

Unit 45. Food Processing and Related Industries in India



Food processing is the transformation of raw ingredients into food, or of food into other forms (ie. food processing may denote direct manufacturing of food or value addition on existing food). Food processing typically takes harvested crops or butchered animal products and uses these to produce long shelf-life food products.

Food processing dates back to the prehistoric ages when crude processing incorporated slaughtering, fermenting, sun drying, preserving with salt etc. Modern food processing adopts latest technologies and practices.



Processes in a food processing industry

There are two types of processes in a food processing industry :

1. Manufacturing: Raw materials → Food.
2. Value Addition: Increase shelf life and value of a manufactured food.

Products in food processing industry

We can divide the products in food processing industry into two:

1. Primary (Eg: Fruits and Vegetables).
2. Secondary or Value Added (Jams and Squashes)

Why are food processing industries significant?



Food Processing Industry : Image Courtesy : The Hindu

1. India is a land famous for food production. More than 50% of Indian population work in Agriculture related activities. If there are good food processing industries in India, raw materials like grains or meat can be converted into food for domestic and foreign consumption.
2. Food processing units acts as a link between agriculture and industries.
3. Food processing industries can absorb a major share of workers from the agriculture sector, who face disguised unemployment. It can lead to better productivity and GDP growth.
4. Food processing prevents food wastage and help in attaining food security.
5. Processed food requires less space for storage.
6. Processed food can be exported. This may help us in getting foreign exchange reserves.

Scope and Significance of Food Processing Industries in India

What is the scope of India in food processing industry? (Have you ever wondered why UPSC specially mentioned food processing as a topic in Mains syllabus? – Because it is a sector which has huge potential for growth in future!)

1. **India's position as a major food producer** : India ranks 1st in the production of – milk, ginger, banana, guava, papaya, mango etc. It ranks 2nd in the production of rice, wheat, potato, sugarcane, cashew nut, tea etc. It is among the top 5 countries in the production of coffee, tobacco, spices, seeds etc. With such a huge raw material base, we can easily become the leading supplier of food items in the world.

2. **Resource advantage of India** : Different soil types and different climate types for cultivation of diverse food crops, long coastal line suitable for fishing, huge resource of domestic animals etc.
3. **Increasing employment** : Expected to create more than 10 lakh new jobs.
4. **Curbing Migration** : Provides employment in rural areas, hence reduces migration from rural to urban. Resolves issues of urbanization.
5. **Curbing food inflation** : Removes issues of wastage or middle man. Curbs food inflation. Indirect relief on non-food inflation too.
6. **Crop Diversification** : Because of long shelf life, farmers can diversify their products.
7. **The demand potential** : Expected to reach 250b\$ turnout by 2015 and 350b\$ by 2020. Youth population, middle class, rising income, nuclear families, media penetration etc cited as positive factors.
8. **Government initiatives to boost food processing**: Various government initiatives like attracting FDI, reduction in excise duties etc have boosted food processing.
9. **Future driver of Indian growth** : Food processing corresponds to around 10% of GDP in agriculture-manufacturing sector. It has potential for more.

Location of food processing industries in India :

India has more than 35000 registered units. But majorities of the food processing factories are concentrated in the coastal states (one reason being, accessibility to marine food processing)

Major coastal states includes: Andhra, Maharashtra, Karnataka, Kerala, Gujarat, Punjab and WB. Non-coastal states include UP, Punjab etc.

Major segments of food processing

1. Fruits and Vegetables.
2. Milk and Milk Products.
3. Meat and Poultry.
4. Marine Products.
5. Grain Processing.
6. Consumer Food.

Upstream and Downstream requirements of food processing industries



Upstream stage: The upstream stage of the production process involves **searching for and extracting raw materials**. The upstream part of the production process does not do anything with the material itself, such as processing the material. This part of the process simply finds and extracts the raw material. Thus, any industry that relies on the extraction of raw materials commonly has an upstream stage in its production process.

Downstream stage: The downstream stage in the production process involves **processing the materials collected** during the upstream stage into a finished product. The downstream stage further includes the actual sale of that product to other businesses, governments or private individuals. Downstream process has direct contact with customers through the finished product.

Upstream requirements:

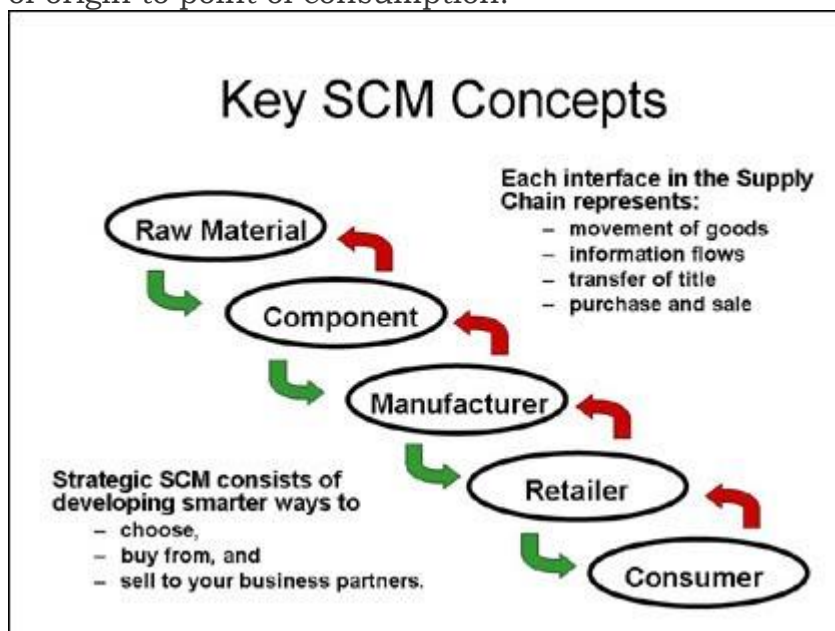
1. Accessibility to raw materials.
2. Modern extraction techniques.
3. Good linkages with farmers.
4. Storage facilities for raw materials like Grains, Meat, Fish etc.
5. Quality testing facilities.
6. Transport facilities.
7. Work force.

Downstream requirements:

1. Latest processing techniques.
2. Latest processing machinery.
3. Quality testing facilities.
4. Organized retail stores for faster distribution.
5. Work force.

Supply Chain Management

Supply chain management (SCM) is the management of the flow of goods. It includes the movement and storage of raw materials, inventory and finished goods from point of origin to point of consumption.



Let's analyse the case of Supply Chain Management for Food Processing Industry. Raw materials like grains, raw meat, fish etc are collected by different sources. These sources may do preliminary processing of these to make components of a food product before passing over them to the main manufacturer through many middle men. The manufacturer does the final processing of these components to make the food product. This completes only the first stage of supply management.

Now the finished product has to be delivered to the consumer. Here also there will be a number of middle men and stages. The manufacturer normally hands over the food product to a whole sale dealer. The wholesaler pass the product to a retailer from where the consumer buys the processed food item for his personal use.

Thus, Supply Chain Management is the management of upstream and downstream value added flow of materials from suppliers→ company→ retailer→ final consumers.

Importance of Supply Chain Management in Food Processing Industry : If there are good Supply Chain Management practices in a country, then it will boost economy as a whole. Good supply chain links helps farmers, manufactures, wholesalers, retailers and consumers. Every one in the supply chain link will get inputs at a faster rate, at the right time and at a cheaper cost.

Obstacles in the growth of food processing Industries

1. Small size companies: Indian food processing companies are small and can't compete with global giants which invest heavily on R & D.
2. Lack of good laboratories in India : Food export to US and EU demands high quality standards. India lack good laboratories to check heavy metal and other toxic contamination in food.
3. Lack of skilled work force. We have only a few graduates in Food Technology.
4. Lack of right vision and support from the government at the right time.
5. Lack of good transportation facilities. Roads are overburdened.
6. Lack of storage facilities and good production techniques.
7. Lack of organised retail.
8. Limitations in supply chains.
9. Limitations in the quality.
10. Lack of modern regulations.

Government Initiatives for Development of food processing Industry in India

Government of India is now encouraging food processing industries by providing :

1. 100% FDI in this sector.
2. Agri Export Zones.
3. National Mission on Agriculture.

Major Schemes by Government include :

1. **Vision 2015 for food processing** : The Ministry of Food Processing Industries (FPI) has sponsored a study to suggest a roadmap for the growth of food processing sector. M/S Rabo Bank has conducted a study and submitted a Vision

Document suggesting strategy & action plan for food processing sector in India namely Vision 2015. Vision Document suggested strategy to ensure faster growth of the sector. The adopted Vision 2015 provides for enhancing the level of processing of perishable from 6% to 20%, enhancing value addition from 20% to 35% and increasing India's share in global food trade from 1.5% to 3% by the year 2015. To achieve these targets, investment of Rs.100 thousand crores was estimated by year 2015, out of which Rs.10,000 crores was to come from the Government. Accordingly, Ministry of FPI formulated its 11th Plan schemes to attract the required investment in the sector.

2. **National Mission on food processing** : Ministry of Food Processing Industries (MOFPI) launched a new Centrally Sponsored Scheme(CSS) – National Mission- on Food Processing (NMFP) on 1st April 2012 for implementation through States/UTs. The NMFP envisages establishment of a National Mission as well as corresponding Missions in the State and District level. The basic objective of NMFP is decentralization of implementation of food processing related schemes for ensuring substantial participation of State Governments/UTs. The mission is expected to improve the Ministry's outreach significantly in terms of planning, supervision, monitoring of various schemes apart from playing a more meaningful role in policy formation.
3. **Mega food parks** : The Scheme of Mega Food Park aims at providing a mechanism to link agricultural production to the market by bringing together farmers, processors and retailers so as to ensure maximizing value addition, minimizing wastages, increasing farmers' income and creating employment opportunities particularly in rural sector. The Mega Food Park Scheme is based on "Cluster" approach and envisages a well-defined agri/ horticultural-processing zone containing state-of-the art processing facilities with support infrastructure and well-established supply chain.
4. **Modernization of abattoirs** : The scheme aims at providing facilities for scientific and less painful slaughtering, chilling, effluent treatment plant, by-product utilization, water and power with required sanitary / phyto sanitary conditions for modernization of abattoirs. Modernization of abattoirs will also augment essential supply base of hygienic raw material to the meat processing industry, both for domestic consumption and exports, besides discouraging unauthorized slaughtering. Scheme of Setting up/ Modernization of Abattoirs provides for induction of private capital, better technology, backward and forward linkages. The scheme also provides for implementation of projects preferably under PPP mode with the involvement of local bodies and has the flexibility for involvement of private investors/exporters on a BOO/BOT/JV basis.
5. **Cold Chain Infrastructure** : Scheme for Integrated Cold Chain, Value Addition and Preservation Infrastructure aims to encourage setting up of cold chain facilities to provide integrated cold chain and preservation infrastructure facilities without break from the farm gate to the consumer.
6. **R&D, QA, Codex and Promotion** : Scheme for Quality Assurance, Codex, R&D and Other Promotional Activities is being implemented to create infrastructure of food testing laboratories in the country to establish quality monitoring system for food processing, implement HACCP/ISO22000, ISO14000/GHP/GMP and other quality management systems and to promote research and development for innovative products and process etc.

Boards and Institutions

NIFTEM – National Institute of Food Technology and Entrepreneurial Management.

IGPB – Indian Grape Processing Board.

IICPT – Indian Institute of Crop Processing Technology.

NMPPB – National Meat and Poultry Processing Board.

The Present Status and Future of Food Processing Industries in India

- Estimated worth of Indian Food Processing Industry is 121 b dollars.
- India has already witnessed green and white revolution ie Agriculture and Milk.
- Now the focus is upon Pink Revolution : Meat and poultry sector.
- The packaged food sector in India is likely to double in 2015 to touch 30 b dollars.
- India is currently the world's second largest producer of food (next only to China). We have the potential to become the No.1 player in this sector.

Revolutions related to Food Production and Food Processing

1. Pink Revolution – Meat and Poultry Production.
2. Red Revolution – Meat & Tomato Production.
3. Round Revolution – Potato Revolution.
4. Silver Fiber Revolution – Cotton Revolution.
5. Silver Revolution – Egg/Poultry Production.
6. White Revolution – Milk/Dairy production (Operation Flood).
7. Yellow Revolution – Oil Seeds production.
8. Evergreen Revolution – Overall development of Agriculture.
9. Blue Revolution – Fish Production.
10. Brown Revolution – Leather /Cocoa production.
11. Golden Fibre Revolution – Jute Production.
12. Golden Revolution – Overall Horticulture development/Honey Production.
13. Green Revolution – Agriculture in general.



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