

# **CHAPTER 5**

## **SLAUGHTER HOUSE WASTE AND DEAD ANIMALS**

### **5.1 INTRODUCTION**

As per 1989 survey, India has the world's largest population of livestock, with nearly 191 million cattle. 70 million Buffaloes, 139 million Sheep and Goat, 10 million Pigs and over 200 million poultry. About 36.5% of Goat, 32.5% of Sheep, 28% of Pigs, 1.9% of Buffaloes and 0.9% cattle are slaughtered every year. The reported per capita availability of meat in India is about 1.4 kg per annum, which is rather low compared to 60-90 kg in European countries.

As reported by the Ministry of Food Processing, as of 1989, a total of 3616 recognized slaughter houses slaughter over 2 million cattle and buffaloes, 50 million sheep and goat, 1.5 million pigs and 150 million poultry annually, for domestic consumption as well as for export purposes.

While the slaughter houses come under the purview of the animal husbandry division of Ministry of Agriculture mainly for the purpose of funding towards expansion and modernization activities, the respective local bodies are mainly responsible for day-to-day operation/maintenance of the slaughter houses. Most of the slaughter houses in the country are service-oriented and, as such, perform only the killing and dressing of animals without an onsite rendering operations. Most of the slaughter houses are more than 50 years old without adequate basic amenities viz. proper flooring, ventilation, water supply, lairage, transport etc. In addition to these deficiencies, slaughter houses 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. Unauthorised and illicit slaughtering has also increased manifold and thus the related problems.

### **5.2 MAGNITUDE OF THE PROBLEM**

With growing annual per capita meat consumption, high meat export potential, large non-utilisation of potential meat animals, the development of meat industry in India is controlled not by the Government but the existing market forces. The unorganised nature of this trade is the main feature in this industry

that has not been able to use state of the art of technology available in global meat market. This sector is facing many problems and constraints while going for modernisation as under-mentioned:

- Subjects of slaughtering of animals and related activities are governed as State subjects under the provisions of Article 48 of the Constitution of India.
- There are religious and political controversies over the large animal slaughter particularly bullocks.
- A vociferous pressure group emerging out of religious feelings does hinder the modernisation of slaughter houses.
- The Government's policies do not permit slaughtering of younger animals. Therefore, illegal slaughtering of calves is done in every city.
- Moreover the introduction of humane slaughter methods have proved unsuccessful due to certain religion constraints, whereas existence of powerful religious concern over cruelty to animals can not be ignored.
- Due to Government control, religious beliefs and some of the constraints as explained above the ante-mortem and post-mortem inspections cannot be done at inadequately equipped slaughter houses and also it leads to illegal slaughtering of animals at a very high level.
- Animals are often available for slaughter only when they are useless for any other purpose.
- Lack of care during the transportation results into cruelty to animals, weight loss and high mortality.
- Many of the animals are of poor breeds for meat production and suffer from malnutrition, endemic diseases and widespread parasitic infestation.
- The meat industry is considered as unclean, unsocial and low caste occupation.
- Comparatively small number of rich butchers who exploit the local labour force presently dominates the entire meat industry.
- The long chain of middlemen results in high mark of prices between the farmers' gate and the terminal market.

Because of the reasons stated above and the fact that most of the slaughter houses in the country are more than 75 years old and also there is a noticeable increase in illegal activities of slaughtering animals, the meat industry does not meet the standards for discharge of effluents as laid down and notified under the Environment (Protection) Act, 1986.

Eating habit of non-vegetarian population is generally controlled by the prevailing market price of meat. It has been observed that meat from large animals is sold at one third of the price of mutton from sheep/goat or chicken and fish. The availability of large animals, i.e. bullocks and buffaloes has also increased over the years due to better breeding practices adopted in animal husbandry programmes, better veterinary care of animals and ever growing mechanisation of agriculture. Since the requirement of bullocks for farming purposes has decreased over the years, the dairy farmers sell the male calves at a younger age. The calf leather also fetches a good price for the butcher. The facilities available at meat markets are not good enough to keep the meat fresh for longer time. The butchers are not ready to bear the transportation costs for transporting meat from the slaughter houses to the shops. Hence, most of the butchers prefer to slaughter animals next to their shops. This particular scenario of illegal slaughtering at the door-step of the shops poses a great hazard to the local governments not only from public health point of view but also for the disposal of wastes in a scientific manner.

The wastes from slaughter houses and packaging houses are similar chemically to domestic sewage, but are considerably more concentrated. They are almost wholly organic, chiefly having dissolved and suspended material. The principal deleterious effect of these wastes on streams and water courses is their deoxygenation. The type of waste produced by the separate operations are shown as under:

<b>Source</b>	<b>Waste</b>
Stockyard	manure
Killing floor	blood
Dehairing	hair and dirt
Insides removal	paunch manure and liquor
Rendering	stick liquor or press liquor
Carcass dressing	flesh, grease, blood, manure
By-products	grease, offal

The typical characteristics of the effluent coming out from the slaughter house are as follows:

<b>Parameters</b>	<b>Characteristic</b>
1. Quantity	- 2000 cum/day
2. Total solids	- 4000 to 5000 mg/l
3. BOD	- 4000 mg/l
4. COD	- 8000 mg/l
5. pH	- 6 to 7

### 5.3 CLASSIFICATION

At present there are no official norms for classification of slaughter houses. However, depending upon the type of animals slaughtered, the slaughter houses are classified into:

- Large animal (i.e. cattle, buffalo etc.) slaughter house
- Goat and sheep slaughter house
- Pig slaughter house
- Poultry slaughter house

In order to assess the variations in pollution load with respect to number of animals slaughtered, Bovines and Goat & Sheep slaughter houses are further classified into following categories:

- Large Scale - More than 200 large animals i.e. Bovines per day or more than 1000 goat and sheep per day.
- Medium Scale - More than 50 and upto 200 large animals or more than 300 upto 1000 goat and sheep/day.
- Small Scale - Less than 50 Bovines and 300 goat and sheep per day.

Large scale slaughter houses are located mainly in big cities, medium slaughter houses in district/towns while the small scale slaughter houses are scattered all over the country.

### 5.4 OPERATIONS DURING SLAUGHTERING OF ANIMALS

#### 5.4.1 Present Scenario

##### 5.4.1.1 *Slaughtering*

In India mostly slaughtering of animals is done either by way of *halal or jhatka* method. Halal is the method preferred by Muslims and jhatka by the Hindus/Christians/Sikhs, etc. To slaughter the animals in a humane way stunning of the animals is prescribed, but in most of the cases stunning before slaughtering has yet not been adopted due to certain religious feelings.

#### **5.4.1.2      *Bleeding***

In both the above methods of slaughtering, blood collection is not done immediately on slaughtering and most of the blood goes down into municipal drains causing pollution. Blood of the animals, which can be collected for making use in pharmaceutical industry, is thus by and large lost. Due to inadequate facilities at the slaughter houses and scattered illegal slaughtering of animals, a very few slaughter houses collect blood.

#### **5.4.1.3      *Dressing***

Due to lack of means and tools, de-hiding of the carcasses is done on the floor itself, which causes contamination of the meat. The hides and skins are spread on the floor of the slaughtering area. Similarly legs, bones, hooves etc. are not removed immediately from the slaughtering area.

#### **5.4.1.4      *Evisceration***

This particular process during slaughtering generates maximum amount of waste. The butchers who carry out illegal slaughtering of animals generally throw visceral material at the community bins and wash the small intestines at their shops itself and thus create pollution problem.

### **5.5      MEASURES PROPOSED TO IMPROVE THE SLAUGHTER HOUSE WASTE MANAGEMENT**

#### **5.5.1      Liquid Waste/Effluent**

During the above mentioned operations the waste generated is of liquid and solid nature. The liquid waste should be washed away by safe potable and constant supply of fresh water at adequate pressure throughout the premises of slaughtering. The waste water from slaughter house is heavy in pollution and, therefore, it should not be allowed to mix with the municipal drain system without pre-treatment meeting sewage standards as per the Bureau of Indian Standards(BIS). The waste water treatment system should essentially comprise of:

- (i) self cleaning type screening or two stage screening (Bar type);
- (ii) anaerobic treatment;
- (iii) aerobic treatment; and
- (iv) filter press for dewatering of the sludge.

For the treatment of liquid waste/effluent from slaughter houses, the guidelines contained in the Manual on Sewerage & Sewage Treatment published by the Ministry of Urban Development, 1993 may be followed. The standards prescribed in the Environment Protection Act, 1986, as per *Annexure-5.1*, must be adhered by each slaughter house.

### **5.5.2 Collection of Blood**

The blood available from the slaughter houses should be collected and made use of in pharmaceutical industry. Bleeding areas should be clearly identified in the slaughter houses and blood drains should be and collection should be done immediately so that its full potential could be utilized.

### **5.5.3 Improved Method of Dressing**

At each slaughter house adequate tools should be provided for de-hiding of the animals, hides and skins should be immediately transported out of the slaughtering area in a closed wheel-barrow or similar other devices. In no case the hides and skins should be spread on the floor of the slaughtering area for inspection. Legs, bones, hooves etc. should also be removed immediately from the slaughtering area through a spring load floor chute or closed wheel-barrow.

### **5.5.4 Evisceration**

At slaughter houses adequate compartments for immediate separation and disposal of condemned material must be provided. The authority must take care that intestines are not punctured during evisceration to avoid contamination of carcasses.

### **5.5.5 Safe Disposal of Waste Products**

Slaughtering of animals generates wastes consisting of non edible offal (like lungs, large intestines, various glands, animal tissues, organs, various body parts, etc.) stomach/intestinal contents, dung, sludge from waste water treatment, bones, etc. All these types of wastes are required to be disposed by adopting methods like rendering/controlled incineration/burial/composting/anaerobic digestion etc. The estimated waste generated in a slaughter house is stated as under-mentioned:

<b>Sl.No.</b>	<b>Type of slaughter house</b>	<b>Capacity Annual</b>	<b>Daily Waste Generated</b>
1.	Large	Large animals >40,000 Small animals >6,00,000	6-7 Tonnes/day
2.	Medium	Large animals = 10,001-40,000 Small animals = 1,00,001-6,00,000	2-6 Tonnes/day
3.	Small	Large animals upto 10,000 Small animals upto 1,00,000	0.5-1 Tonne/day

### **5.5.6 Odours Control**

The tropical climate of our country enhances the process of degeneration of any tissue material remaining as a waste in the premises of the slaughter houses. Therefore, the slaughter house premises always give a particular stink. In order to avoid this stinking odour proper ventilation of slaughtering halls, washing of the floors with non-poisonous disinfectants and if need be use of aerobic deodorants must be provided at each slaughter house.

### **5.5.7 Modernisation of Slaughter House**

The slaughter houses are normally controlled by local bodies, which should follow the standards prescribed, but due to non-existence of modernised slaughter houses, environmental pollution arising out of the slaughtering activities cannot be controlled. The local bodies must, therefore, take up modernisation of slaughter houses and achieve the pollution control norms.

### **5.5.8 Curbing Activities of Illegal Slaughtering of Animals**

The places where illegal slaughtering is taking place should be carefully identified and the illegal activity should be curbed by the local body with the help of local police to ensure that slaughtering takes place at the slaughter house only under hygienic conditions and meat eating population gets fresh and disease free meat. This will also prevent clogging of drains due to illegal dumping of animal waste into the drains.

Till the activity of illegal slaughtering is not brought under control, the waste generated out of this illicit practice needs to be managed by the urban local bodies by putting community bins for collection of this waste so that the waste does not get mixed up with the domestic waste and can be disposed of separately.

### **5.5.9 Provision of Dry Rendering Plants**

In most of the cities the animals dying of natural death are carried away to outskirts of the city limits by the people who perform the job of de-hiding of the carcasses. After de-hiding these carcasses are left in open. Vultures and other animals feed on meat of these carcasses. This entire activity is a nuisance to the aviation industry and a hazard for public health. The carcass utilization plant which are run by adopting dry rendering process plants should be provided at all the major towns to process the dead animal carcasses in a scientific manner. These plants should process the solid waste generated from the slaughterhouses as well as the places of illegal slaughter. The products of the rendering plants are widely used as meat meal/bone meal, etc. The slaughter house waste can also be subjected to bio-methanation as resources recovery.

Department of Animal Husbandry, Ministry of Agriculture, Government of India is providing substantial financial assistance for setting up of slaughter houses and carcass utilisation centres. The details including guidelines are given as per *Annexure-5.2*.

**5.6** The Supreme Court of India, High Courts in States and Lower Courts have taken serious view on environmental pollution and have in several cases ordered closing down of existing slaughter houses and flaying units and other such highly polluting industries. Therefore, it is the right time for the State Governments and Urban Local Bodies to chalk out plans for modernisation of slaughter houses. Central Pollution Control Board (CPCB) has brought out “*Draft Guidelines for Sanitation in Slaughter Houses*” during August, 1998 and the same is appended as per *Annexure-5.3*.

The Bureau of Indian Standards has also brought out the Indian Standard, IS : 4393 : 1979, as basic requirement for Abattoir (First Revision).