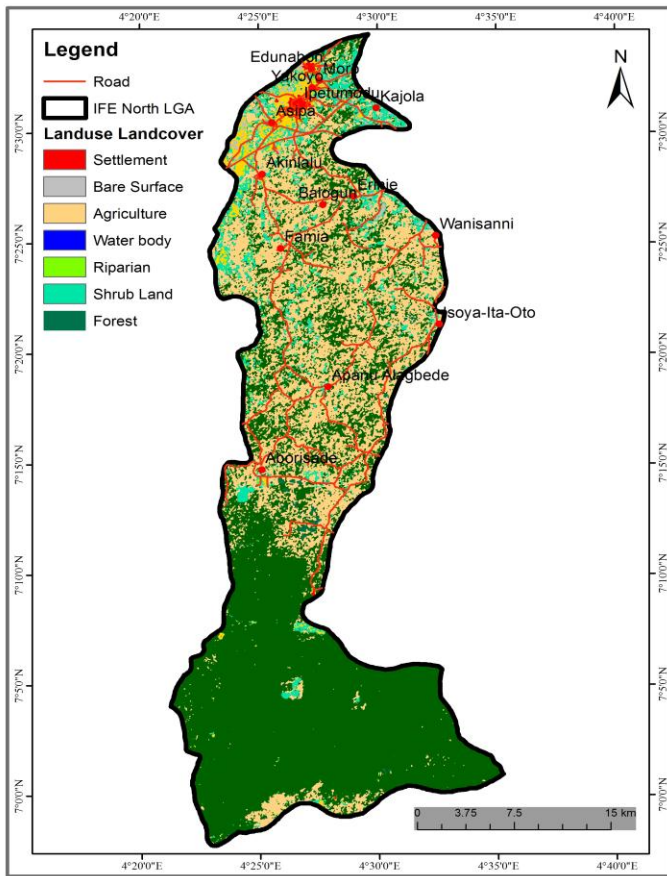


Fig. 5. Land Use land cover of Ife North

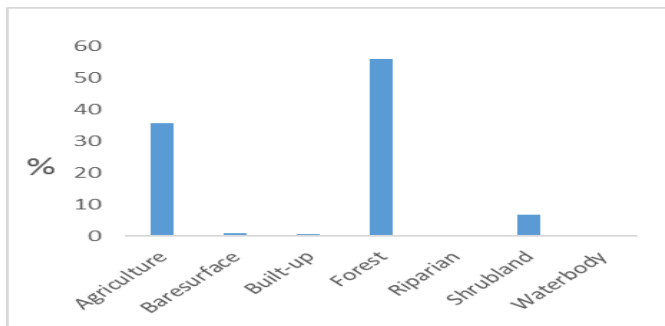


Figure 6. Land use Land cover class Statistics

### 3 RESULTS AND DISCUSSION

The analysis shows the spatial distribution of markets over the study area. These markets are majorly local food markets with farmers bringing their products to buyers (plate1). Their market days are mostly every four days while Ipetumodu market daily. Figure 4 show the special and non-spatial dataset integration into GIS environment. It was discovered that the study area consists of six markets with not less than 16 settlements in the study area. Figure 6 shows the LULC class statistics. The land use land cover(LULC) is characterized with 36% of Agricultural activities with few settlements. the forest land covers 56%; this include the Ife forest reserve in Osun state. The agricultural land use around the settlers indicates that inhabitants are agriculturalist. It is also obvious from this finding that, poor road network and distance from the villages play very important roles in patronizing the market centers. And need to

consider the location of market centers. In Figure 4, the ratio (535.8) of nearest neighborhood analysis performed is less than z score value of 2506.19 as shown in the analysis. this implies that the market distribution pattern is dispersed. Which means that the distribution of market locations is not equal with the settlement pattern of the area. The interview with market women shows that there are lot of benefits derived when the importance of markets is meant with good and appropriate location such as, buying farm products at cheaper prices, gain greater control over production and marketing decisions, access to fresh food and a great place to meet and socialize with neighbors. Questionnaires distributed analyzed the problems facing markets in Ife North as listed below;

- Poor marketing sites:** Any market that is not comfortable will not be patronize by people, it might be due to the poor maintenance or distance to settlement.
- Poor Access Roads to Convey the Produce from the Farm-Gate to the Market:** Rural feeder roads are either absent or in very bad state. This means that the entire rural farmers rely mainly on slow human transport which results in high marketing costs, commodity prices and low producer prices. For instance, the road that link famia with other farm villages where a lot of agricultural products are produced is poor, therefore, having adverse effect on their produce.
- Inadequate Distribution Channels:** Market performs the role of bridging special geographical gap by making sure that goods and services are moved from the point of production to the point of consumption. However, one of the biggest problems of market arises from lack of reliable distribution channels through which products can reach every part of the State.
- Inadequate Market Information:** The required information on agricultural produce in Ife North are not readily available and those that are even available are not well managed to generate the required information for decision making, logistic planning and forecasting by relevant parties (producer, consumers, government, researchers and other market participants).

### 4. CONCLUSIONS

Marketing of agricultural products has contributed greatly to the country’s development which in anyway needs both people and government attention to solve problems pertaining to Nigerian’s marketing. Also, since road is one of major problem, it is recommended that government should create new local market in areas that is far from the existing ones but closer to farm areas and open up markets roads to encourage the movement of goods to and from market areas in the state [4]. It is of great importance with the support of the government, to embark on construction of roads that link some villages together such as Famia-Balogun-Agbenu etc down to Akinlalu for easy transportation. Also, National Union of Road Transport Workers (NURTW) should join hands together with the Government councils to make vehicles available and assign commercial vehicles to all routes to market centers especially on market days for ease of transportation. Government should promote integrated rural development involving agricultural and non- agricultural activities through the provision of physical infrastructures such as feeder roads, warehousing and storage facilities and rural communications. Financial institutions especially Nigerian Agricultural Co-operative and Rural Development Bank (NACRDB) should be

strengthened to provide soft agricultural credit and rural finance to marketers. Finally, the role of GIS and Remote Sensing should not be neglected in locating market sites, planning and management, for sustainable development to take place.

### **Acknowledgement**

I wish to thank my loving husband, Engr. Sola Omotoye for being there for me, you are wonderful. I also acknowledge my dear children; you will make it in life. I wish to thank Ajayi Victoria for her support and prayer, you will continue to move forward in life.

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