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HEALTH AND ENVIRONMENTAL PROBLEMS OF SLAUGHTERHOUSE WASTE

Sangeetha P G

Assistant Professor of Economics,
Sri C Achuthamenon Government College Thrissur, India

Abstract: WHO defines that “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. The state of human health in a region not only depends on the number of doctors and hospital facilities but also on a clean environment. The term environment means that surrounding space and all materials in it which affect an organism. It includes all the physical and biological surrounding and their interactions. Environmental health as defined by WHO comprises those aspects of human health, including the quality of life, that are determined by physical, chemical, biological, social and psychological factors in the environment. Waste is an unavoidable by-product of most of the activity. Due to rapid urbanization, the food habits of the people changed drastically towards animal protein content food items which led to the increased consumption of meat. Besides this the income and price elasticity of animal protein foods are very high this resulted growing rate of slaughtering of animals in India. Per capita annual increase in meat consumption, high meat export potential, large non-utilization of potential meat and lack of by product utilization etc. leads to many problems and constraints.

Index Terms - Slaughterhouse, wastage, environment

1. INTRODUCTION

Livestock sector is one of the most important components of agriculture in India, which constitutes major source of livelihood to more than seventy percent of the population. India's livestock sector is one of the largest in the world. As per the 19th Livestock Census 2012 among the total livestock 37.28 percent were cattle, 21.23 percent buffaloes, 12.71 percent sheep, 26.40 percent goats and 2.01 percent pigs. But per the 20th Livestock Census the total livestock population in India is 535.78 million showing an increase of 4.6 percent over Livestock Census 2012. It has 56.7 percent of world's buffaloes, 12.5 percent cattle, 20.4 percent small ruminants, 2.4 percent camel, 1.4 percent equine, 1.5 percent pig and 3.1 percent poultry. Rapid industrialization and the resultant urbanization has resulted a drastic change in culinary habits of the people all over India both in urban and rural areas. Traditional foods are replaced mostly by processed fast foods, which greatly reduce preparation time, labour, cost and energy unlike the traditional way of cooking. It resulted a shift from cereal based food to diversified and protein rich diet among the consumers. As a result the meat and meat based food consumption has greatly increased in last couple of years. So in order to meet the growing demand of the people, slaughtering of animals are also increased recently in all over the world. As reported by the Ministry of Food Processing in 2003, the country has a total of around 3600 recognized slaughterhouses, 9 modern abattoirs and 171 meat processing units slaughtering over 121 million cattle including sheep, goat, pigs, and poultry and 36.9 million buffaloes annually for domestic consumption and for export purpose. Beyond these recognized slaughterhouses, there are thousands of unauthorized slaughterhouses working mainly on roadside without proper sanitary inspection. Mostly small animals, sheep and goat are slaughtered in unregistered slaughterhouses, the proportion of animals slaughtered in modern abattoirs is very low.

When an animal is slaughtered its edible part for consumption is only fifty to sixty percent and while the remaining portions, including blood, skin, offal, viscera, etc. are generated as waste material.

Although lung and digestive organs are partially utilized, remaining parts such as blood, excreta, feet etc. are mostly throw away or deposited in the nearby area. This problem is severe in small towns and villages of our country, where there is lack of even proper slaughter facilities. Most of the times, animals are slaughtered on roadside or in temporary shed without sufficient facilities. This method of slaughtering accounts for more than eighty five percentage of total meat produced in India, which generate enormous quantity of hazardous waste daily

II.SIGNIFICANCE OF THE STUDY

Environment and health are key issues of contemporary importance. Environmental disasters impacting the health of living beings are of immediate concern. One important source of environmental and health problem is poorly managed slaughterhouses. Allegations about such slaughters are plenty in Thrissur, Kerala. The slaughter house in question is one at Kuriachira. Galore of complaints and agitations on bad smell, pollution of ground water, fly menace, diseases and others prompted this researcher for a field visit. That field visit proved the mettle of popular resentment and struggles against the slaughter house. Slaughter house suffer from very low hygiene standard posing a major public health and environmental hazards due to discrete disposal of waste and highly polluted effluent discharge. Further the situation witnessed impelled this researcher to venture in to a deeper study for better understanding and problem solving recommendations and suggestions.

III.OBJECTIVES

- To examine the environmental problems of slaughtering in the study area
- To analyze the health problems of the stakeholders.

IV.MATERIALS AND METHODS

The present study is relied upon both categories of data:primary and secondary..For this purpose the researcher selected 60 households residing near the prescribed slaughterhouse and information collected through a questionnaire.Secondary data have been used to understand the statistics of slaughtering in registered and unregistered slaughterhouses in Kerala.Main sources of secondary data are the publications of Department of Economics and Statistics, Department of Animal HusbandryLivestock Census,Publications and Reports of Governments and Departments,Corporation etc.The methodology adopted for studying the different aspects related to waste management in the prescribed slaughterhouse and its effects on stakeholders is direct interview method.The researcher also conducted case study from the locality to share the experience to understand problems they faced related with the slaughterhouses as a part of qualitative study. **ANALYSIS AND**

V.DISCUSSION

India has been exporting meat and other livestock products since 1970's. The annual exports were around 2000 tons in the year 1973-73, which increased to 60,000 tons by the year 1987-88 and now they are close to 3,00,00 metric tons. The Government set up an autonomous authority by an Act of Parliament in the year 1986, named the Agriculture and Processed Food Products Export Development Authority (APEDA), which gives capital assistance to the meat industry and also helps Indian meat exporters in marketing their products abroad. Without government support no industry can utilize all its potential for further development. So government of India put keen interest in the development of this sector and Government patronage to this sector started in the year 1992-93.This sector acquired its growth momentum when the Government declared meat exports a 'thrust area' for earning foreign exchange. Ever since 1992-93, the Government is aggressively pushing up meat exports of our country by providing financial assistance to the meat exporting industries like subsidies and incentives, besides various administrative reliefs. Even when other industries were in the shackles of bureaucratic controls, meat exports were freed from licensing controls. A new Ministry called Ministry of Food Processing Industry was created by the Central Government to look after the needs of the processed foods industry, including meat processing.

However, the global competency of our meat and meat related products has not improved considerably both in terms of quality and quantity. In qualitative aspect we can't able to produce hygienic meat because we does not have modern abattoir with sufficient infrastructural facilities .Most of the slaughtering in India takes place at slaughterhouses without even basic amenities. More scientific organization and setting up of processing units of byproducts of this sector will create more employment opportunities and generate more income. One of the major concern on the slaughterhouses in our country

is the magnitude of environmental pollution and health hazards from the waste generated during slaughtering operations.

SLAUGHTERING IN INDIA

As reported by Ministry of Food Processing in 2003, the country has a total of around 3600 recognized slaughterhouses, 9 modern abattoirs and 171 meat processing units slaughtering over 121 million cattle (sheep, goat, pigs and poultry) and 36.9 million buffaloes annually for domestic consumption as well as for export purpose. (Report of Ministry of Food Processing Industries: 2003). Subjects of slaughtering of animals and related activities are governed as state subjects under the provision of Article 48 of the Constitution of India

Table: 1 Number of animals slaughtered in India for meat production in 2021-22

Species	Number
Cattle	2.73 million
Buffalo	12.94 million
Sheep	69.56 million
Goat	111.32 million
Pig	8.88 million
Poultry	3.06 billion

(Source: Animal Husbandry Statistics 2021)

Meat production sector in India contributes to food security and nutrition by providing a source of protein for many people. This sector holds significant economic importance in matters of employment, export earnings and contribution to GDP. From the data we can see the number of animals slaughtered which also meant that the waste generated also increases alarmingly. In a slaughterhouse there are so many waste generated some wastes are reused as by products

QUANTITY OF WASTE

The high rate of meat production in the state is a positive indicator showing source of addition to the income of the state but it indirectly aggravate the problem of pollution since majority of abattoir in the state lagging its basic infra structural facilities.

Table 2: Waste generated per cow/cattle

Waste category	Cow/cattle
Blood/Head(kg)	12.6
Intestinal content/Head(kg)	8.0
Waste Tissue /head(kg)	6.4
Bone/Head(kg)	11.8

(source: Anieboet *al.*, 2011)

The data estimating the abattoir effluent when a cattle is slaughtered the waste generated per cattle is expressed in the table. Only around fifty percent of the carcass of the animal are considered as edible and the remaining part as waste.

HEALTH AND ENVIRONMENTAL PROBLEMS RELATED TO UNAUTHORISED SLAUGHTERHOUSE

The changes in environment induced by human activities resulted so many negative impact on human health. So environment related issues that affect our health is one of the subject with contemporary importance. Pollution of environment is very crucial in recent years with the industrialization and the resultant urbanization. With the changes in the production and consumption pattern of human beings resulted discharge of polluted materials to our environment? One of such hazardous waste is produced in the meat and meat related industries. Slaughtering of animals and related activities considered as state subjects which included in the provisions of Article 48 of the Constitution of India. Since it is a state subjects the rules and regulations regarding this matter vary from state to state, which influenced by the existing religious, political and social conditions of each states. The above said constraints exists in most of the states with varying degrees.

Most of the abattoirs in India do not have proper infra structural facilities for effective wastetreatment The number of mechanized slaughterhouses in India is very low and majority of the slaughtering processes done in unauthorized slaughterhouses without even sufficient infrastructural facilities. In that sense abattoir is a nucleus place for release of various contaminated materials, waste products, condemned carcasses and obnoxious odours. In majority of the slaughterhouses scientific slaughtering of animals is not adopted instead they use traditional and brutal method. All these contribute to the environmental pollution and public

health hazards. The lack of good manufacturing and good hygiene practices at the time of slaughtering also aggravate the environment and health problems in the slaughterhouses and its negative effects spread to the nearby areas of the slaughterhouses .

The slaughterhouses without sufficient infrastructural facilities producing air, soil, and water pollutants as well as breeding place of flies and other disease vectors. For hygienic reasons abattoirs use large amount of water in processing operations; this produces large amount of wastewater also. One of the major environmental problem associated with the abattoir was wastewater with large amount of suspended solids and liquid waste .The problem of waste water become very acute particularly in the rainy seasons since it is flowing in to the open spaces.The unhygienic disposal of slaughterhouse waste thus cause potential health problems.The unscientific disposal of waste of the slaughterhouses cause oxygen depletion which may cause toxin accumulation . It may associated with every steps like transportation, handling of waste ,processing etc.Abattoir effluents carry a variety of pathogens like salmonella ,bacillus ,clostridium etc.that directly or indirectly affect human health. The health problems arise also due to the existence of carriers of microorganisms like rats,flies mosquitoes,cockroaches etc.in the slaughterhouses .The major diseases associated with slaughterhouse waste are Typhoid ,Malaria,Dengue fever,,Amoebiasis,Murine Typhus, Leishmaniasis etc. The unscientific disposal of waste pollutes the environmental components which cause deterioration of both rural and urban landscapes. The most serious impact on the environment is the pollution of surface and groundwater. In many slaughterhouses the untreated liquid wastes disposed in to main water streams causes lowering the level of dissolved oxygen and increasing the levels of microorganisms in water. It also deteriorates the water - air quality, the wind borne dust carry harmful microorganisms that cause respiratory problems, , eye and nose irritation particularly to the stakeholders nearest to the slaughterhouses .

VI.FINDINGS

In order to understand the environmental problems among the stakeholders residing in the nearby areas of the slaughterhouses which is the first objective of the present study an interview is conducted with the neighboring area of the slaughterhouse. The interview also aimed to understand the socio economic conditions of the people .For this purpose 60 households selected as sample and use the percentage method to analyze the data .Out of the total 60 respondents were interviewed and 10percent of them not educated 46.6percent of them were attained high school education,30percent of them higher secondary school education and 13.33percent of them were got education higher than higher secondary level. 53.33percent of them were employed and 40percent of them were self-employed and 6.67percent of them were unemployed. Out of the 60 respondents interviewed 30percent felt that surrounding area was dirty and 65 percent felt that area was suffer from foul smell and 5percent were not responded.. Out of the total respondents 56.67percent were opines that it create some health problems to the residents of the area , 30percent of them were think that it is a breeding place for flies and insects ,13.33percent of them were opines that it create noise pollution.

In this study the second objective is to find out the major health problems faced by the stakeholders related to the existing slaughterhouse . From the primary survey it is understand that there are so many health problems has been suffered by the people residing near the slaughterhouse. Majority of them were aware that the health problems they suffer is mainly due to the existence of the nearby slaughterhouse itself and many of them were the frequent visitors of the community health center in Kuriachira .From the survey it is found that 63.34percent people were suffering from skin problems. 13.33 percent from allergy, 15 percent from breathing problems and 8.33percent peoples from other diseases. For the deep analysis of the health problems a case study method is adopted and he is a person suffering from breathing problem.From this survey as well as case study method it is understood that many health problems still disturbing the residents of the nearby area of slaughterhouse.

CONCLUSION

Majority of the respondents are aware of the health and environmental problems related to the slaughterhouse. They are quite sure that the skin problems, breathingproblems, allergyetc. among them are mainly because of the nearest existence of the slaughterhouse. Such a place is often the breeding place for flies, insects etc. There is no effluent treatment plant in the slaughterhouse at the time of the survey so the waste mainly the blood of the animals is just flow away to the surface or to the nearby drains .The biogas plant set up in the prescribed slaughterhouse is insufficient to absorb the waste because it have the capacity of 40 m³ but the waste generated out of slaughtering is beyond its capacity .Unless we adopt better scientific waste management techniques there is a possibility of spreading diseases .In order to minimize the problem of waste in slaughterhouse the setting up of an Effluent Treatment Plant is essential . There is large

potential of slaughterhouse waste to reuse for commercial purposes most of them have been adopted in the advanced countries .But in our country a few byproducts are utilized while the other parts just sold at a throw away price. If we construct plants for pet food processing,carcass utilization etc. the quantity of waste generated from slaughterhouse should be minimized and it also become a source of income to the state. The basic factor which leads to reduction of waste is the modernization of slaughterhouse which strictly obey the norms put forward by Bureau of Indian Standards and Pollution Control Board.

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