Microbiological Food Safety Challenges in Indian meat and poultry industry

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Food Safety: Why?????

• Changing food habits
• Increased processing and handling
• Changing processes, products
• Globalization of food trade
FOOD SAFETY A GLOBAL CONCERN

Food Borne Disease Outbreaks, 2016
Outbreaks Reported : 1892
Cases of illness : 48 Million cases in a year
Hospitalization : 128,000
Deaths : 3000

(CDC, 2018)
• 31 global hazards - 600 (95% uncertainty interval [UI] 420–960) million foodborne illnesses and 420,000 (95% UI 310,000–600,000) deaths in 2010.

• Norovirus and Campylobacter spp.

• Foodborne diarrhoeal disease agents - 230,000 (95% UI 160,000–320,000) deaths, particularly non-typhoidal Salmonella enterica (NTS, which causes diarrhoeal and invasive disease).

• Other major causes of foodborne deaths were Salmonella Typhi, Taenia solium, hepatitis A virus, and aflatoxin.

• The global burden of foodborne disease - 31 hazards was 33 (95% UI 25–46) million DALYs (Disability Adjusted Life Years)

  • WHO Foodborne Disease Burden Epidemiology Reference Group (FERG), 2015
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Species</th>
<th>Population (Millions)</th>
<th>Meat Production (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Cattle</td>
<td>190.12</td>
<td>337.91</td>
</tr>
<tr>
<td>02</td>
<td>Buffalo</td>
<td>108.7</td>
<td>1450.98</td>
</tr>
<tr>
<td>03</td>
<td>Sheep</td>
<td>65.07</td>
<td>556.44</td>
</tr>
<tr>
<td>04</td>
<td>Goat</td>
<td>135.17</td>
<td>1041.11</td>
</tr>
<tr>
<td>05</td>
<td>Pig</td>
<td>10.12</td>
<td>468.80</td>
</tr>
<tr>
<td>06</td>
<td>Poultry</td>
<td>729.21</td>
<td>3643.45</td>
</tr>
</tbody>
</table>

2.2% of total world’s meat production,

- 47.32% of meat contributed by poultry meat followed by 13.83% by buffalo, 14.22% by goat, 4.60% by sheep, 6.41% by pig and 4.62% by cattle, respectively.

19th Livestock Census, DAHD & F, 2012
INDIAN MEAT INDUSTRY

➢ Meat production : 7.4 Million Tonnes
➢ Value of meat produced : Rs.26,870 Crores
➢ Meat products : Rs.950 Crores
➢ Registered slaughter houses : 3900
➢ Unregistered slaughter houses : 25750
➢ Abattoir cum Meat Processing Units: 80
➢ Meat Processing Units : 29
➢ EIC approved Meat and Poultry Products Unit in India : 15

(APEDA and EIC, 2018)
Buffalo meat: 13,50,563.48 MT; Value of Rs. 26,033.82 Crores
Sheep/goat meat: 21,906.51 MT; Value of Rs. 835.74 Crores

India is the largest exporter of buffalo meat and third largest exporter of meat after Brazil & Australia

(APEDA, 2017-18)
• India exports to more than 60 countries of the World

• 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

• Poultry products to Saudi Arabia, Oman, Kuwait and Qatar.

Indian Poultry Industry

- Transformed from backyard to a well organized industry

- Organized sector: 70%

- Unorganized sector: 30%

- Egg production: 88.139 billion eggs (3rd in Egg Production)
  - (Approx. 75% of egg production is contributed by commercial poultry farms, remaining comes from household/backyard poultry).

- Broiler production: 4.9 million MT (4th in Broiler Production)

- Poultry products export: Rs. 515.90 Crores

• India is leading with 10 percent in the poultry growth followed by Brazil with 7 percent, the USA with 2.1 percent and China with 2 percent.

• Recommendation of NIN suggests per capita consumption should be 180 eggs and 11 kg meat while actual consumption is 61 eggs and 3.9 kg chicken meat.

• Under the policy initiatives of the Indian government towards doubling the income of farmers by 2022, poultry sector is going to be a major contributor.
## INCREASED DEMAND

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Type of Meat</th>
<th>Increased Demand (Million MT)</th>
<th>Rural (%)</th>
<th>Urban (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sheep and Goat</td>
<td>4.57</td>
<td>16.19</td>
<td>83.81</td>
</tr>
<tr>
<td>2</td>
<td>Beef and Buffalo</td>
<td>1.00</td>
<td>53.00</td>
<td>47.00</td>
</tr>
<tr>
<td>3</td>
<td>Chicken</td>
<td>0.64</td>
<td>45.31</td>
<td>54.69</td>
</tr>
<tr>
<td>4</td>
<td>Eggs</td>
<td>31.47 (Billion)</td>
<td>45.41</td>
<td>54.59</td>
</tr>
</tbody>
</table>
# Trends in meat and egg production in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Meat (Million MT)</th>
<th>Eggs (Million No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>5.9</td>
<td>69731</td>
</tr>
<tr>
<td>2013-14</td>
<td>6.2</td>
<td>73438</td>
</tr>
<tr>
<td>2014-15</td>
<td>6.7</td>
<td>78484</td>
</tr>
<tr>
<td>2015-16</td>
<td>7.0</td>
<td>82929</td>
</tr>
<tr>
<td>2016-17</td>
<td>7.4</td>
<td>88139</td>
</tr>
</tbody>
</table>

Dept. of Animal Husbandry GOI, 2017
Transmission of Foodborne Diseases

Animal feed/environment/protozoans

Food animals

Manure

Animal derived food products

Plant derived products

Food Processing Plants

RTE Foods

Humans
Microbiological food safety Challenges

- **Campylobacter jejuni** - sanitation problem
- **Salmonella** (multidrug resistant strain) carried intestinal tracts, improper cooking
- **E. coli O157:H7** - young, elderly & immune compromised at greatest risk; HUS - hemolytic uremic syndrome
- **Listeria monocytogenes** - grows at refrigerated temperatures; pregnant women, young & elderly at greatest risk; proper cleaning & cooking, zero tolerance
- **Bacillus cereus**
- **S. aureus** - food handling problem
- **Clostridium botulinum** - produces an enterotoxin, ‘cafeteria germ
- **Yersinia enterocolitica**
- **Mycobacterium paratuberculosis**
## Cause of Bacterial Food-borne Illness

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improper holding temperature</td>
<td>63%</td>
</tr>
<tr>
<td>Poor personal hygiene</td>
<td>28%</td>
</tr>
<tr>
<td>Contaminated equipment</td>
<td>23%</td>
</tr>
<tr>
<td>Inadequate cooking</td>
<td>21%</td>
</tr>
<tr>
<td>Food from unsafe source</td>
<td>12%</td>
</tr>
<tr>
<td>Others</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Total exceed 100% because multiple factors may be involved*
Sources of Bacterial food-borne Illness

• Food service establishments : 77%

• Private home : 20%

• Food Processor : 3%
Important Pathogens
❖ 2541 serotypes
❖ >128 serotypes present in India
❖ New added every year
❖ Prevalence in human (non typhoid) : 1 -5%
❖ Prevalence in healthy carriers : 1 -2%
❖ Prevalence in meat and poultry : 5 -7%
❖ RTE meats and poultry products : 0 -3%
E. Coli

- One of the most common pathogen
- Different types
  - EPEC
  - ETEC
  - EIEC
  - EAEGEC
  - EHEC
  - DAEC
  - CDTEC

Frequently reported
Several isolations in recent times
Numerous reports
Meat and poultry products: 20-50%; up to 100%
Human diarrhoea
Animal diarrhoea
STEC (EHEC): Isolations in recent years
Animals: Important reservoirs
Isolations from meats: Buffalo, sheep, goat, kebabs, sausages
Majority STEC are non O 157: H 7
O 157: H 7: Rare
## Prevalence of STEC in Human

<table>
<thead>
<tr>
<th>Source</th>
<th>No. of E. Coli</th>
<th>STEC</th>
<th>Place</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoeal Patients</td>
<td>1338</td>
<td>9</td>
<td>New Delhi</td>
<td>Pamchandran and Verghese (1987)</td>
</tr>
<tr>
<td>HUS patients</td>
<td>25</td>
<td>19</td>
<td>New Delhi</td>
<td>Koishore et al., (1992)</td>
</tr>
<tr>
<td>Haemorrhagic enteritis</td>
<td>240</td>
<td>18</td>
<td>Bareilly</td>
<td>Kapoor et al. (1995)</td>
</tr>
</tbody>
</table>
L. monocytogenes

- Meningo-encephalitis & abortion
- Grows well: Refrigeration temperature
- Grows: Moderately low pH, High salt concentration
- Survives and can multiply under diverse environmental conditions
  - Various stages of production, processing and storage
- Biofilm production
<table>
<thead>
<tr>
<th>Source</th>
<th>Prevalence</th>
<th>Place</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo meat</td>
<td>&lt; 10 %</td>
<td>Gujrat</td>
<td>Brahmbhatt and Anjaria (1993)</td>
</tr>
<tr>
<td>Goat meat</td>
<td>&lt; 10 %</td>
<td>Bareilly</td>
<td>Banurekha et al., (1998)</td>
</tr>
<tr>
<td>Goat meat</td>
<td>6.66 %</td>
<td>Bareilly</td>
<td>Barbuddhe et al., (2000)</td>
</tr>
<tr>
<td>Sheep meat</td>
<td>7.8 %</td>
<td>Bareilly</td>
<td>Barbuddhe et al., (2000)</td>
</tr>
<tr>
<td>Various meats and Products</td>
<td>3 – 8 %</td>
<td>Bombay</td>
<td>Waskar et al., (2005)</td>
</tr>
<tr>
<td>Poultry meat</td>
<td>8.5 %</td>
<td>Nagpur</td>
<td>Kalorey et al., (2005)</td>
</tr>
</tbody>
</table>
## Prevalence in Humans

<table>
<thead>
<tr>
<th>Source</th>
<th>Prevalence</th>
<th>Place</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abortion</td>
<td>14 %</td>
<td>Mumbai</td>
<td>Krishna et al., (1996)</td>
</tr>
<tr>
<td>Abortion still births</td>
<td>3 %</td>
<td>Gujrat</td>
<td>Bhujwala et al., (1973)</td>
</tr>
<tr>
<td>Abortion</td>
<td>3.3 %</td>
<td>Northern India</td>
<td>Kaur et al., (2007)</td>
</tr>
<tr>
<td>Abortion</td>
<td>10 %</td>
<td>Nagpur</td>
<td>Kalorey et al., (2008)</td>
</tr>
<tr>
<td>Abortion</td>
<td>6 %</td>
<td>Goa</td>
<td>Barbuddhe et al., (2008)</td>
</tr>
</tbody>
</table>
❖ Important diarrhoeal pathogen
❖ Guillain-Barré Syndrome
❖ Human diarrhoea : 10 -15%
❖ Many asymptomatic carriers
❖ Poultry : Most important transmitters
❖ Isolations from poultry meat : 20 -50% up to 100%
❖ Other meats : 3 -5%
❖ Industrialized countries: Manifestations are severe
❖ In Asian countries: Symptoms are milder.
Emerging pathogen of importance: Diarrhea

- Implicated in extra intestinal infections
- Pathogen found in aquatic environment
  - Saline & brackish water
  - Drinking water
  - Treated & un-treated sewage
  - Abattoir waste water
  - Colonize slow sand filters

- Fish – Major source
- Poultry, Mutton, beef, milk, etc. are also found to be contaminated
<table>
<thead>
<tr>
<th>Source</th>
<th>Prevalence</th>
<th>Place</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutton</td>
<td>24 – 37 %</td>
<td>Hisar</td>
<td>Khurana &amp; Kumar et al., (1997)</td>
</tr>
<tr>
<td>Poultry</td>
<td>32 – 38 %</td>
<td>Hisar</td>
<td>Khurana &amp; Kumar et al., (1997)</td>
</tr>
<tr>
<td>Poultry meat</td>
<td>16 %</td>
<td>Bareilly</td>
<td>Kumar (1998)</td>
</tr>
<tr>
<td>Poultry meat</td>
<td>16 %</td>
<td>Bareilly</td>
<td>Ghatak (2005)</td>
</tr>
<tr>
<td>Eggs</td>
<td>12 – 22 %</td>
<td>Bareilly</td>
<td>Agarwal (1997)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kumar (1998)</td>
</tr>
<tr>
<td>Goat meat</td>
<td>12 %</td>
<td>Bareilly</td>
<td></td>
</tr>
<tr>
<td>Various RTE meat products</td>
<td>14 %</td>
<td>Bareilly</td>
<td>Waskar (2005)</td>
</tr>
<tr>
<td>Source</td>
<td>Prevalence</td>
<td>Place</td>
<td>Reference</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>---------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>6.5 %</td>
<td>Chennai</td>
<td>Komathi et al., (1998)</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>8 %</td>
<td>Kolkata</td>
<td>Chaterjee and Neogy (1972)</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>0.2 %</td>
<td>Vellore</td>
<td>Jesudasan and Koshi (1990)</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>6.5 %</td>
<td>Bareilly</td>
<td>Ghatak (2005)</td>
</tr>
</tbody>
</table>
Clostridium Prefringens

- Meat and poultry: Common pathogen
- Thermostable spores
- Post production temperature abuse
- Large scale production

Inadequately heated meat dishes

Prevalence in meats
- Buffalo: 40 - 85%
- Goat: 35 - 75%
- Poultry: 30 - 75%
- RTE meat and poultry products: 20 – 85%

Human outbreaks
Intoxication: Thermostable enterotoxin
Post-production contamination & favourable storage temperature
Meat and poultry: Less frequently associated
Milk products: More commonly implicated
Human: Foodborne emetic episodes, pyogenic skin infection, post-operative wound
Prevalence in meat and poultry products 10–100%
✓ Diarrhoegenic and Emetic syndrome
✓ Emetic: Rice dishes
✓ Diarrhoea: Animal products
✓ Mild nature of symptoms: Under reported
✓ Implicated in some food borne episodes
✓ Prevalence in meat and poultry products: Variable: 10 - 70%
Relatively less emphasis given
- Taeniasis: Adult tape worm infection
- Toxoplasmosis
- Amoebiasis
- Cryptosoridiosis: Emerging

Animals help in perpetuation of Zoonotic Parasites Frequently reported are
- Cysticerosis: Buffalo : 0.11%, Sheep : 0.20%, Pig : 0.46%
- Neurocysticercosis: Partial Seizures : 40 %
- Hydatidosis: Buffalo : 0.76%, Sheep : 0.20%, Goat : 0.07% & Pig : 0.33%
- Trichinelosis: Pig: 0.13%
Challenges ahead

Specific rearing of meat animals as Backward integration to modern meat plants
Disease free zones
Control of trans-boundary diseases

Healthy animals

Safe & Quality
Meat & Poultry Products

Healthy Human

Surveillance of foodborne & zoonotic diseases
Risk assessment & microbial standards
Animal traceability & microbial tracking
Improvement of slaughter facility
Monitoring of antimicrobial resistance
Advantages / Strength....

❖ Excellent veterinary infrastructure: 48 Veterinary Colleges, 16 Veterinary Universities, 67,000 Veterinarians.

❖ Scientific & Trained manpower

❖ Network projects on foodborne diseases, drug and pesticide residues.

❖ Absence of some important trade and food safety related diseases in Indian livestock

❖ Availability of modern and integrated export oriented meat processing units which are HAACCP certified, ISO 22000 certified.

❖ NABL Accredited Laboratories: 2547

❖ A well organized poultry sector.

❖ Indian eating/cooking habit
  ❖ Fresh meat preferred
  ❖ Meat: Pressure cooked/high temperature
## Microbiological Standards for Meat and Meat Products - Process Hygiene Criteria

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Product Category¹</th>
<th>Aerobic Plate Count</th>
<th>Yeast and Mold Count</th>
<th>Escherichia coli</th>
<th>Staphylococcus aureus (Coagulase +ve)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sampling Plan Limits (cfu/g)</td>
<td>Sampling Plan Limits (cfu/g)</td>
<td>Sampling Plan Limits (cfu/g)</td>
<td>Sampling Plan Limits (cfu/g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n  c  m  M</td>
<td>n  c  m  M</td>
<td>n  c  m  M</td>
<td>n  c  m  M</td>
</tr>
<tr>
<td>(1)</td>
<td>Fresh meat/ Chilled meat²</td>
<td>5  3  1x10⁶  5x10⁶</td>
<td>5  2  1x10⁴  5x10⁴</td>
<td>5  2  1x10²  1x10³</td>
<td>5  2  1x10²  1x10³</td>
</tr>
<tr>
<td>(2)</td>
<td>Frozen meat²</td>
<td>5  2  1x10⁵  5x10⁶</td>
<td>5  2  1x10³  1x10⁴</td>
<td>5  2  1x10²  1x10³</td>
<td>5  2  10  1x10²</td>
</tr>
<tr>
<td>(3)</td>
<td>Raw marinated/minced/minced meat²</td>
<td>5  2  5x10⁵  5x10⁶</td>
<td>5  2  1x10²  1x10³</td>
<td>5  2  1x10²  1x10³</td>
<td>5  2  1x10²  1x10³</td>
</tr>
<tr>
<td>(4)</td>
<td>Semi-cooked Smoked Meat/ meat food Product²</td>
<td>5  2  1x10⁴  1x10⁵</td>
<td>5  2  10  1x10²</td>
<td>5  2  10  1x10²</td>
<td>5  2  10  1x10²</td>
</tr>
<tr>
<td>(5)</td>
<td>Cured/Pickled meat</td>
<td>5  2  5x10²  5x10³</td>
<td>5  2  1x10²  1x10³</td>
<td>5  2  10  1x10²</td>
<td>5  1  1x10²  1x10³</td>
</tr>
<tr>
<td>(6)</td>
<td>Fermented meat products</td>
<td>NA  NA  NA  NA</td>
<td>NA  NA  NA  NA</td>
<td>5  2  10  1x10²</td>
<td>5  1  1x10²  1x10³</td>
</tr>
<tr>
<td>(7)</td>
<td>Dried/dehydrated meat product</td>
<td>5  2  1x10³  1x10⁴</td>
<td>5  2  1x10²  1x10³</td>
<td>5  2  10  1x10²</td>
<td>5  1  10  1x10²</td>
</tr>
<tr>
<td>(8)</td>
<td>Cooked Meat Products</td>
<td>5  2  1x10³  1x10⁴</td>
<td>5  1  10  1x10²</td>
<td>5  2  10  1x10²</td>
<td>5  1  10  1x10²</td>
</tr>
<tr>
<td>(9)</td>
<td>Canned/Retort pouch Meat Products</td>
<td>NA  NA  NA  NA</td>
<td>NA  NA  NA  NA</td>
<td>5  0  Absent  NA</td>
<td>5  0  Absent  NA</td>
</tr>
</tbody>
</table>

### Test Methods³
- IS: 5402/ISO 4833
- IS: 5403/ISO 21527
- IS: 5887 Part 1 or ISO 16649-2

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¹ Microorganism class by sampling plan

² Food category

³ Standard reference methods for test methods
## Microbiological Standards for Meat and Meat Products - Food Safety Criteria

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Product Category¹</th>
<th><strong>Salmonella</strong></th>
<th><strong>Listeria monocytogenes</strong></th>
<th><strong>Sulphite Reducing Clostridia</strong></th>
<th><strong>Clostridium Botulinum</strong></th>
<th><strong>Campylobacter Spp</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sampling Plan</td>
<td>Limits (cfu/25g)</td>
<td>Sampling Plan</td>
<td>Limits (cfu/25g)</td>
<td>Sampling Plan</td>
</tr>
<tr>
<td>1.</td>
<td>Fresh meat / Chilled meat²</td>
<td>5 0</td>
<td>Absent</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2.</td>
<td>Frozen meat²</td>
<td>5 0</td>
<td>Absent</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>3.</td>
<td>Raw marinated/minced/cornmined meats²</td>
<td>5 0</td>
<td>Absent</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>4.</td>
<td>Semi-cooked /Smoked Meat/meat food Product³</td>
<td>5 0</td>
<td>Absent</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>5.</td>
<td>Cured/Pickled meat</td>
<td>5 0</td>
<td>Absent</td>
<td>5 0</td>
<td>Absent</td>
<td>5 2</td>
</tr>
<tr>
<td>6.</td>
<td>Fermented meat products</td>
<td>5 0</td>
<td>Absent</td>
<td>5 0</td>
<td>Absent</td>
<td>5 2</td>
</tr>
<tr>
<td>7.</td>
<td>Dried/dehydrated meat product</td>
<td>5 0</td>
<td>Absent</td>
<td>5 0</td>
<td>Absent</td>
<td>5 2</td>
</tr>
<tr>
<td>8.</td>
<td>Cooked Meat Products</td>
<td>5 0</td>
<td>Absent</td>
<td>5 0</td>
<td>Absent</td>
<td>5 1</td>
</tr>
<tr>
<td>9.</td>
<td>Canned/ Retort pouch Meat Products</td>
<td>5 0</td>
<td>Absent</td>
<td>5 0</td>
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¹ Product Category: The classification of the product as per its origin and processing.

² Fresh meat: Meat that is not preserved by smoking, salting, or freezing.

³ Test Methods: Standards and methods used for testing microbial levels.
Role of Government agencies

Ministry of Food Processing Industries

Under 12th Plan Five Year Plan the Ministry had launched a Centrally Sponsored Scheme (CSS) – National Mission on Food Processing (NMFP) for implementation through State / Union Territory Governments.

Under the Mission, funds were shared on 75:25 basis by Government of India and States; 90:10 in North Eastern States and 100% grants for Union Territories.

This scheme includes the Scheme for Modernization of Abattoirs and Modernisation of Meat shops.

Under Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA) which is under execution from 2016-2020.
Agricultural and Processed Food Products Export Development Authority (APEDA)

It was established under the APEDA Act in December, 1985.

The agency is involved in carrying out inspection of meat and meat products in slaughter houses, processing plants, storage premises, conveyances or other places where such products are kept or handled for the purpose of ensuring the quality of such products.

The agency is also involved in licensing of export abattoir.

At present APEDA approved 29 Meat Processing Units and 80 Abattoir cum Meat Processing Units for Export Purpose.
Export Inspection Council (EIC)

It was set up by the Government of India in order to ensure sound development of export trade of India through Quality Control and Inspection.

Specify the type of quality control and/or inspection to be applied to such commodities.

Issues certificates of origin to exporters under various preferential tariff schemes for export products.

At present 15 Meat and Poultry Products Units are approved for Export Purpose.
Food Safety and Standards Authority of India (FSSAI)

It has been established under Food Safety and Standards ACT, 2006 which consolidates various acts & orders that have hitherto handled food related issues in various Ministries and Departments.

FSSAI has been created for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption.
Role of Veterinarian in Food Safety

Veterinarians have a major responsibility of epidemiological surveillance of animal disease and ensuring the safety and suitability of meat.

Application of the risk analysis process

To provide livestock producers with information, advice and training on how to avoid, eliminate or control food safety hazards

Control and/or reduction of biological hazards of animal and public health importance by ante and post mortem meat inspection is a core responsibility of the veterinary services.
As on today, it has become the need of the hour for bringing in improvements in the existing food safety scenario in India.

Match by the quality standards of food with those of the other countries in the world.

There is an urgent need for setting up of the state of the art advanced centres of excellence to undertake the analytical research work to cater to the requirements of industries, policy makers, regulators and consumers.

Collaborative effort between Centre, states and the private sector along with effective consumer awareness, alone can address the challenge of food safety in the country.

Once the FSSAI has all its technical and administrative infrastructure in place, ONLY THEN tangible improvements in food safety can be expected.
Conclusions

- The food safety act will help to create culture of food safety with integrated control from farm to fork.
- FSSAI is Evidence-based: Standard setting and compliance and enforcement authority with focus on prevention while enabling effective reaction.
- Due to regulatory compliance industries have to show commitment to continued learning with prompt response to emerging food hazards.
- Despite having a legal framework in place, India still struggles with enforcing food safety norms and standards effectively, effective implementation is sought with plentiful challenges.
- Currently there are limited numbers of Food Safety Officers coupled with shortage of quality laboratories lacking uniformity of standard.
- There is also an urgent need to upgrade the infrastructure in most of our food testing laboratories.
- Need to encourage private sector participation in the setting up and maintenance of laboratories.