

# Present Scenario of Indian Meat Industry- A Review

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## Abstract

India is largest exporter of buffalo meat and third largest exporter of meat after Brazil & Australia. India is endowed with the largest livestock population in the world. It accounts for about 58 per cent of the world buffalo population and 14.7 per cent of the cattle population. There are about 65.07 million sheep, 135.2 million goats and about 10.3 million pigs in the country. There are many reasons for the slow growth rate of the Indian meat industry, including the negative attitude of public towards meat on account of misinformation campaign and socio-political considerations. Meat exports from India commenced in 1969. For over four decades, it has built an enviable reputation of being a reliable exporter of risk-free, lean, nutritious and competitively priced meat. This has led to consistent, high compound growth rate in the export volumes. All these years, there has not been a single incidence of livestock- related disease outbreak reported from any one of the importing countries – numbering over 60 - as a result of Indian origin frozen meat import. Among the important buyers of Indian bovine and other meat are Vietnam, Malaysia, Thailand, Australia, UAE, Saudi Arabia and Egypt. India exports both frozen and fresh chilled meat. Among Indian states, Uttar Pradesh (UP) has emerged as the major exporter of buffalo meat, followed by Punjab and Maharashtra. Besides having the country's largest buffalo population, U P also has the highest number of abattoirs cum meat processing export units.

**Keywords:** Livestock, Meat, Poultry, Export.

## Introduction

Meat is animal flesh and worldwide eaten as a food (Lawrie *et al.*, 2006). Meat consumption varies worldwide, depending on cultural or religious preferences, as well as economic conditions. Vegetarians choose not to eat meat because of ethical, economic, environmental, religious or health concerns that are associated with meat production and consumption. Humans are omnivorous and have hunted and killed animals for meat since prehistoric times (John, 2013). The advent of civilization allowed the domestication of animals such as chickens, sheep, pigs and cattle, and eventually their use in meat production on an industrial scale.



(A) Chicken processing plant



(B) Cuts of Red meat (Pork)

Meat is mainly composed of water, fat and a good source of protein, vitamins and minerals, such as iron, selenium, zinc, and B vitamins. It is also one of the main sources of vitamin B12 and is usually eaten together with other food. It is edible raw, but is normally eaten after it has been cooked and seasoned or processed in a variety of ways. Unprocessed meat will spoil within hours or days as a result of infection with and decomposition by bacteria and fungi (Truswell, 2002). Population growth, urbanization, changed life styles and increased per capita

income are fuelling a massive increase in demand for food of animal origin all around the world. As per World Bank projection, worldwide demand for food will increase by 50% and for meat by 85% by 2030. Governments and industries must prepare for meeting demand of meat in the country with long run policies and investments to satisfy ever rising consumer demand, improve nutritional status, generation of income opportunities and alleviate environment stress. Government of India has already recognized livestock and poultry as an important sector for the socio-economic development of the country. Ministry of Food Processing Industries (MFPI) has established National Meat and Poultry Processing Board (NMPPB) at New Delhi to support the healthy and organized development of meat sector for clean and wholesome meat production. NMPPB formulates uniform and effective meat quality testing systems and looks for reduction of environmental pollution due to meat industry. Further, Food Safety and Standards Act, 2006 regulates and ensures the processed meat sector to produce safe and quality products in order to meet the requirements of International trade and make the Indian food and meat industry competitive in the global market. In fact, in spite of big potential because of large livestock population, the meat industry in India has not taken its due share. There are many reasons for the slow growth rate of the Indian meat industry, including the negative attitude of public towards meat on account of misinformation campaign and socio-political considerations.

During the last three to four decades, India has witnessed the green, white, yellow and blue revolutions and now the time has come to realise one more revolution i.e. red/pink revolution in the form of meat production.

### Components of Meat industry

Various distinct components of meat and meat by-product related industries, it includes

1. Trade in live animals: Weekly/daily Cattle markets dealing in Buffaloes, Sheep, Goats and Pigs.
2. Slaughtering the animals by trained butchers for retail in domestic markets.
3. Slaughtering the animals in the mechanized abattoirs in export oriented units for exports.
4. Transportation of fresh frozen meat in refrigerated trucks/ containers from the point of production to the port for export to various countries.
5. Processing of raw hides and skins for leather goods industries.
6. Rendering plants for processing of bones and blood for further processing into gelatin, meat bone meal, bon chips and blood meal.
7. Casings production from the intestines of animals.
8. Processing of animal body fat for making of tallow.
9. Marketing and processing of hooves and horns.
10. Production of pet foods.

### Raw material availability

Livestock sector is an important sub-sector of the agriculture of Indian economy. It forms an important livelihood activity for most of the farmers, supporting agriculture in the form of critical inputs, contributing to the health and nutrition of the household, supplementing incomes, offering employment opportunities, and finally being a dependable “bank on hooves” in times of need. It acts as a supplementary and complementary enterprise. India has vast resource of livestock and poultry, which play a vital role in improving the socio-economic conditions of rural masses. There are about 300.00 million bovines, 65.07 million sheep, 135.2 million goats and about 10.3 million pigs as per 19th Livestock Census in the country. The species wise population of meat producing animals and Poultry during the last three Censuses is given in Table 1.

**Table 1. Growth rate of Meat producing animals and Poultry in India**

Sr. no	Species	Livestock Census 2003 (no. in millions)	Livestock Census 2007 (no. in millions)	Livestock Census 2012 (no. in millions)	Growth Rate (%) 2007-12
1	Buffalo	97.9	105.3	108.7	3.19
2	Sheep	61.5	71.6	65.07	-9.07
3	Goat	124.4	140.5	135.2	-3.82
4	Pigs	13.5	11.1	10.3	-7.54
5	Poultry	489	648.8	729.2	12.39

(Source: Annual report 2014-2015, Department of Animal Husbandry, Dairying & Fisheries)

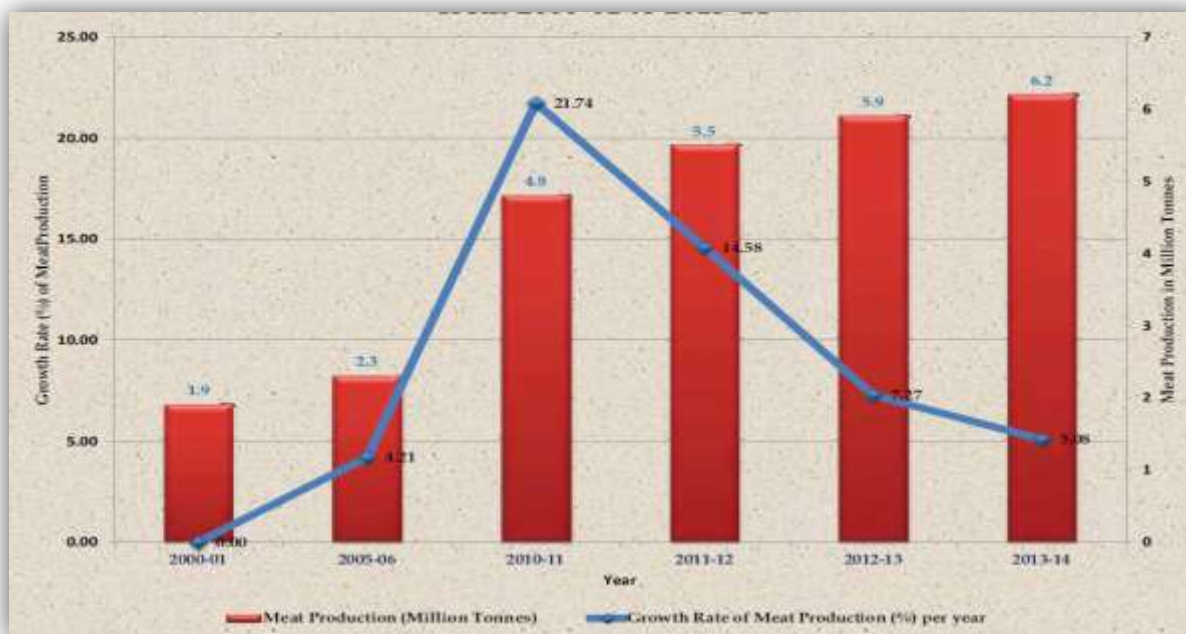
### Factors affecting slow growth of Indian meat industry

1. Over the last few years, a growing number of consumers have either adopted a meat-free diet by becoming vegetarian or vegan, or have significantly reduced their meat intake.
2. Meat is traditionally shunned by certain religious groups (notably Hindus), but the modern vegetarian movement grew up after World War II as a result of world hunger issues and animal welfare concerns.
3. The reduction in meat consumption is offering unprecedented opportunities for manufacturers of a variety of meat substitutes, vegetarian packaged foods, nuts and pulses, vitamins and dietary supplements and other meat-free products.
4. India has the largest non meat-eating community in the world. It is estimated that 31% of India's largely Hindu population are lacto-vegetarian (consuming milk and honey but no other animal-derived products) while a further 9% consume eggs but no meat.
5. Celebrity-led campaigns – often run in conjunction with NGOs such as PETA (People for the Ethical Treatment of Animals) - have been a key factor in encouraging consumers to switch to a low meat or meat-free diet.
6. Insanitary and unhygienic conditions of the slaughterhouses and the meat shops.
7. Indian consumer prefers fresh meat, resulting in less demand for frozen meat.
8. Diseases such as Foot and Mouth Disease (FMD) are a major concerns.
9. The lack of a sufficient cold chain infrastructure.

### Meat production

The meat production has registered a healthy growth from 2.3 million tonnes at the end of Tenth Five Year Plan (2006- 07) to 5.5 million tonnes at the end of the Eleventh Five Year Plan (2011-12). Meat production in the beginning of Twelfth Plan (2012-13) was 5.9 million tonnes which has been further increased to 6.2 million tonnes in 2013-14. The production of meat and the corresponding growth rate (%) per year of the country from 2000-01 to 2013-14 is shown in the Graph 1.

**Graph 1. Meat production and corresponding growth rate (%) from 2000-01 to 2013-14**



(Source: Annual report 2014-2015, Department of Animal Husbandry, Dairying & Fisheries)

The healthy disease free animals are procured from the livestock markets/farmers/farms and are rested for 24 hours to produce quality meat. Veterinarians subject the animals during rest period to ante-mortem examination. After their approval, they are slaughtered either under Halal/Jhatka procedure depending upon consumers choice. Thereafter, the Veterinarian subjects the carcass to post-mortem examination. After its approval for safety, it is sold in the retail market as fresh meat. The rejected carcasses on post mortem examination are sent to the rendering plant for production of gelbone, meat cum bone meal and/or buried depending upon the situation. The meat meant for export has to pass

through ante-mortem and post-mortem examination and is chilled for 24 hours to bring down the pH below 6. Thereafter, it is deboned and deglanded. The meat is then packed into different cuts, and frozen at - 40 degree Celsius for 12 hours to bring down the deep bone temperature to -18 degree Celsius. The frozen meat is stored in cold storage for export.

The meat produced for the domestic market is sold as hot meat. Goat/sheep meat is marketed in villages by slaughtering one or two animals once in a week or as special occasions by a group of people joining together and sharing the cost of the meat so obtained. There is not much over head cost on meat in villages and realization on the cost of skin, blood etc. In the small towns sheep/goat meat is directly marketed to the consumers from meat shops. Since the time gap between slaughter and the sale is very short, the deterioration of the quality of the meat is less. In the big towns and cities most of the meat is consumed on the same day or kept in a refrigerator in the households. Large ruminants (buffalo and cattle) are slaughtered in big towns and meat is sold directly to the consumers. Poultry meat is mostly sold by slaughtering the live birds in the presence of the consumers. However, there are a few modern processing plants where poultry is slaughtered, chilled and frozen birds are sold in big cities. The export of poultry meat is insignificant. The reasons are that mortality of birds is high, overhead inventories are abnormal. The greatest disincentive is that exporters find the prices quoted in importing countries are not favourable.

**Table 2. Integrated Meat Processing Plants in India**

Sr. no	Name of company	Processing plant type	Location	Annual Capacity (Tones)/ Birds
1	Hind Agro Industries Ltd	Fully Integrated Buffalo Sheep and Goat	Aligarh, UP	120,000
		Partially Integrated	Sahibabad, UP	50,000
		-Do-	Meerut, UP	25,000
		-Do-	Khurja, UP	20,000
2	Punjab Agro	Lawrence Road, Delhi	20,000	
3	MKR	Fully Integrated Buffalo, Sheep & Goats	Dera Bassi, Punjab	50,000
4	Fair Exports	Fully Integrated Buffalo, Sheep & Goats	Nanded, Maharashtra	40,000
5	Allanason's Ltd.	Fully Integrated Buffalo, Sheep & Goats	Barabanki, UP	50,000
6	Arabian Exports	Fully Integrated Buffalo, Sheep & Goats	Aurangabad, Maharashtra	90,000
		-Do- Buffalo, Sheep & Goats	Unnao, UP	90,000
		Partially integrated -Do-	Kolkata	100,000
		Fully integrated	Hyderabad, UP	90,000
7	Al-Kabeer	Fully integrated	Sahibabad, UP	50,000
8	Alchemist Foods Ltd.	Fully integrated	Aligarh, UP	100,000
9	Venky's	Fully Integrated Poultry	Koregaon , Maharashtra	50,000
10		Fully Integrated Buffalo Sheep & Goat	Hyderabad, AP	60,000
11		Poultry	Banmajra (Ropar), Punjab.	50,00,000 Birds yearly
12		Fully Integrated Poultry	Pune, Maharashtra	50,00,000 Birds yearly

## Processing of Meat



A picture of raw meat and processed meat products

There is very little processing, hardly 1% of the total meat produced in the country is used for processing remaining meat sold in fresh or frozen form. Pork and Poultry meat are used for production of ham, sausages, patties etc., for the elite market. The meat processors like Venky, Alchemist foods, Darshan foods, Government Bacon Factories etc, produce these products. Meat from small ruminants, namely, sheep and goat is also used for production of traditional Kebabs (Seekh and Shami Kebab). Buffalo meat is basically used in the household for preparation of curries and Kebabs. It is also mixed with vegetables like potatoes, cabbages, turnips, sugar beet to make delicious dishes, to name a few, besides the irresistible Biryani, which is a mix of meat and rice. Buffalo steak are also a delicious product. Both Seekh and Shami Kebabs are delicacies prepared from buffalo meat only, which is liked by all classes of people in India. The buffalo meat has a great water holding and binding properties, and is, therefore, used for industrial purposes in the production of sausages, patties, nuggets, corn beef, ham etc.

## Quality and safety measures in meat industry

Most of the export-oriented meat processing plants in India follow world class sanitary and phytosanitary measures given by the OIE, a referral institution of WTO. The plants are certified with HACCP (Hazard Analysis Critical Control Points), ISO-9002 and SGS, meeting the OIE norms. These measures for meat safety which starts right at the primary production level either with the farmers raising 5 – 20 animals or in the feedlot. The identification and traceability of the animals from production source to the abattoir is completely maintained. It is ensured that animals have been raised under disease free conditions of the diseases related to List 'A' of OIE. Except for Foot and Mouth Disease, which is endemic in a few pockets in India and has an insignificant incidence (0.001%), India is free from Rinderpest, Contagious Bovine Pleuropneumonia etc. In the HACCP, the Critical Control Points (CCP) are closely monitored at the reception of the animals (procured from disease free areas), ante-mortem examination, post mortem examination, chilling of carcasses at 0 - 4 degree Celsius for 24 hours to bring pH level below 6, freezing of deboned meat at -35 to -40 degree Celsius for 10 – 12 hours and storage at -18 degree Celsius. All these measures exclude the possibility of transferring any contagious/infectious/zoonotic disease to the importing countries. The in-house quality laboratories in the plants ensure the absence of Salmonella, Listeria and permissible limits of E-Coli, Coliform bacteria. Spoilage organism are responsible for product loss in meat while pathogenic bacteria cause human loss. More than 76 million people suffer annually from illness due to consumption of contaminated meat (Mead *et al.*, 1999). Almost all the export oriented plants follow the safety specifications given by the Meat and Meat Product Order of 1993 issued by the Directorate of Marketing and Inspection, Government of India. In addition, the measures recommended in Codex Alimentarius are also implemented.



### Export of Meat

Meat industry, which has shown a tremendous development in the last decade, has a greater scope of improvement with support of the industrialists and government. India's international trade in livestock and livestock products is mainly in live animals (17%), meat and meat products (82%), dairy products and eggs (1%). At the global level, India's exports and imports account for only 0.17% of each. Meat and meat products have dominated the exports from livestock. All the Export oriented Units (EOU) are registered with the agricultural and processed food Products Export Development authority (APEDA) of the government of India after due inspection. It may be seen that export of buffalo meat has increased significantly in the last five years. The export of buffalo meat in 2013-14 was 14,49,758.64 M.T. India exports both frozen and fresh chilled meat to more than 60 countries of the world. The major item of export includes deboned and deglanded frozen buffalo meat, which accounts for 97% of the total meat export. Major market for Indian buffalo meat is Malaysia and Egypt and for sheep and goat meat is UAE, Iran and Jordan. India also exports small quantity of processed meat to Thailand, Yemen, and Japan and poultry products to Saudi Arabia, Oman, Kuwait and Qatar.

**Table 3. Exports of meat from India in 2013-14**

Product	Quantity exported	Value of exports (INR)	Major export destination	Major producing states
Buffalo meat	14,49,758.64 MT	26,457.79 crores.	Vietnam Social Republic, Malaysia, Thailand, Egypt Arab Republic, Saudi Arabia and Jordan.	Uttar Pradesh, Andhra Pradesh, Maharashtra and Punjab
Sheep & Goat meat	22,608.94 MT	694.10 crores	United Arab Emirates, Saudi Arabia, Qatar, Kuwait and Oman.	Rajasthan, Jammu & Kashmir, Uttar Pradesh, Gujarat, Hilly regions of North and Eastern Himalays
Poultry products	4,37,673.53 MT	565.87 crores	Oman, Germany, Indonesia, Saudi Arabia and Afghanistan.	Andhra Pradesh, Vishakhapatnam, Chittoor, Karnataka, Tamil Nadu, Maharashtra, Gujarat, Madhya Pradesh, Orissa and North Eastern States

(Source APEDA, 2015)

### Changes required in Indian meat Industry

1. Need of modernizing the quality control laboratories of state governments.
2. Setting up of cold storages.
3. Setting up state of Art- Abattoir cum/ integrated meat processing plants.
4. Training programmes for meat workers worked in the meat industry.
5. Need of strict inspection of meat and meat products, most of the slaughter houses not followed ante mortem and post mortem inspections.
6. Proper utilization of by products comes from meat industry.
7. Prevention of overcrowding of animals for meat purpose during transportation, this leads to the inferior quality of meat.
8. Follow the principles of food safety at all stages of production, processing, packing, storage and marketing of meat and meat products.

### Conclusion

Meat sector plays an important role in India as it not only provides meat and by-products for human consumption but also contributes towards sustainable livestock development and livelihood security for millions of men and women from weaker sections. Major portion of meat from sheep, goat, pig and poultry is primarily used for domestic consumption in the form of hot meat. Certain portion of meat from buffaloes, cattle and sheep is exported. Meat production and supply of meat for local consumption is the most neglected sector in the country. Meat is sold in open premises leading to contamination from dirt, dust, flies and other pollutants. The traditional production systems and the unhygienic practices have ruined and flawed the image of the Indian meat industry. Indian meat industry on scientific and modern lines is need for benefiting livestock producers, processors and finally consumers. Indian meat contains less fat and the present international trend is favourable for low fat meat. Average fat content of Indian meat (buffalo/poultry) is around 4% compared to 15-20% in most of the developed countries. Moreover, meat is free from growth promoters of other therapeutic residues and mad cow disease, which favours Indian meat in international market.

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