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Challenges of Slaughter Slab Management in Hong Local Government Area of Adamawa State

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Abstract

Slaughter slabs are essential facilities for processing animals intended for human consumption; however, poor management can compromise meat safety, environmental sanitation, and public health. This study investigated the challenges of slaughter slab management in Hong Local Government Area of Adamawa State, Nigeria. A survey research design was adopted, using random sampling to select 100 respondents. Primary data were collected through structured questionnaires and focus group discussions, while secondary data were obtained from journals, proceedings, textbooks, brochures, and manuals. The data were analyzed using descriptive statistics, including tables, means, frequencies, and percentages. The findings indicate that poor administrative structure undermines the quality and safety of meat produced in the slaughter slab. In particular, the absence of adequate meat inspection raises serious concerns regarding meat safety and consumer health. The study further revealed that poor sanitary conditions within the slaughter slab environment negatively affect workers, users, nearby residents, and host communities,

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increasing their exposure to waterborne disease risks. The study concludes that effective slaughter slab management requires improved administrative oversight, sanitary infrastructure, and routine health supervision. It recommends that the local government provide adequate waste disposal facilities, appoint health personnel to supervise meat-processing practices, and educate butchers on hygienic meat handling, processing, and packaging. These findings contribute to public health and environmental management discourse by highlighting the need for stronger institutional support and hygiene-based governance in local slaughter slab operations.

Keywords: Slaughter Slab Management; Meat Safety; Hygiene Practices; Waste Disposal; Public Health

INTRODUCTION

An abattoir or slaughter house is a place where animals are slaughtered or killed for human consumption (Lawan *et al.*, 2018). Adequate and proper abattoir slaughter slab operations such as ante- mortem inspection, slaughtering, bleeding, evisceration, post-mortem inspection, and waste disposal are important in the production and supply of wholesome meat for human consumption (Alhaji and Bawa, 2016). Lack of standard facilities coupled with no adherence to good manufacturing practices, good hygienic practices and sanitary practices in abattoirs and slaughterhouses in developing countries, especially in Nigeria, were attributed to meat contamination and poor waste disposal with resultant effects on the environmental and human health in general (Okolocha *et al.*, 2018). Poor handling of meat, selling and consumption of poor-quality products constitute grave health risks to the country, which is evident in different segments of the country's livestock industry (Yakubu *et. al.*, 2019).

In most slaughter slab, operating facilities are absent; there are also lack of sewage and waste disposal systems, no provision of potable water, no cold storage system and toiletry facilities for staff and workers (Opara *et al,* 2019). Slaughter slab operations result in the generation of numerous waste and microbial organisms that pollutes the environment and pose serious threat to human health and quality of life. The numerous wastes produced by abattoir operation not only pose a significant challenge to effective environmental management but also are associated with decreased air quality of the environment, potential transferable antimicrobial resistance patterns, and several infectious agents that can be

pathogenic to human (Fearon *et al*., 2019). So many studies exist in the literature which have documented a variety of contaminants, microbial agents and health effects in those occupationally or accidentally exposed to improperly managed abattoir waste (Adelegan, 2016). Wrongful discharge of blood and animal faeces into streams may cause oxygen-depletion as well as nutrient over enrichment of the river system which could cause increased rate of toxin accumulation (Nwachukwu, 2014). Komba *et al*., (2017) reported that the ground water quality in vicinity of the abattoirs were adversely affected by seepage of abattoir effluents as well as water quality of receiving stream that was located away from the abattoirs affect the health of the dwellers. Winamo (2017) also reported that waste that is not properly managed especially excreta and other liquid and solid waste from abattoirs and communities are of serious health hazard and lead to the spread of infectious diseases.

A fitting architectural design and appropriate administrative structure is key to safety of abattoir and meat products. For example, in some abattoirs, the whole cycle of operation takes place in the same room as the case is with the facility in this case study. The safety of meat produced under this kind of condition is undoubtedly questionable (Joseph, 2017). An ideal abattoir design should contain a lairage, the slaughter hall, a gut and tripe room, detained and condemned meat rooms, offal as well as hide and skin rooms, cold room, supply of both hot and cold water, a lavatory, a veterinary laboratory, personnel room, incinerator, supply of disinfectants, efficient waste disposal and sewage draining systems, supply of potable water and electricity. This, therefore, has a direct impact on the quality of products produced therein as it may encourage or discourage contamination and cross-contamination of products (Fasanmi, 2016).

A poor administrative structure, however, sabotages the quality of meat produced in slaughter slab, for example, an appropriate administration must include a meat inspector, lack of which poses a question of meat safety and seriously jeopardizes the health of consumers. Slaughter slab serve as surveillance points for animal diseases and control of animal-human transmission of diseases, hence the need for hygienic practices and careful examination of meat prior to retailing in these facilities. One of the key requirements in slaughter slab practice is sanitation (Elder, 2013) due to generation of wastes during and after daily operations in the slaughter slab, which need to be carefully handled to avoid risk of potential danger or meat-borne infectious diseases reaching the public or contaminating the environment. This study will be of immense benefit to other researchers who intend to know more on this study and can also be used by non-researchers to acquaint themselves

on slaughter slab management work. The study will also serve in the provision of base line data to be used in the development of management plan for Hong slaughter slab.

MATERIALS AND METHODS

Study area

The study area is Hong Local Government Area. Hong is both a town and a local government area headquarter in Adamawa State, Nigeria, it coordinates: 10° 13` 54`` N 12° 55` 49`` E. The local government area falls under Adamawa Central Senatorial District and Gombi/Hong Federal Constituency. It has 12 political wards that are subdivided into two State Constituencies which are Hong and Uba/Gaya Constituencies, with each constituency having six wards. Hong Constituency comprises of Bangshika, Daksiri, Hong, Husherizum, Shangui and Thilbang ward. Uba/Gaya Constituency comprises of Garaha, Gaya, Hildi, Kwarhi, Mayo-lope and Uba ward. Hong is the home of the Adamawa State owned College of Education. The districts in the area include Dugwaba, Gaya, Hildi, Hong, Kulinyi, Pella and Uba. (Adebayo and Tukur, 2020). The major preoccupations of people of Hong local government area includes farming, trading, rearing of domestic animals etc. with considerable number of civil/public servants. The people are adherents of Islam, Christianity and some practices traditional religion. Hong local government is occupied by the Kilba and pockets of some other ethnic groups such as Fulani, Margi etc. (Adebayo and Uyi, 2018)

Data Collection Method

The Study made used of both primary and secondary source of data.

Research Design

This research was design to study the challenges of slaughter slabs management in Hong Local Government Area of Adamawa State. A survey research was used to collect data from respondents using questionnaire method and direct observation as describe by (Kontoleon and Pascual, 2017).

Sample and Sampling Techniques

Random sampling method was used to obtain information from the respondents. A total of 100 respondents were interviewed using structured questionnaire for the purpose

of this study. Focus group discussion method was also used to obtained information for the study.

Data Analysis

Data for this study was analyzed using descriptive statistics such as means, table and frequency distribution.

RESULTS

Table 1 below shows that 29 (29.0%) of respondents agreed that the Slaughter slab infrastructure facilities are outdated and insufficient to ensure hygienic slaughtering, handling and storage of meat while 51 (51.0 %) strongly agreed, 11 (11.0 %) strongly disagreed and 9 (9.0 %) disagreed. 20 (20.0 %) agreed that meat, odor from the Slaughter slab activities attracts files, mosquitoes, rodents and other disease vectors. causing a nuisance in the neighborhood while 50 (50.0 %) strongly agreed, 8 (8.0 %) strongly disagreed and 22 (22.0 %) disagreed. 25 (25.0 %) agreed that Land in and near Slaughter slab become marshy / muddy due to improper waste water channeling while 57 (57.0 %) strongly agreed, 10 (10.0 %) disagreed and 8 (8.0 %) strongly disagreed. The table also shows that, 50 (50.0 %) agreed that the method of roasting and removing of hides from slaughter animals pollute air, water and land while 33 (33.0 %) strongly agreed, 7 (7.0 %) disagreed and 10 (10.0 %) strongly disagreed.

Table 1: The Slaughter slab infrastructure and facilities are outdated and insufficient to ensure, hygienic in the study area.

S/N	Characteristics					
	VARIABLES	Opinion/Frequency A	SA	D	SD	Total
i.	The Slaughter slab infrastructure and facilities are outdated and insufficient to ensure hygienic slaughtering, handling, and storage of meat.	29(29%)	51(51%)	9(9%)	11(11%)	100(100%)
ii	The odor from the Slaughter slab activities attracts files, mosquitoes, rodents and other disease vectors, causing a nuisance in the neighborhood.	20(20%)	50(50%)	22(22%)	8(8%)	100(100%)
ii	Land in and near Slaughter slab become marshy /muddy due to improper waste water channeling.	25(25%)	57(57%)	10(10%)	8(8%)	100(100%)
iv	Method of roasting and removing of hides from	50(50%)	33(33%)	7(7%)	10(10%)	100(100%)

	slaughter animals pollute air, water. and land.				

Table 2 below shows that 30 (30.0 %) agreed , 55 (55.0 %) strongly agreed that environment around the Slaughter slab is characterized by highly pungent odor and no waste is treated before discharge into the environment while 7 (7.0 %) disagreed and 8 (8.0 %) strongly disagreed. 28 (28.0 %) agreed that the Slaughter slabs lairage is insufficient and not hygienically maintained while 53 (53.0 %) strongly agree, 13 (13.0 %) disagreed and 6 (6.0 %) strongly disagreed with the statement. 24 (24.0 %) agreed that daily sanitary and animal inspection are not adequately carried out in the Slaughter slab while 51 (51.0 %) strongly agree, 12 (12.0 %) disagreed and 13 (13.0 %) strongly disagreed.

Table 2: Odor in Slaughter slab environment, poor lairage maintenance and daily sanitation the Study Area

S/N	VARIABLES	Opinion/Frequency (%)				Total
		A	SA	D	SD	
	Environment around the Slaughter slab is characterized by highly pungent odor: no waste is treated before discharge into the environment.	30(30.0%)	55(55%)	7(7%)	8(8%)	100(100)
	The Slaughter slabs lairage insufficient and not hygienically maintained	28(28%)	53(53%)	13(13%)	6(6%)	100(100)
	Daily sanitary and animal inspection are not adequately carried out in the Slaughter slab	24(24%)	51(51%)	12(12%)	13(13%)	100(100)

Table 3. The result shows that 25 (25.0 %) agreed that workshops and seminars on environmental education on negative effects of poor management of Slaughter slab are irregular, 61 (61.0 %) strongly agreed, 9 (9.0 %) disagreed and 5 (5.0 %) strongly disagreed. 33 (33.0 %) agreed that the Health of residents who are neighbors to Slaughter slab are in danger and high risk of outbreak of water borne diseases, 55 (55.0 %) strongly agreed, 9 (9.0 %) disagreed and 3 (3.0 %) strongly disagreed. 31 (31.0 %) agreed that due to unhygienic nature of activities of slaughter slap disposal of wastes in slaughter slab is dangerous to people, other earthbound and aquatic live, 56 (56.0 %) strongly agreed, 7 (7.0 %) disagreed and 6 (6.0 %) strongly disagreed.

Table 3: Lack of workshops, seminars on environmental effect of poor management of slaughter slab, health risk of residents and impact waste disposal in slaughter slab

S/N	VARIABLES	Total

	Opinion/Frequency (.)				
	A	SA	D	SD	
Workshops and seminars on environmental education on negative effects of poor management of Slaughter slab are irregular.	25(25%)	61(61%)	9(9%)	5(5%)	100(100)
Health of residents who are neighbors to Slaughter slab are in danger and high risk of outbreak of water borne Diseases.	33(33%)	55(55%)	9(9%)	3(3%)	100(100)
Due to unhygienic nature of activities of slaughter slap disposal of wastes in slaughter slab is dangerous to people, other earthbound and aquatic live.	31(31%)	56(56%)	7(7%)	6(6%)	100(100)

Table 4 shows that 23 (23.0 %) agreed that the wastes produced by Slaughter slab operations are associated with several infectious diseases, 57 (57.0 %) strongly agreed, 11 (11.0 %) disagreed and 9 (9.0 %) strongly disagreed. 27 (27.0 %) agreed that the level of prevalence of infestation of mosquitoes, flies and other vectors is more predominant on workers and residents around the Slaughter slab which in turn has impact on their health while 55 (55.0 %) strongly agree, 10 (10.0 %) disagreed and 8 (8.0 %) strongly disagreed. 23 (23.0 %) agreed that residents of slaughter slab are infested by flies and mosquitos with varying degrees as per distance, 57 (57.0 %) strongly agreed, 14 (14.0 %) disagree and 6 (6.0 %) strongly disagreed.

Table 4: Infestation by flies and mosquitos to residence, impact of waste produced by slaughter slab operation and level of prevalence of infection of mosquitoes, flies and other vectors is more predominant on workers and residents has negative impact on their health

S/N	VARIABLES	Opinion/Frequency				Total/ (%)
		A	SA	D	SD	
	Wastes produced by Slaughter slab operations are associated with several infectious Diseases	23(23%)	57(57%)	11(11%)	9(9%)	100(100)
	Level of prevalence of infestation of mosquitoes, flies and other vectors is more predominant on workers and residents around the Slaughter slab which in turn has impact on their health.	27(27%)	55(55%)	10(10%)	8(8%)	100(100)
	Residents of slaughter slab are infested by flies and mosquitos with varying degrees as per distance.	23(23%)	57(57%)	14(14%)	6(6%)	100(100)

Table 5 shows that 17 (17.0 %) agreed that Odor emissions from Slaughter slab could cause eye, nose and throat irritation, nausea, cough, bronchitis, shortness of breath, stress drowsiness and alteration of mood, 61 (61.0 %) strongly agreed, 15 (15.0 %) disagreed and 7 (7.0 %) strongly disagreed. 23 (23.0 %) agreed that Slaughter slab operations could be associated: with incessant infection of residents with typhoid, malaria and diarrhea, 59 (59.0 %) strongly agree, 12 (12.0 %) disagreed and 6 (6.0 %) strongly disagreed.

Table 5: Effects of odor emission from Slaughter slab operations.

S/N	VARIABLES	Opinion/Frequency				Total
		A	SA	D	SD	
	Odor emissions from Slaughter slab could cause eye, nose and throat irritation, nausea, cough, bronchitis, shortness of breath, stress drowsiness and alteration of mood.	17(17%)	61(61%)	15(%)	7(%)	100(100)
	Slaughter slab operations could be associated: with incessant infection of residents with typhoid, malaria and diarrhea:	23(23%)	59(59%)	12(12%)	6(6%)	100(100)

DISCUSSION

The result reveals the challenges to slaughter slab management in Hong local government area of Adamawa State. It depicted that 51 % of respondents strongly agreed that the Slaughter slab infrastructure facilities are outdated and insufficient to ensure hygienic slaughtering, handling and storage of meat, 50 % strongly agreed that meat, odor from the Slaughter slab activities attracts flies, mosquitoes, rodents and other disease vectors causing nuisance in the neighborhood. These finding are in concurrence with the result obtained by Adesemoye *et al*., (2016) on the Microbial content of abattoir waste water and its contaminated soil in Lagos, Nigeria. 57 % strongly agreed that land in and near Slaughter slab become marshy / muddy due to improper waste water channeling. It also shows that 50.0 % agreed that the method of roasting and removing of hides from slaughtered animals pollute air, water and land, these results also agreed with the works of

Akpabio *et al.*, (2018) on the assessment of facilities and slaughter practices in Aba abattoir in Abia state, Nigeria.

The study again disclosed that 55.0 % strongly agreed that environment around the Slaughter slab is characterized by highly pungent odor and no waste is treated before discharge into the environment, 53.0 % also strongly agreed that the Slaughter slabs lairage is insufficient and not hygienically maintained. Additionally 51.0 % strongly agreed that daily sanitary and animal inspection are not adequately carried out in the Slaughter slab these results resonate what was obtained by Aniebo *et al.*, (2019) on blood waste generation and it's environmental implication in River state and its Environs, Nigeria

Furthermore the study disclosed that 61.0 % strongly agreed that workshops and seminars on environmental education on negative effects of poor management of Slaughter slab are irregular, 55.0 % strongly agreed that the Health of residents who are neighbors to Slaughter slab are in danger and high risk of outbreak of water borne diseases these findings are in line with the result of Tabukun *et.,al* (2020) on evaluation of slaughter house waste in south west Nigeria. 56.0 % strongly agreed that due to unhygienic nature of activities of slaughter slap disposal of wastes in slaughter slab is dangerous to people, other earthbound and aquatic live, these findings agreed with results obtained by Richard *et al.*, (2018) on Occurrence and antibiogram of Salmonellae in effluent from Nsukka Municipal abattoir, Nigerian

57.0 % strongly agreed that the wastes produced by Slaughter slab operations are associated with several infectious diseases, 55.0 % strongly agreed that the level of prevalence of infestation of mosquitoes, flies and other vectors is more predominant on workers and residents around the Slaughter slab which in turn has impact on their health these results are in line with the findings of Daramola and Olowoporoku (2017) on Living with a fatal choice, the effect of slaughter slab activities on residents health in Osoghbo, Nigeria while 57.0 % strongly agreed that residents of slaughter slab are infested by flies and mosquitos with varying degrees as per distance

The study also revealed that 61.0 % strongly agreed that Odor emissions from Slaughter slab could cause eye, nose and throat irritation, nausea, cough, bronchitis, shortness of breath, stress drowsiness and alteration of mood which is also similar to what was obtained by Nwata *et al.*, (2019) on the analysis of Nsuka metropolitan abattoir solid waste and bacterial contents in south eastern Nigeria. 59.0 % agreed that Slaughter slab

operations could be associated: with incessant infection of residents with typhoid, malaria and diarrhea which is also in line with the findings of Bikom *et al.*, (2017) on the Bacteriological studies of bovine granulomatous lesions in Cross River State abattoirs, Nigeria.

CONCLUSION

Operations of slaughter slab in Hong L.G.A are not environmentally friendly, and pose serious health and environmental challenges to the residents. The establishment and management of slaughter slab and waste is supposed to be a social service by the various tiers of government and the community because of its health implication on the general public.Unfortunately, the slaughter slab are one sector that has not attracted the attention of the government over the year probably as a result of the perceived low revenue generation in the sector. The findings from this study shows that despite the inherent dangers associated with slaughter slap waste in the study area, it present numerous economic opportunities for providing employment opportunity, increasing agricultural production etc. There is therefore, the need to scale up the present local uses of the slaughter slab waste through empowerment of the local people and enlightenment campaign.

Recommendations

The following recommendations were made from the research finding:

i. **T**he local governments should regularly support the slaughter slab with waste disposal facilities.

ii. The local governments should appoint some health facilities workers to supervise and implement a proper way of processing meat.

iii. The local governments should institute monthly awards for the neatest slaughter slab in the area.

iv. The local governments should make an effort to recycle the hides and skin or bones obtained from the slaughter slab.

v. Flies should be avoided by using nets to cover the area where the animals killed are ready for sale.

vi. The butchers should be educated through the media to make sure their environment is safe for meat processing and packaging.

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