

# Assessment of the Socio-Economic Impact of Abattoir Activities on The Choba-Aluu Residents in Rivers State, Nigeria

## Abstract

Despite the benefits surrounding the activities and operations of an abattoir, several challenges are associated with the operations of abattoir facilities. The study assessed the socio-economic impact of abattoir activities on Choba-Aluu residents in Rivers State, Nigeria. A perception study based on survey research and purposive sampling was conducted among residents (respondents) within 250m (Category A = 94) and 500m (Category B = 109) of the abattoir facility. Copies of questionnaires were served on the target study population to obtain data which were then analysed using descriptive statistics such as frequency count and mean value. The findings revealed that infrastructure and facilities in the abattoir are obsolete and inadequate to provide for hygienic slaughtering, handling and storage of meat (Category A: 51.1%, Mean = 3.48; Category B: 67.4%, Mean = 3.72) and the abattoir environment is unsightly, and odour from its operations attracts flies, mosquitoes, rodents and other disease vectors which cause nuisance in the neighbourhood (Category A: 62.8%, Mean = 3.60; Category B: 68.8%, Mean = 3.86). The overall mean on the perception of the socio-economic impact of abattoir activities among Category A and B respondents were 3.08 (agreed) and 2.91 (disagreed), which is influenced by their distance away from the facility. The study concluded that the operation and activities of the abattoir have attracted flies, mosquitoes, rodents, and other disease vectors, which are nuisance to the nearby community. Therefore, the study advocates for the siting of abattoirs remote away from the living environment, while environmentally sustainable practices should be considered during their establishment as well as in the maintenance of those sites already caught up by rapid urbanization.

**Keywords :** Abattoir, Socio-economic Impact, Environmental Impact, Choba-Aluu, Rivers State

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## Introduction

The abattoir operations remain an essential aspect of the livestock industry in Nigeria, offering domestic meat supplies to millions of people and creating employment opportunities for the population at large. Abubakar and Bello (2023) suggest that the abattoir industry employs over 150 million people and serves as a source of revenue for the government. Despite the benefits surrounding the activities and operations of the abattoir, several challenges are associated with the operations of abattoir facilities (Olawuni et al., 2017). According to UNEP (2000), the environmental effects of abattoir come through abattoir operation and waste disposal. The processes of the operation include bleeding, dressing, hide removal, evisceration or removal of internal organs, carcasses, cutting and boning. Liquid waste generated at the abattoir usually comprises dissolved solids, blood, gut contents, urine

and water (Olanrewaju et al., 2023). Poor management of these wastes can be associated with environmental challenges such as pollution of all variants.

Meat handling methods in Nigeria are generally unsatisfactory. Abattoirs are obsolete and built without proper layouts; where such layouts exist, they have been distorted. Slaughtering is usually carried out on untidy, bare floors and outside the slaughterhouse by individual butchers with low hygiene knowledge (Oruonye, 2015). Dan et al. (2018) suggested that poor management of abattoir waste manifests in soil fertility loss, depletion of biodiversity, several health problems (those leading to metabolic disorders) and ecological effects. Numerous wastes are generated during abattoir operation, which poses a significant challenge to effective environmental management practices. Rising offensive odour and polluted water bodies and Residential areas are affected by abattoir activities where effective waste treatment and disposal systems are not practised.

The accessibility and nearness of abattoirs to consumers in Nigeria's urban centres may present some merits. However, the impact of its practices on the built environment and the health of residents is of great concern (Olowoporoku, 2016). Studies have documented a variety of contaminants, microbial agents and health effects among individuals occupationally or accidentally exposed to improperly managed abattoir waste (Fearon et al., 2014; Oruonye, 2015; Obidiegwu et al., 2019; Abdullahi et al., 2023). Studies have also shown that poor abattoir waste disposal is responsible for the pollution of surface and underground waters as well as air quality which indirectly affects the health of residents living within the vicinity of abattoirs (Adonu et al., 2017; Adeyemo et al., 2019; Obidiegwu et al., 2019; Akankali et al., 2022; Akpanama & Ekenta, 2022; Anele et al., 2023). The study of Obidiegwu et al. (2019) asserted that activities predispose the workers and nearby communities to some communicable and non-communicable diseases. Among these studies, the socio-economic impact of abattoir operations on a nearby residential area is limited; hence, the present study assessed the socio-economic impact of abattoir activities on Choba-Aluu residents in Rivers State, Nigeria.

## Materials and Methods

### Study Area

The study was undertaken in Choba slaughter (Abattoir) house close to Choba Market, at the bank of new Calabar River, within latitude 4°51'25.01" N and longitude 7° 1'18.07"E. The Choba slaughter (Abattoir) house is found within the Obio/Akpor Local Government Area of Rivers State, located approximately between latitude 4°45"N through

4°56"N and longitude 6°52"E through 7°6"E. It has a general elevation of less than 15.24m above mean sea level (Oyegun & Adeyemo, 1999). Ikwerre LGA bounds it to the north, Port Harcourt LGA to the south, to the east, Oyigbo LGA and to the West, Emohua LGA. It is one of the major centres of economic activities in Nigeria and a major city in the Niger Delta, said to be the wealthiest LGA in Rivers State. The abattoir is an open operating system with an average kill (slaughter) of 10 cows per day and animals such as goats and pigs daily for the local market.

### Research Design and Study Population

Cross-sectional survey research design was conducted among households living within the 250m - 500m radius of the Choba Slaughter (abattoir). The study adopted the World Health Organization (WHO) criteria for environmental and health survey for anthropogenic impact study for households living within a radius of 250m (Category A) and 500m (Category B) from the abattoir (WHO, 2017; Ogbuehi et al., 2022). Based on the WHO criteria, a reconnaissance survey was conducted around the abattoir to ascertain the number of households and other functional institutions (businesses, schools, filling stations and religious places) found within the radius of categories A and B. The survey identified 97 and 114 households within categories A and B, with an average of 4 persons per household. One person (Adult) was randomly selected to represent each household, resulting in 211 respondents (Category A = 97, Category B = 114). Using the purposive sampling technique implies a specific group (head of households or their representative) was selected for the study, and at the end of the exercise, 203 respondents (Category A = 94, Category B = 109) participated in the study.

### Data Collection Procedure

The questionnaire was used to elicit information from households (respondents), designed based on reviewed literature and past related studies, pre-tested outside the study, and returned with a correlation coefficient of 0.7, indicating the response's consistency. The questionnaire adopted for the study made use of closed-ended and Likert 5-point-scale format (1 = Strongly Disagreed (SD), 2= Disagreed (D), 3= Undecided (U), 4= Strongly Agreed (SA), and 5 = Agreed (A)) and was divided into Section A which captured the demographic characteristics of the respondents and Section B which captured questions regarding the impact of abattoir activities on the socio-economic of the residents.

Data Analysis

The retrieved questionnaires were coded and subjected to Statistical Package for the Social Sciences (SPSS v.21) for proper analysis. The retrieved questionnaire coding was done with MS Excel before being transferred to the Data entry of the SPSS window (Version 22). Descriptive statistics in the form of mean and standard deviation were adopted, and findings were presented through tables and charts. Using such statistics allows the researcher to present the evidence of the study in a way that can be understandable and make a conclusion concerning the study variables.

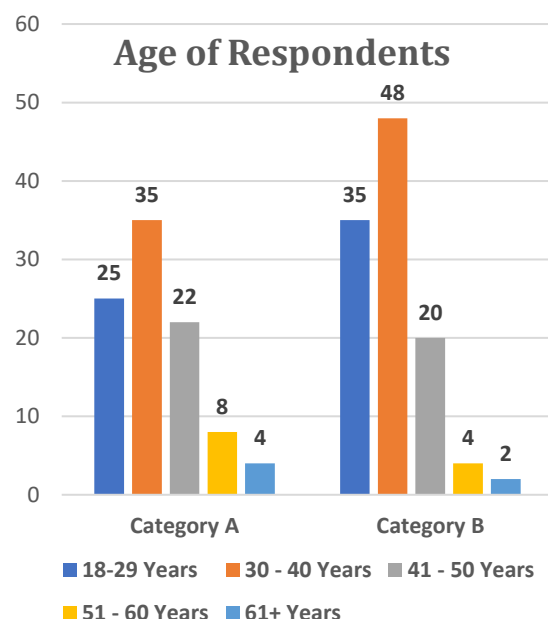
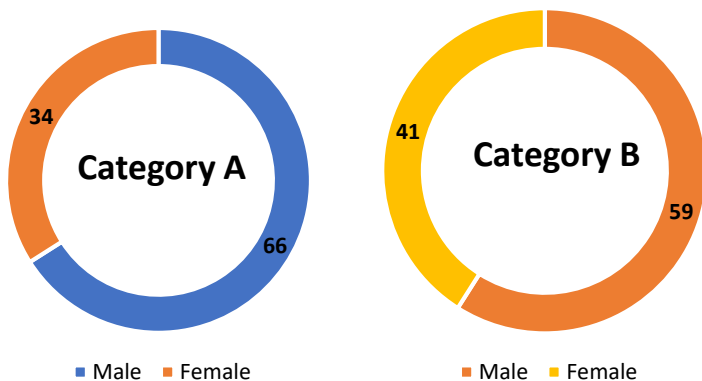
Result and Discussion

Socio-Demographic Details of the Respondents

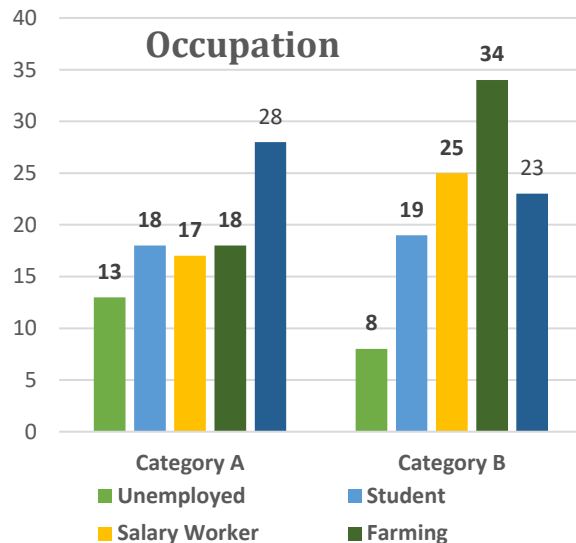
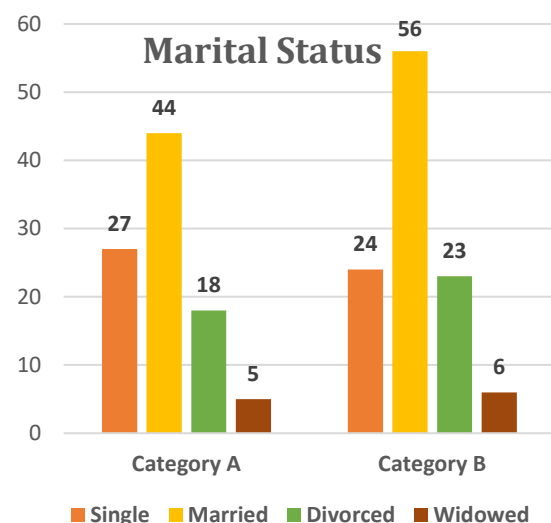
The socio-demographic details of the respondents (Category A and Category B) were analysed and presented in Figure 1. With Category A, most of the respondents are male (66.0%), 30 – 40 years (37.2%), and 46.8% of the respondents are married. Furthermore, the analysis revealed that 31.9% of the respondents have attained secondary and tertiary levels of education. The finding showed that 29.8% of the respondents are traders, have lived in the environment between 4-6 years (27.7), and earned a monthly income between 50,001 to 80,000 (50.0%). For Category B, most respondents are male (58.7%) within the age group of 30 - 40 years (44.0%) and married (51.4%) with secondary level education (41.3%). Furthermore, most respondents are farmers (31.2%) who have lived in the environment between 7 – 9 years (41.3%) with monthly income between 50,001 to 80,000 (78.0%).

Socio-Economic Impact of Abattoir Activities on the Nearby Residents

The respondent’s perception of the socio-economic impact of abattoir activities on the nearby residents was examined and presented in Table 1. The outcome revealed that respondents agreed that infrastructure and facilities in the abattoir are obsolete and inadequate to provide for hygienic slaughtering, handling and storage of meat (Category A: 51.1%, Mean = 3.48; Category B: 67.4%, Mean = 3.72 ) and the abattoir environment is unsightly, and odour from its operations attracts flies, mosquitoes, rodents and other disease vectors which cause nuisance in the neighbourhood (Category A: 62.8%, Mean = 3.60; Category B: 68.8%, Mean = 3.86). On the hand, the respondents disagreed that the improper channelling of wastewater causes land to become marshy/muddy in and around abattoir premises (Category A: 53.2%, Mean = 2.96; Category B: 52.3%, Mean = 2.19), the activities of the abattoir have reduced the value of the residential properties (Category A: 72.4%, Mean = 2.75; Category B: 55.0%, Mean = 2.40) and the activities of the abattoir is causing physical deterioration to our environment and property (Category A: 70.2%, Mean = 2.64; Category B: 56.0%, Mean = 2.41).The overall mean on the perception of the socio-economic impact of abattoir activities among Category A respondents was 3.08, indicating that the respondents agreed with various variables representing the socio-economic impact of abattoir activities. The overall mean on the perception of the socio-economic impact of abattoir activities among Category B respondents was 2.91, indicating that the respondents disagreed with various variables representing the socio-economic impact of abattoir activities.



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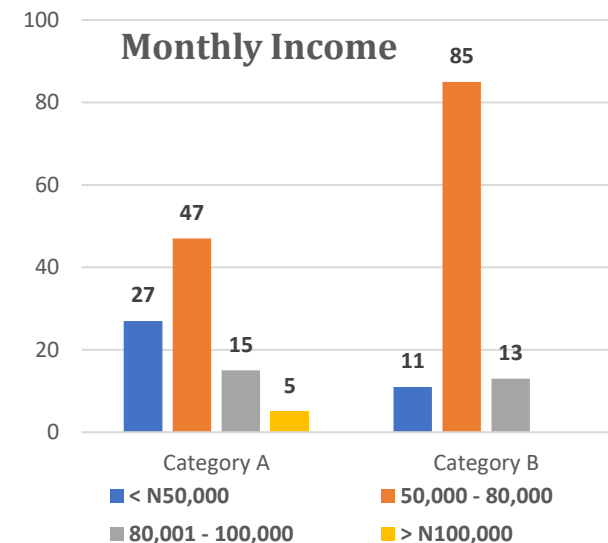


Figure 1: Socio-Demographic Details of the Respondents

Table 1: Socio-Economic Impact of Abattoir Activities on the Nearby Residents

SN	Social-Economic Impact Assessment (SIA)	Category A					Category B				
		U	D	A	Total	Mean	U	D	A	Total	Mean
1	Infrastructure and facilities in the abattoir are obsolete and inadequate to provide for hygienic slaughtering, handling and storage of meat	10 (10.6)	36 (38.3)	48 (51.1)	<b>94</b> <b>(100)</b>	3.48	5 (4.6)	36 (33.1)	68 (67.4)	<b>109</b> <b>(100)</b>	3.72
2	The abattoir environment is unsightly, and odour from its operations attracts flies, mosquitoes, rodents and other disease vectors, which cause a nuisance in the neighbourhood.	11 (11.7)	24 (25.5)	59 (62.8)	<b>94</b> <b>(100)</b>	3.60	9 (8.3)	25 (23.0)	75 (68.8)	<b>109</b> <b>(100)</b>	3.86
3	Improper channelling of wastewater causes land to become marshy/muddy in and around abattoir premises	11 (11.7)	50 (53.2)	33 (35.1)	<b>94</b> <b>(100)</b>	2.96	5 (4.6)	57 (52.3)	47 (43.2)	<b>109</b> <b>(100)</b>	2.19
4	The activities of the abattoir have reduced the value of the residential properties	7 (7.4)	68 (72.4)	19 (20.2)	<b>94</b> <b>(100)</b>	2.75	8 (7.3)	60 (55.0)	41 (37.6)	<b>109</b> <b>(100)</b>	2.40
5	The activities of the abattoir are causing physical deterioration to our environment and property	10 (10.6)	66 (70.2)	18 (19.2)	<b>94</b> <b>(100)</b>	2.64	3 (2.8)	61 (56.0)	45 (41.3)	<b>109</b> <b>(100)</b>	2.41
Overall Mean						<b>3.08</b>					

Mean Interpretation: 0.1 – 1.9 (Neutral), 2.0 – 2.9 (Disagreed) and 3.0 – 3.9 (Agreed)

Key: U-Undecided, D-Disagreed (Strongly Disagreed + Disagreed), A-Agreed (Strongly Agreed + Agree)

The respondent's perception of the socio-economic impact of abattoir activities indicated that infrastructure and facilities in the abattoir are obsolete and inadequate to provide for hygienic slaughtering, handling and storage of meat, the abattoir environment is unsightly, and odour from its operations attracts flies, mosquitoes, rodents and other disease vectors which cause nuisance in the neighbourhood. The findings share similarities with the study conducted by Orunoye (2015), which reported overstretching and deterioration of the facility and poor waste disposal at the studied abattoir. Similarly, Ekpo (2019) suggested upgrading the abattoir with modern infrastructures and facilities in the studied area. The respondents, on the other hand, indicated that the abattoir has an effective wastewater channel that prevents land from becoming marshy/muddy in and around abattoir premises, the activities of the abattoir have not reduced the value of the residential properties and no physical deterioration to the environment and property.

Considering these findings from the perspective of Category A and B, it was observed that the overall response of the respondents in Category A agreed with the variables on the socio-economic impact of abattoir activities, while the overall response of Category B respondents disagreed with variables on the socio-economic impact of abattoir activities. This indicates the difference in perception of the impact of abattoir activities based on distance awareness from the abattoir. This finding corroborated the finding of Olawuni et al. (2017), which established that the farther the location of the residences to the abattoir, the lesser the degree of the impact. A similar finding was reported in the study conducted by Ogbuehi et al. (2022), which indicated a difference in the level of impact on individuals away from the dumpsites. The finding shares a similar outcome with the study conducted by Singh et al. (2021) and Chowti et al. (2018), which reported different levels of impact among the households studied.

## Conclusion

The focus on the socio-economic impact of abattoir activities is, first and foremost, an aid for decision-making towards the influence of anthropogenic activities on the environment and the need for sustainable practices. Through a perception study of the socio-economic impact, the study concluded that the operation and activities of the abattoir have attracted flies, mosquitoes, rodents and other disease vectors, which cause a nuisance to the nearby community. However, the activities of the abattoir have not reduced the value of the residential or caused physical deterioration to their property. Therefore, abattoirs should be sited far away from the living environment, and environmentally sustainable practices should be considered during the establishment.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Credit Authorship Contribution Statement

**Ibegbu, C.O.:** Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data curation, Visualization, Project administration, Writing - original draft. **Osuji, L.C** and **Obafemi, A.A.:** Supervision, Methodology, Validation, Formal analysis, Data curation, Visualization, Review & Editing.

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