

Spatial Distribution of Slaughter Slabs in Ilesa Region, Osun State, Nigeria

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Abstract

The study examines the spatial distribution of slaughter slabs in Ilesa region South West, Nigeria. Survey research design was adopted for the study. Both primary and secondary data were obtained. The coordinates of the study area was generated from Google earth and imported to universal map downloader (UMD). Quantitative data were analyze with the aid of ArcMap to determine the spatial distributions of the slaughter slab locations and subsequently interpreted. The qualitative data were content analyzed. The study area revealed a total number of 44 slaughter slab locations in the study area. The study revealed that 43 of the slaughter slabs were owned and managed by private operators while only one was owned by the government. The analysis revealed that the majority of the slabs are situated close to the river. The nearest neighbor analysis of slaughter slabs operation revealed the observe means distance of 338.318 apart with expected means distance of 414.155. The nearest ratio $R_n = 0.817$ ($R > 1$). This implies a cluster pattern in the distribution of slaughter slabs. This pattern of distribution is an indication of inadequate planning. The study therefore recommends that development of slaughter houses should be adequately planned to ensure equitable access by prospective customers within the region.

Keywords: Location, Distribution, Region, Slaughter Slabs, Ilesa, Osun State, Nigeria

INTRODUCTION

The distribution of space for animal slaughtering within a geographic entity (town, city) consciously and randomly predates civilization. In many towns and cities in developed countries, the demand for animal products is increasing as the population increases, but in spite of this, the average consumer is more concerned about the products at the expense of where they emanate from. As anthropologist Noelle Vialles (1994) points out, animal “slaughtering tends to be a somewhat ‘unpopular’ subject: no one wants to know about it”.

Increasing demand for animal products especially meat has led to increase in the development of small or modular slaughter houses and slaughter slabs across towns and cities and there are growing concerns about the current situation majorly because of the haphazard location of these slaughter slabs particularly where there is no designated and well planned location earmarked by the appropriate authority for animal slaughtering activities.

The location of slaughter house in any given society is a function of increasing human quest for animal products. Ideally, the location of this important human activity is determined by deliberate government decision to designate a specific location for such activity and where such exists, it is usually planned, designed and developed to suit both local and international standard. In a situation

where there is nonexistence of government designated location, private individuals ventured into slaughtering activity and haphazard select locations to perform this activity albeit on a small scale basis with relatively small capital to develop a befitting slaughter house. By extension, Adeyemo Adeyemi and Awosanya (2009) argued that in Nigeria, slaughter houses are public enterprises thus lacking the necessary financial means to maintain quality operations. In another view, Nafarnda *et al* (2012) indicated that the sanitation challenges in slaughter slabs especially in Nigeria may be attributed to improper planning and location of slaughter houses, the springing up of illegal slaughter houses i.e slaughter slabs, lack of supporting facilities and poor enforcement of regulation by the appropriate authority.

Conversely, according to Merck Veterinary Manual (1998) the plan, operational process, and the location of slaughter slabs respond to a variety of concerns in any community they are situated. It may vary in size and complexity depending on location and local government ordinance. In the same vein, the priority of the meat industry should be that they ensure that the production, distribution and marketing of processed meat are of good quality (Dandago *et al*, 2009).

A well-planned slaughter house tremendously benefits consumer demand while unequitable distribution may affect patronage of the facilities. However, previous study the issues that bother on the location, associated impact of the location of slaughterhouses in many cities and towns, particularly in Nigeria are few. Lasisi (1998) indicated that slaughter houses in developing countries are not properly sited and also lack suitable facilities, sewage disposal and inadequate water supply. Specific investigation on impact of abattoir activities and management in residential neighborhoods was studied by Bello and Oyedemi (2000). They showed that slaughter facilities are sited in urban, rural and nominated site and that each has its merit and demerit. Furthermore, Ibrahim (2018) assessed the locational implication of 5 abattoirs and the environmental condition in Minna, Nigeria. He observed that most of the slaughterhouses were poorly located and inadequately equipped.

In spite of the aforementioned studies, there is still paucity of information on the spatial distribution of small scale slaughterhouses otherwise known as slaughter slabs especially in Ilesa region. This study therefore is designed specifically to examine the spatial distribution of slaughter slabs in Ilesa region, Nigeria.

Study Area

The study was carried out in Ilesa region, south west, Nigeria. Ilesa region is located within latitude 7° 37' N and longitudes 4°43'E. It is situated about 32 kilometers northeast of Ile-Ife and about 30 kilometres southwest of Osogbo, the Osun State Capital. The population of Ilesa region has been put at 210,141 in 2006 (NPC 2006) and put at 344, 000 in 2019 projection. The estimated annual rainfall is over 1600mm and the approximate altitude is 370m above the sea level. The average temperature of the area is 28°C. Animal slaughtering for commercial purpose are carried out by private sector at different locations across the two local government areas in the study area. There are fourty four slaughter slabs in the study area. The management and regulations of the operation is done by the Department of Veterinary Services, Osun state Ministry of Agriculture and Food Security. The approval to operate is withdrawn or retained subject to the fulfilment of all requirements by the regulatory body. With many streams and rivers across the towns, operators

take advantage of them to situate there are slaughter slabs and also close to the neighborhoods for ease of access by target customers. The majority of slaughter slabs carry out operate daily.

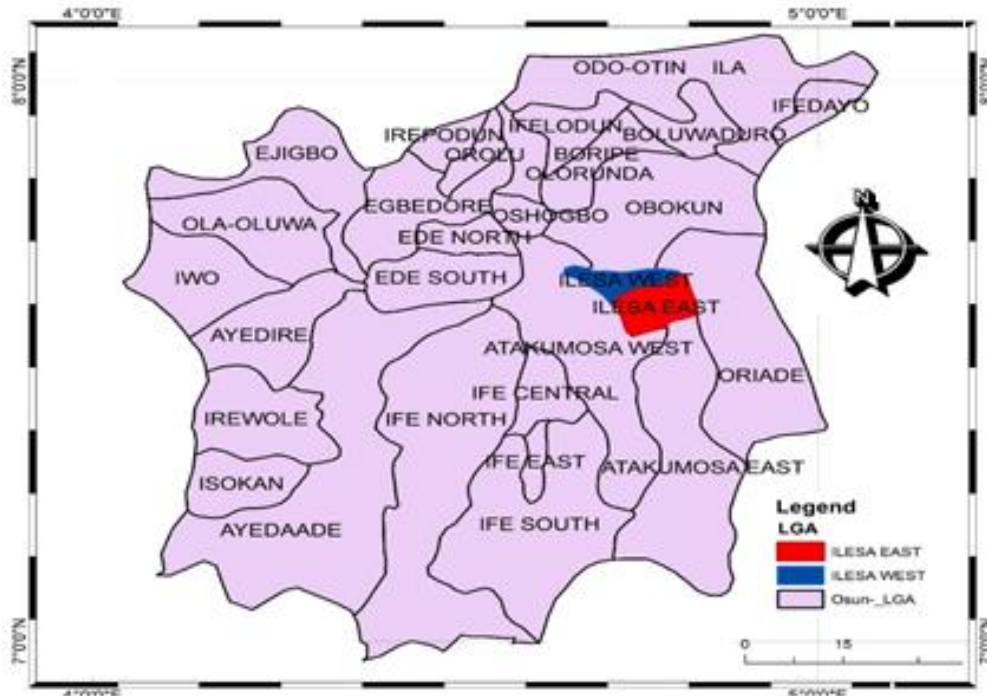


Figure 1: Map of Study area within the context of Osun State

Theoretical framework

Profit Maximization Theory

August Losch, a German born Economist, published his theory of “profit maximization” in the year 1954. Weber’s least cost location theory was completely discarded by Losch. In fact, he was of the view that “profit maximization” is the only purpose of the entrepreneur, whether it is state or an individual. The major objective of the industry is, therefore, to find out the place where maximum profits occur. Losch gave explanation of his theory within the environment of monopolistic competition dissimilar to Weber, who assumed his theory in an economic state of perfect competition.

According to Capello (2011), Losch indicated that industries or business enterprises would locate in areas where maximum profit will occur but not necessarily be suitable with the location, least cost (labour cost and transport cost). In essence, disregarding labour cost, transport cost, agglomeration cost, he put more emphasis on the total production cost.

Assumption of profit maximization theory

Capello (2011) summarized the assumption of profit maximization theory as indicated by Losch. The assumption includes the following:

- a) The area under consideration should be an extensive homogenous plane where raw materials are distributed evenly.

- b) The `transport cost` is uniform and directly proportional in all the directions.
- c) The people inhabiting the region have a general homogeneity either in taste, knowledge and technical skill.
- d) There is no economic prejudice among the people. The economic and career building opportunities to all individuals.
- e) The population distribution is very even and the area is self-sufficient in agriculture.

The theory offers some explanation to the issue that bothers on motif for setting up a business which has been among the primary driving forces of any business activity. According to Davison (2017) there is definite perspective on business functions as something that should be directed toward maximizing the creation of value for shareholders especially the owner. Driven by the premise of resources scarcity, firms valued activities that created the most net value in the shortest terms possible. However, evidence shows that such an approach can be problematic from at least due to the fact that starting from the fact that profit maximization became damaging in the long-run, as the approach can often disrupt values embedded into corporate culture, having adverse effects on the quality of products and services.

Although, the characteristics of the business operators or vendors are not inclusive in the theory, yet it provides some explanation on factors for the choice of settings up a business in a particular location, what motivate the customers to patronize the enterprise and a brief attribute of the population among which customers are found. A limitation of the theory is that it prefers profit to values. When an industry is driven by approach of maximizing financial value of the manager or the owner, such company owner often can engage in business activities that counter ethical values and rules of corporate conduct (Frankel *et al*, 2018).

Location of Slaughter House

Slaughter house emerged as a unique institution in the early nineteenth century as part of a larger transition from an agrarian to industrial system, accompanied by increased urbanization, technological developments, and concern about public hygiene (Brantz 2005). Prior to that point, animals were slaughtered for consumption in diverse places, such as backyard. As indicated by Otter (2006), beginning in the eighteenth century, reformers opined that “public slaughterhouses” would be preferable to “private slaughterhouses” (the term referred to any structure or development in which animals were slaughtered for human consumption, e.g., a butcher’s shed) because they would remove the sight of animal slaughter from public places and indiscreet private slaughter houses, they could more easily be monitored, they were generally considered more spacious and clean.

MacLachlan (2007) also indicated that the reformers argued that the state should be regulating “morally dangerous” work. This implies that the sole purpose of the new buildings would be to slaughter animals which would be regulated by the state and outside of the city core. Fitzgerald (2010) in his work: *A Social History of the Slaughterhouse* opined that the public animal slaughtering facilities constructed were designed and sited to reduce contemplation and questioning of them by workers and consumers.

Lasisi (1999) undertook a study on the location and environmental effects of abattoirs in Ibadan, and the result shows that there is a relationship between size of abattoir, average number of daily kill and the size of the available land. Akinwale (2013) studied the locational characteristics of

abattoir in Akure, Nigeria and found out that the operation has negative impact on the environment especially where there is no effective disposal method.

Frimpong *et al* (2012) conducted a study on the animal supply and logistics activities of abattoir chain in developing countries: the case of Kumasi Abattoir, Ghana. The findings revealed that inhuman way of animal handling, incidence of non-ambulation; sickness and death of animals were common during transport as well as inside Kumasi cattle market.

Furthermore, on locational issue, Adeyinka *et al* (2016) assessed market facilities and locational effects on adjoining neighborhood in Nigeria urban centers; empirical evidence from Akure Nigeria, and realized that facilities such as parking space, fire extinguishers, circulation spaces within the markets, trading space, safe area for children, perimeter fencing and loading and off-loading bay were inadequately provided. The study concluded that facilities in the market in the study area should be provided with required level of facilities to prevent future urban problems

According to Johnson (2008), the notion that slaughterhouses should be centralized and monitored was supported widely by municipalities. Going by the review, only a very few studies were directly centered on slaughter slab particularly the distribution of slaughter slab over the space. This reveals a gap in knowledge in which this study is set to fill.

METHODOLOGY

Survey research design was adopted for the study. Both primary and secondary data were obtained. The imagery of the entire study area was obtained with the aid of Google earth in order to determine the location as well as the extent of its cover. Coordinates of the entire slaughter slab's locations were picked with the help of global positioning system (GPS). Within the region, forty-four slaughter slabs were determined. Consequently, the coordinates of each slaughter slabs were subsequently imported into ArcGIS 10.2, where the entire imagery was digitized. This helped in producing different imageries which was needed to demonstrate the spatial features of the slaughter slabs. Variables that were investigated includes; location of the facilities, ownership of the slaughter slabs. Quantitative data (Nearest Neighbour Analysis NNA) was used to analyze the data, using ArcMap. Qualitative data which complement the study were content analyzed.

RESULTS AND DISCUSSION

Location, Ownership and Land Use of the Slaughter Slabs

This subsection deals with the spatial distribution of slaughter slabs in the study area. Investigation on the available slaughter slabs in the study area revealed a total number of 44 slaughter slab locations and the area coverage (figure 3). This finding contradicts the work of Nwata *et al* (2008) whose findings revealed a total number of 48 slaughter slabs in the entire Osun State, whereas Ilesa region which is a constituent part of Osun alone has 44. This implied that many slaughter slabs must have been established after their study. Regarding the ownership of the slaughter slabs, the survey revealed that 43 of the slaughter slabs were owned and managed by private operators while only one was owned by the government. It was observed that the general condition of the government owned slab has been functionally sub-optimal. This implied that failure or nonperformance of government owned slaughter slab to support the demand of ever-increasing

population of the study area *let alone* the surrounding region may have necessitated the development of slaughter slabs by private individuals in different part of the region.

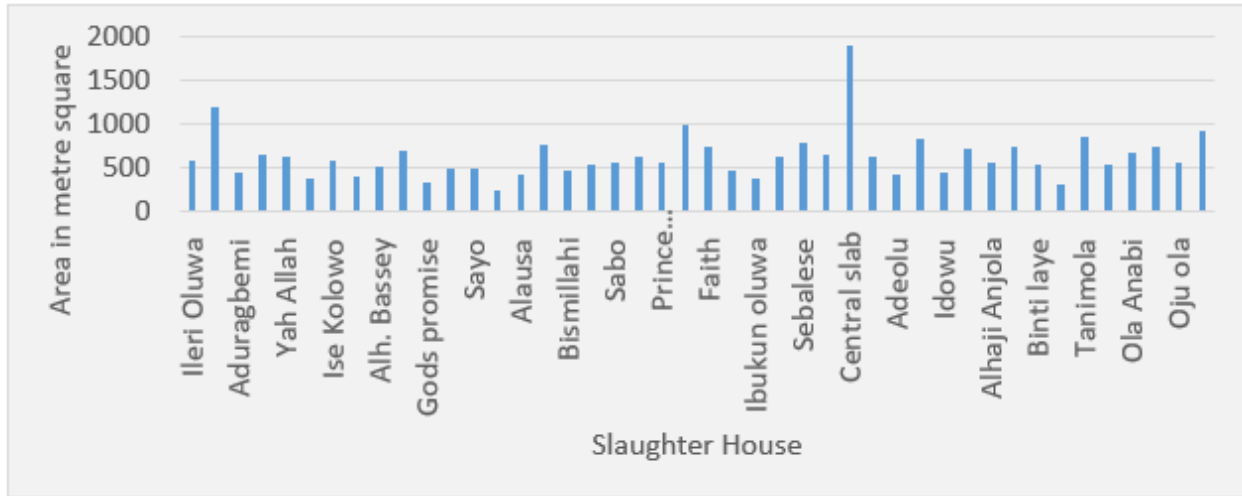


Figure 3: Slaughter House and area coverage in m². The central slaughter house is the biggest and the has a sole ownership by government.

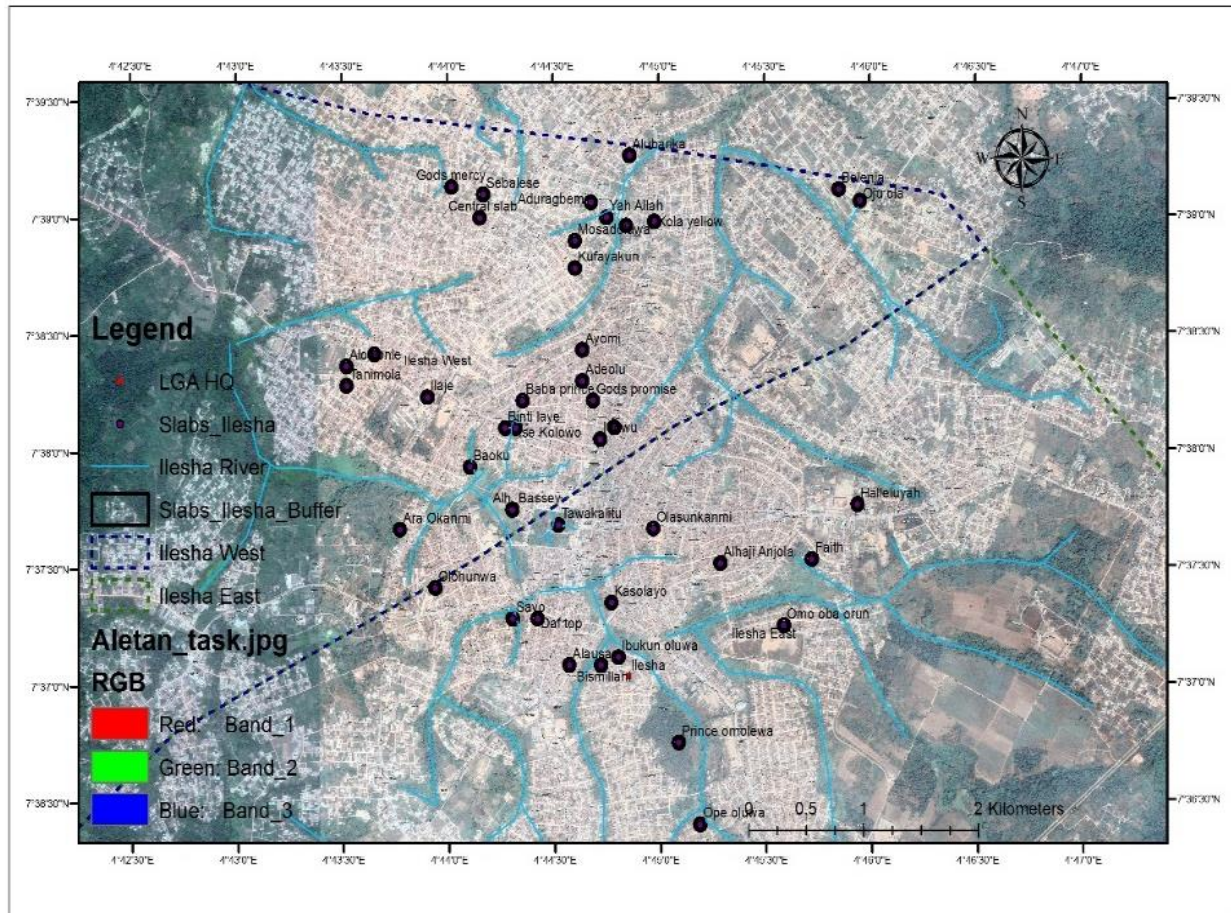


Figure 4: Location of slaughter slab in the study area

With regards to spatial location of slaughter slabs in the study area, the study revealed that the majority of the slaughter slabs in the study area were concentrated at the core of the town. (See fig. 1 and 2) From the in-depth interview obtained from one (Mr. Belenja) of the owners of the slaughters slab, particularly on the reason for the location of slaughter slab within the core of the town, He said: *“My choice of location was determined by two factors (1) nearness to customers especially food sellers; and the majority of the population (customers) also live at the core. (2) Availability of space in proximity to the streams where effluent may easily be discharged.”*

However, further investigation revealed that the lands close to the streams are usually undeveloped which may either belong to an individual or family who also could either lease it out or sell it to them. The locations of these slaughter slabs contribute to the livelihood of the operators and also tend to save the transportation expenses which their customers would incur perhaps if such activity is not within their vicinity. On a broader scale, the concentration of the slabs in the core of the town may have significant impact on the environment.

Furthermore, the study revealed that the slaughter slabs were situated close to the river course in Ilesa. It was deliberately done this way so as to take advantage of the rivers for easy discharge of effluents as earlier mentioned in the interview (figure 3). This is in line with the findings of Daramola and Olowoporoku (2011) in a study carried out in Osogbo where it was revealed that it was a common practice in Oshogbo to have slaughterhouses situated along the river courses and they indicated that such practice is harmful to the residents.

Nearest Neighbour Analysis

The Nearest neighbor analysis of slaughter slabs operation revealed the observed means distance of 338.318 apart with expected means distance of 414.155. The nearest ratio $R_n = 0.817$ ($R > 1$). This implies a clustered pattern in the distribution of slaughter slabs. For test of significance, $Z = -2.3236$ shows that the clustering is significant. This pattern could be attributed to the choice usually made by the operators to site their slaughter slabs in vantage position for easy access by their customers and in many occasions these locations are strategically situated along a river course.

However, despite the clustered nature of the slaughter slabs as revealed by the nearest neighbor analysis, the majority of the slaughter slabs, operators took proximity to patronage as an important factor. This factor of accessibility put them where they can easily be reached by the population they serve.

Due to the clustered nature of the slaughter slabs, not many people will be able to access them and this has a great planning implication. While people living closer to the area might have easy access with minimal cost, those who live far away will have challenges accessing them in terms of cost of transport and invariably the time spent in reaching the location. In addition, most of the slaughter slabs were sited in their present locations in order to be in close proximity to the Main market in the town (the largest market in the region) so as to facilitate production and output as marketers can easily visit the slabs to purchase meat products along other commodities thereby reducing transport expenses and saving time. This is in line with the submission of Capello (2011) who indicated that industries or business enterprises would locate in areas where maximum profit will occur and business owner putting more emphasis on the total production cost.

CONCLUSION

This study examined the spatial distribution of slaughter slabs in Ilesa region, South West Nigeria. In this study, it was observed that the distribution of slaughter slabs was clustered within the study area. This pattern of distribution is an indication of inadequate locational planning. Hence, the choice of site, ownership and management of the activity is frequently determined by private enterprise as against the government-controlled activity being the usual practice in many towns and cities in Nigeria. The study therefore recommends development of slaughter house should be adequately planned to ensure equitable access by prospective customers within the region. This decision must be inclusive so as to accommodate all the stakeholders involved before implementation.

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