



VAJIRAM & RAVI
Institute for IAS Examination

STEP UP

MENTORSHIP PROGRAMME

TOPIC - Food Processing Sector in India



FOOD PROCESSING SECTOR IN INDIA

Food processing sector in India

Intro: 1

India's food processing sector, encompassing the transformation of agricultural produce into value-added products, occupies a pivotal position in the nation's economic landscape. It's one of the largest in the world, with an output expected to reach a whopping \$535 billion by 2025-2026.

Intro: 2

The food processing industry encompasses a wide range of activities, including the processing, preservation, packaging, and distribution of food products. The Indian food processing sector contributes to almost 6% of GDP, 13% of Indian exports, and 6% of overall industrial investment in the country.

Data related to food processing in India

Industry Size and Growth:

- Estimated market size to reach \$535 billion by 2025-2026 [Invest India].
- Growing at an average annual rate of around 7.26% [Invest India].
- Contributes 9.87% of Gross Value Added (GVA) in manufacturing (2019-20) [Lok Sabha Documents].

Employment:

- Over 20.05 lakh people employed in the registered food processing sector (2018-19) [Press Information Bureau].
- Unregistered sector provides jobs to an estimated 51.11 lakh workers (2015-16) [Lok Sabha Documents].

Processing Levels:

- Low processing levels for fruits & vegetables (4.5%), vegetables (2.7%) [Lok Sabha Documents].
- Comparatively higher processing in milk (21.1%), meat (34.2%), and fishery (15.4%) [Lok Sabha Documents].

Scope of Food processing in India

Economic:

- **Value Addition:** Processing agricultural produce extends shelf life, creates new products, and increases overall value, boosting farmer incomes and GVA.
- **Export Potential:** India can become a global leader in processed food exports, generating foreign exchange and creating jobs.
- **Market Expansion:** Growing domestic demand for packaged and convenience foods presents a lucrative market for processed food companies.
- **Employment Generation:** The industry has the potential to create millions of jobs across the value chain, from farm to retail.

Social:

- **Food Security:** Improved processing reduces post-harvest losses, ensuring year-round availability of food and contributing to food security.
- **Nutritional Security:** Processing can be used to fortify staples with essential vitamins and minerals, addressing malnutrition.
- **Rural Development:** Processing units in rural areas create jobs, improve infrastructure, and empower rural communities.
- **Improved Living Standards:** Processed foods offer convenience, especially for working families, leading to a better quality of life.

Technological:

- **Adoption of Advanced Technologies:** Integrating automation, robotics, and artificial intelligence can enhance efficiency, minimize waste, and improve food safety.
- **Cold Chain Infrastructure:** Investments in cold storage facilities are crucial for perishable products, minimizing spoilage and extending shelf life.

Geographical:

- **Harnessing Regional Specialties:** Leveraging geographically specific crops and ingredients can create unique processed food products with wider appeal.
- **India's large raw material base:** India is the largest producer of meat and is the second largest producer of several fruits and vegetables. This surplus production is ideal to feed the processing industry.
- **Diverse products:** India has a large and diverse base of raw materials, which includes a wide range of agricultural and horticultural crops, as well as livestock and fishery products given the large coastline and diverse agro-climatic conditions.

Administrative:

There are a number of government initiatives that aim at boosting the food processing sector. Example: Pradhan Mantri Kisan SAMPADA Yojana (PMKSY), PM-Formalization of Micro Food Processing Enterprises (PMFME) Scheme, Production Linked Incentive scheme (PLIS) for Food Processing Sector

Significance of Food processing (Stakeholder approach)

A.For Farmers:

- **Increased Income:** Processing creates a demand for produce beyond peak seasons, offering farmers better prices and reducing dependence on volatile markets. (Example: Mango pulp processing facilities create demand for mangoes outside the season, benefiting farmers)
- **Reduced Post-Harvest Losses:** Processing perishable items like fruits and vegetables extends shelf life, minimizing losses and boosting farmer profits. (Example: Tomato processing reduces wastage during gluts, leading to higher income for tomato growers)

B.For Consumers:

- **Wider Variety and Availability:** Processing offers a wider range of food products throughout the year, ensuring consistent availability and convenience. (Example: Packaged milk provides a readily available alternative to fresh milk, especially in urban areas)
- **Enhanced Shelf Life:** Processed foods with extended shelf life reduce wastage at the consumer level, saving money. (Example: Packaged and frozen vegetables last longer, allowing consumers to buy in bulk and avoid frequent shopping trips)

C.For Businesses:

- **Value Addition:** Processing allows businesses to create new products with higher margins compared to raw agricultural produce. (Example: Converting tomatoes into ketchup generates more revenue than selling them raw)
- **Market Expansion:** Processed food has a longer shelf life, enabling businesses to reach wider markets and cater to export demands. (Example: Indian basmati rice exports benefit from processing and packaging, allowing them to reach international markets)

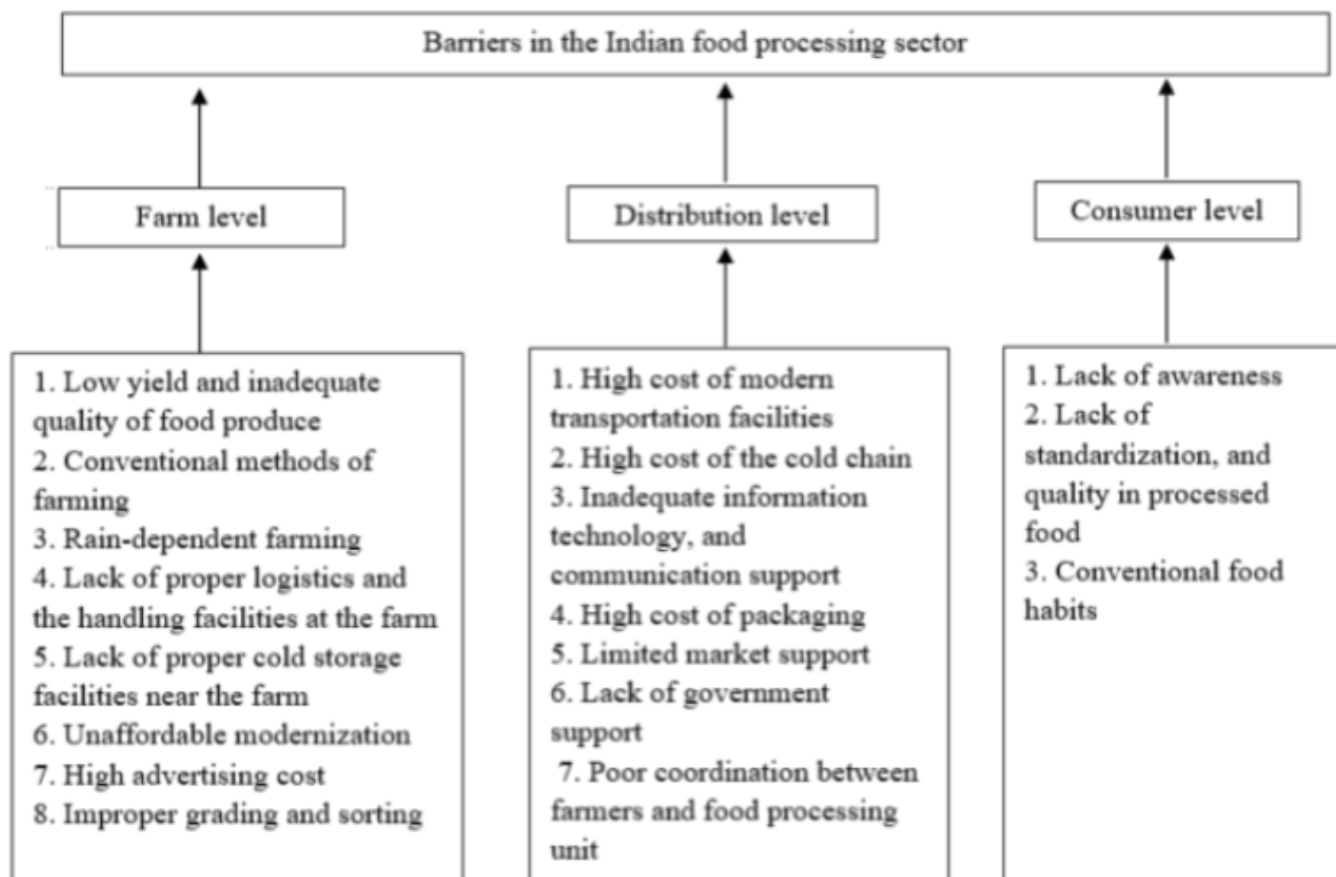
D.For Government:

- **Economic Growth:** The food processing industry is a significant contributor to GDP, creating jobs and generating tax revenue. (Example: Growth in the processed food sector contributes to overall economic growth)
- **Food Security:** Processing techniques help preserve food stocks, ensuring year-round availability and contributing to national food security. (Example: Government support for grain storage facilities helps maintain buffer stocks)

E.For the Economy:

- **Investment and Job Creation:** The sector attracts investment, leading to job creation across various stages of the processing chain. (Example: Setting up food processing units in rural areas generates employment opportunities in those regions)
- **Reduced Imports:** Processing local produce can help reduce dependence on imported food items, improving the trade balance. (Example: Growth in the domestic processed fruits and vegetable industry can potentially reduce reliance on imported fruit juices)

Challenges Faced by Food Processing Industry In India



A.Farm Level Challenges:

- **Fragmented Landholdings:** **Data:** According to the Situation Assessment Survey of Agricultural Households (SA-SASH) 2019, the average landholding size in India is a mere 1.08 hectares. This fragmentation makes it difficult to aggregate enough raw materials for efficient processing.
- **Low Farm Productivity:** **Example:** Limited access to quality seeds, fertilizers, and irrigation technology often leads to lower crop yields. This translates to a shortage of produce for processing units.
- **Seasonality of Crops:** **Example:** Many crops in India have distinct harvest seasons. This seasonality poses challenges for processing units to maintain consistent operations throughout the year.

B.Distribution Level Challenges:

- **Inadequate Infrastructure:** **Data:** The World Bank estimates India's logistics costs to be around 13% of GDP, significantly higher than the global average. Poor storage facilities, inefficient transportation networks, and a lack of cold chain infrastructure lead to significant post-harvest losses (around 30% for fruits and vegetables).
- **Limited Processing Capacity:** Low investment in modern processing technologies translates to a significant portion of agricultural produce remaining unprocessed. (Data: India's fruit and vegetable processing level is only around 4.5%, compared to the global average of 50%)
- **Multiple Regulations and Licensing:** **Example:** Obtaining necessary licenses and permits for food processing units can be a lengthy and complex process, discouraging investment and hindering operational efficiency.

- **Limited Cold Chain Network: Example:** The lack of a robust cold chain network for perishable items like fruits, vegetables, and dairy products results in spoilage during transportation, increasing wastage and reducing profitability.

C.Consumer Level Challenges:

- **Limited Awareness: Example:** Many consumers, particularly in rural areas, may not be fully aware of the benefits and convenience offered by processed food products.
- **Price Sensitivity: Data:** A significant portion of the Indian population is price-sensitive. The higher prices of processed foods compared to loose produce can limit consumer adoption.
- **Perceptions about Processed Food: Example:** Some consumers may have misconceptions about the healthiness of processed foods due to concerns about added preservatives or artificial ingredients.

Government Initiatives

- **PM Kisan Sampada Yojana:** This scheme is aimed at promoting entrepreneurs in setting up food processing units, closer to agricultural areas. Development of cold storage facilities, specialised packaging units, warehousing facilities, etc and other preservation facilities are eligible for grants under the scheme. The scheme provides a grant in aid of 35% of the eligible project cost in most states and 50% of the project cost in North-east and Himalayan states.
- **PM Formalisation of Micro Food Processing Enterprises Scheme:** This scheme aims at helping small micro-units engaged in the food processing industry. Many businesses at the grass-root level such as chilli drying, spice packaging, pickle, and papad making engage directly with farmers. Recognising the role of such micro-units, a 35% subsidy can be availed by such units on their project cost, up to a maximum of ₹10 lacs
- **Operation Greens:** In the budget 2018-19, the government announced the Operations Greens scheme to promote integrated value chain development for crops. They are tomato, potato, onion. Post-harvest processing facilities will be eligible for a grant in aid of up to 50% of the project cost. It also subjects to the maximum limit of 50 crores
- **National Mission on Food Processing (NMFP):** The National Mission on Food Processing is a centrally sponsored scheme aimed at decentralizing the implementation of food processing-related schemes through state and district-level missions. This approach enhances state participation, improves planning, supervision, monitoring, and policy formation.
- **Mega Food Parks Scheme:** The Mega Food Park Scheme focuses on creating processing hubs that connect farmers, processors, and retailers. These hubs aim to maximize value addition, reduce wastage, increase farmers' income, and generate employment opportunities, especially in rural areas.
- **Cold Chain Infrastructure Scheme:** The Integrated Cold Chain, Value Addition, and Preservation Infrastructure Scheme promote the establishment of cold chain facilities for seamless preservation of food products from farm gate to consumer.
- **Shift from Product Approval to Ingredient-Based Approval (2016):** The Food Safety and Standards Authority of India (FSSAI) shifted from product-by-product approval to an ingredient and additive-based approval process. This change simplifies the approval process and facilitates ease of doing business in the food processing sector.
- **100% FDI Approval for Food Processing Sector (Automatic Route):** The government permitted 100% Foreign Direct Investment (FDI) approval under the automatic route for the food processing sector. This move encourages foreign investment and technology infusion in the sector.
- **Special Food Processing Fund with NABARD:** A Special Food Processing Fund of Rs. 2000 crore was established in partnership with the National Bank for Agriculture and Rural Development (NABARD). This fund provides affordable credit for investments in setting up Mega Food Parks (MFP) and processing units within them, as well as for Agro-Processing Clusters and individual manufacturing units.
- **Vision 2015 for Food Processing:** A Vision Document (Vision 2015) was developed to outline a strategy and action plan for the growth of the food processing sector. The vision includes targets such as increasing the processing of perishables, enhancing value addition, and expanding India's share in global food trade.
- **Modernization of Abattoirs Scheme:** This scheme aims to modernize abattoirs (slaughterhouses) with scientific and sanitary facilities. It encourages private sector participation and technology infusion, improving the supply of hygienic raw materials for meat processing and exports.

Best Practices in Food Processing Across India: Examples for Success

1. Prioritizing Minimal Processing and Preservation:

- **Example 1:** Alphonso Mango Pulp Processing in Maharashtra: Instead of complex processing, producers in Maharashtra puree Alphonso mangoes during peak season. This minimally processed pulp retains flavor and nutrients, caters to off-season demand, and extends shelf life for exports.
- **Example 2:** Solar Drying of Fruits and Vegetables in Karnataka: Small-scale farmers in Karnataka utilize solar dryers to preserve fruits and vegetables like tomatoes and mangoes. This cost-effective and sustainable method minimizes waste and creates shelf-stable products.

2. Adopting Innovative Technologies for Efficiency:

- **Example:** Precision Fermentation for Plant-Based Meat Alternatives (Start-ups): Indian startups are utilizing precision fermentation to create plant-based meat alternatives. This technology offers a sustainable and innovative approach to cater to the growing demand for meat substitutes.

3. Leveraging Farmer Producer Organizations (FPOs) for Aggregation:

- **Example:** Onion Processing Units with FPOs in Nashik, Maharashtra: FPOs in Nashik work with processing units to aggregate onions from small farmers. This ensures consistent supply for processors, reduces waste at the farm level, and improves farmer bargaining power.
- **Example:** Mango Processing Units Partnering with FPOs in Andhra Pradesh: Similar partnerships between FPOs and processors in Andhra Pradesh for mangoes streamline sourcing, minimize post-harvest losses, and benefit both farmers and processors.

4. Focusing on Regional Specialties and Geographical Indications (GIs):

- **Example:** Darjeeling Tea Processing with Stringent Quality Control (West Bengal): Darjeeling tea enjoys GI status. Processors in West Bengal adhere to strict quality control measures to maintain the tea's distinctive aroma and taste, ensuring a premium product on the global market.

5. Promoting Food Safety and Hygiene Standards:

- **Example:** Adoption of Hazard Analysis and Critical Control Points (HACCP) in Large Processing Units (Nationwide): Many large food processing companies in India have implemented HACCP, a systematic approach to identifying and controlling food safety hazards. This ensures product safety and builds consumer trust.

Suggestions/reforms needed

A.Farm Level Reforms:

- **Land Consolidation and Aggregation:** Encourage the formation of Farmer Producer Organizations (FPOs) to facilitate land consolidation and collective bargaining for better input prices and efficient marketing of produce to processors. (Example: FPOs in Maharashtra have successfully aggregated onion production, ensuring consistent supply for processing units and improving farmer incomes)
- **Promoting Contract Farming:** Implement contract farming models where processors enter into agreements with farmers, specifying price and quality standards, to ensure timely supply and reduce risks for both parties. (Example: Contract farming for tomatoes in Punjab can guarantee a fair price for farmers and secure raw materials for processors)
- **Investment in Agricultural Infrastructure:** Increase investments in irrigation facilities, storage units, and pre-processing infrastructure at farm gate to minimize post-harvest losses and improve farm productivity. (Example: Solar dryers for fruits and vegetables in Karnataka can significantly reduce spoilage and provide farmers with better quality produce for processing)

B.Distribution Level Reforms:

- **Modernization of Logistics and Cold Chain Infrastructure:** Invest in building a robust cold chain network with proper storage facilities and refrigerated transportation to minimize wastage of perishable items. (Example: Upgrading cold storage facilities for mangoes in Andhra Pradesh can significantly reduce spoilage during peak season and extend shelf life)
- **Streamlining Regulations and Licensing:** Simplify and streamline the process of obtaining licenses and permits

for food processing units to reduce the time and cost burden on businesses. (Example: Implementing single-window clearances for food processing units can expedite the process and encourage investment)

- **Promoting Food Processing Clusters:** Develop designated food processing clusters with dedicated infrastructure, tax incentives, and access to technology to attract investments and create processing hubs closer to production areas. (Example: Mega Food Park projects across India aim to create such clusters, reducing transportation costs and benefiting local farmers)

C.Consumer Level Reforms:

- **Public Awareness Campaigns:** Launch targeted campaigns to educate consumers, particularly in rural areas, about the benefits and safety standards of processed foods. (Example: Campaigns highlighting the convenience and nutritional value of fortified foods can encourage wider adoption)
- **Promoting Transparency and Traceability:** Implement stringent food safety regulations and promote traceability systems to build consumer trust in processed food products. (Example: Mandatory labeling with information on ingredients, origin, and nutritional content can enhance consumer confidence)
- **Price Stabilization Measures:** Explore options for price stabilization mechanisms to ensure processed food remains affordable for a wider segment of the population. (Example: Government subsidies on essential processed food items can make them more accessible to price-sensitive consumers)

Conclusion 1: These above reforms if implemented will go a long way in achieving the goals of vision 2030 for food processing

Conclusion 2: Thus, Concerted efforts are needed to address farm-level challenges, streamline distribution networks, and build consumer trust to usher in a new era of efficiency and growth in the food processing sector and achieve the goal of doubling farmers income

Important Key-words which can be used to enhance mains answers

General:

- Food Security
- Value Addition
- Post-Harvest Losses
- Economic Growth
- Rural Development
- Employment Generation
- Skill Development
- Supply Chain Management
- Technological Advancements
- Public-Private Partnership (PPP)

Challenges:

- Fragmented Landholdings
- Seasonality of Crops
- Inadequate Infrastructure
- Multiple Regulations and Licensing
- Limited Cold Chain Network
- Limited Processing Capacity
- Skill Gap
- Competition from Unorganized Sector
- Price Sensitivity
- Perceptions about Processed Food

PYQ'S

- Q.** Elaborate the scope and significance of the food processing industry in India. 2022
- Q.** What are the challenges and opportunities of food processing sector in the country? How can income of the farmers be substantially increased by encouraging food processing? (देश में खाद्य प्रसंस्करण क्षेत्र की चुनौतियां एवं अवसर क्या है? खाद्य प्रसंस्करण को प्रोत्साहित कर कृषकों की आय में पर्याप्त वृद्धि कैसे की जा सकती है?) 2020
- Q.** Elaborate on the policy taken by the government of India to meet the challenges of the food processing sector. (खाद्य प्रसंस्करण क्षेत्र की चुनौतियों के समाधान हेतु भारत सरकार द्वारा अपनाई गई नीतियों के विस्तार स्पष्ट कीजिए।) 2019
- Q.** What are the reasons for poor acceptance of cost effective small processing unit? How the food processing unit will be helpful to uplift the socio-economic status of poor farmers? 2017