



# Revolutionizing India's Food Processing Landscape

This editorial is based on "[Attracting global anchor firms in food processing](#)" which was published in The Hindu Business Line on 26/08/2024. The article underscores India's food processing sector's untapped potential, with stagnant agri-exports and slow progress in key initiatives, highlighting both challenges and opportunities.

**For Prelims:** [India's food processing sector](#), [Production Linked Incentive Scheme for the Food Processing Industry](#), [FDI allowance in food processing](#), [FSSAI](#), [Agricultural and Processed Food Products Export Development Authority](#), [Bureau of Indian standards](#), [Pradhan Mantri Kisan Sampada Yojana](#), [Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme](#)

**For Mains:** Key Factors Driving the Growth of the Food Processing Sector in India, Major Issues Related to the Food Processing Sector in India.

India's food processing sector stands at a critical juncture, with significant potential for growth and export expansion. Despite the government's efforts to prioritize agricultural development, including a substantial budget allocation of **₹1.52 lakh crore in 2024-25**, the country's **agri-exports have been underperforming**. With only 25% of agricultural exports being processed or value-added products, a figure that has remained stagnant for a decade. India lags behind the global average and competitors like China. This gap presents both a challenge and an opportunity for the Indian food processing industry.

The implementation of the [Production Linked Incentive Scheme for the Food Processing Industry \(PLISFPI\)](#), has been slow, with **only 10% of allocated funds utilized halfway through its timeline**. India needs to do better in this sector to realize its full potential and compete effectively in the global market.

## What is Food Processing?

- **About:** Food processing involves the methods and techniques used to **transform raw plant and animal materials into edible products**.
  - It encompasses a wide range of operations from simple preservation to complex industrial methods.
- **Levels of Processing:**
  - **Primary processing:** Basic cleaning, grading, and packaging of agricultural products.
  - **Secondary processing:** Converting ingredients into edible products (e.g., milling wheat into flour).
  - **Tertiary processing:** Creating ready-to-eat foods (e.g., baking bread from flour).
- **Key Objectives:**
  - **Preservation:** Extending shelf life of food products
  - **Safety:** Eliminating harmful microorganisms and contaminants
  - **Quality enhancement:** Improving taste, texture, and nutritional value

- **Convenience:** Creating easy-to-prepare or ready-to-eat products
- **Value addition:** Increasing economic value of raw agricultural produce

## What are the Key Factors Driving the Growth of the Food Processing Sector in India?

- **Demographic Dividend Drives Demand:** India's large and growing population, coupled with rising incomes and urbanization, is fueling demand for processed foods.
  - With **65% of the population under 35 years old**, changing lifestyles and food preferences are reshaping the market.
  - The Indian processed food market is expected to grow from **USD 263 billion** in 2019-20 to **USD 470 billion by 2025**.
    - This growth is evident in the increasing popularity of **ready-to-eat meals**.
- **Digital Revolution- From Farm to Phone to Plate:** The rapid digitalization of India's food supply chain is transforming the sector.
  - **E-commerce platforms and food delivery apps** have expanded market access for processed food products.
  - The government's [Digital India initiative](#) has also facilitated direct **farmer-processor connections**, reducing intermediaries.
  - **Ninjacart**, a B2B fresh produce supply chain company, directly connects **vegetables and fruit farmers directly with businesses**, showcasing the potential of digital integration in the food processing ecosystem.
- **Government Policies-Catalyzing Growth:** Supportive government policies have been crucial in driving the food processing sector.
  - The **Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)**, launched in 2021, allocated ₹10,900 crore to boost domestic manufacturing and exports.
  - The [100% FDI allowance in food processing](#) through the automatic route has attracted significant foreign investment.
  - For example, **Nestlé announced plans to invest ₹5,000 crore in India by 2025**, focusing on capacity expansion and new product development in the processed food segment.
- **Innovation-The Flavor of Success:** Product innovation is a key driver, with companies constantly introducing new offerings to meet evolving consumer preferences.
  - The focus on **health-conscious and functional foods** has led to a surge in innovative products.
  - For instance, ITC's 'Farmland' frozen foods range, which emphasizes **preservative-free, minimally processed products**, saw a rapid growth in FY 2023-24.
  - The incorporation of traditional Indian ingredients in modern formats, such as **GAIA's millet-based snacks**, has also gained traction.
- **Agri-Tech-Sowing Seeds of Processing:** The integration of technology in agriculture is indirectly boosting the food processing sector.
  - Agri-tech startups raised over **USD 706 million** in funding in 2023, indicating strong growth potential.
  - Companies like **CropIn**, which uses AI and satellite monitoring to improve crop yield and quality, are partnering with food processors to ensure consistent supply of high-quality raw materials.
  - This technological intervention is particularly crucial for [contract farming arrangements](#), which are becoming increasingly popular among food processing companies to secure their supply chains.

## What are the Major Issues Related to the Food Processing Sector in India?

- **Fragmented Supply Chain-The Broken Link:** India's food processing sector suffers from a highly [fragmented supply chain](#), leading to inefficiencies.
  - With over **86% of farmers being small and marginal**, aggregation of produce becomes a significant challenge.
  - This fragmentation results in multiple intermediaries, each adding to the cost without proportionate value addition.

- Farmers in India realize just about **30-35% value to their produce vis-à-vis 65-70%** in the developed economies.
- The lack of direct farmer-processor linkages not only affects the quality of raw materials but also **impacts the final product's cost competitiveness** in both domestic and international markets.
- **Infrastructure Deficit-The Cold Reality:** Despite recent investments, India's [cold chain infrastructure](#) remains inadequate.
  - India is the [second-largest producer of fruits and vegetables globally](#). However, **25-30% of these products are lost or damaged** each year due to inadequate transportation and distribution infrastructure.
  - This deficit leads to [post-harvest losses](#) estimated at **₹92,651 crore annually**, according to the Ministry of Food Processing Industries.
  - The current pace of development and uneven geographical distribution of facilities continue to pose significant challenges for processors, especially in rural and semi-urban areas.
- **Regulatory Labyrinth: Tangled in Red Tape:** The complex and often overlapping regulatory framework governing the food processing sector in India creates significant operational challenges.
  - Food processors must navigate regulations from **multiple bodies including FSSAI, Agricultural and Processed Food Products Export Development Authority, Bureau of Indian standards (BIS)**, and state-level agencies.
  - This regulatory maze not only increases compliance costs but also creates uncertainty, especially for SMEs.
  - Lack of a **single-window clearance system** and frequent changes in regulations further exacerbate these challenges, impacting both domestic operations and export competitiveness.
- **Skills Gap-The Missing Ingredient:** The food processing sector faces a critical shortage of skilled workforce across various levels.
  - Despite the sector's potential to generate employment, the **lack of specialized training programs** and industry-academia collaboration leads to a significant skills mismatch.
  - **Only 3%** of India's workforce in food processing has formal training. This skills gap not only affects product quality and innovation but also **hampers the adoption of new technologies**.
  - The shortage is particularly acute in areas like **food safety management, quality control, and R&D**, crucial for meeting international standards and driving export growth.
- **Capital Crunch-Starved for Funds:** Access to capital remains a significant challenge for the **food processing sector**, particularly for [MSMEs](#).
  - The high risk perception associated with the sector due to **seasonality, perishability of raw materials**, and market volatility leads to stringent lending norms and higher interest rates.
  - This capital crunch limits investments in technology upgradation, capacity expansion, and R&D, crucial for enhancing competitiveness and product innovation.
- **Quality Conundrum-The Standards Struggle:** India's food processing sector grapples with inconsistent quality standards, impacting both domestic consumption and export potential.
  - Despite FSSAI regulations, implementation remains a challenge, especially among smaller processors.
    - This quality inconsistency not only poses health risks but **also erodes consumer trust**.
  - In the export market, frequent rejections due to quality issues significantly hamper India's reputation and market access.
    - [European Union](#) food safety authorities found contamination in **527 products** linked to India between **September 2020 and April 2024**
  - The lack of harmonization between Indian and international standards further complicates export efforts, limiting the sector's global competitiveness.
- **Packaging Paradox-Wrapped in Challenges:** While packaging innovations drive growth, they also present significant challenges.
  - The food packaging industry, growing at **13-15% annually**, faces issues of sustainability and cost.
  - In India, flexible and rigid packaging together constitute **59% of total plastic consumption** due to which environmental concerns are mounting.

- The government's push for sustainable packaging (e.g., [the ban on single-use plastics](#)) is forcing rapid changes, but the industry struggles to find cost-effective alternatives.
- It creates a significant challenge for processors in balancing sustainability with affordability.
- **Market Volatility-The Price Rollercoaster:** Extreme price fluctuations in agricultural commodities pose a significant risk to food processors.
  - **India's agricultural market**, characterized by seasonal production and climate vulnerabilities, experiences frequent price shocks.
  - For instance, **tomato prices soared by 400% in mid-2023** due to adverse weather conditions, severely impacting processors of tomato-based products.
  - Such volatility makes it challenging for processors to maintain consistent pricing and quality, affecting both domestic market stability and export commitments.

## What are the Key Government Initiatives Related to the Food Processing Sector?

- Inclusion of **food and agro-based processing units**, along with cold chain infrastructure, as priority sectors under Priority Sector Lending (PSL) norms.
- **100% Foreign Direct Investment (FDI):** Automatic route approval for the food processing sector.
- **Special Food Processing Fund:** Establishment of a ₹2,000 crore fund with the National Bank for Agriculture and Rural Development (NABARD).
- [Pradhan Mantri Kisan Sampada Yojana](#)
- [Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme](#)
- [Production Linked Incentive \(PLI\) Scheme](#) for the food processing industry

## What Measures Can Be Adopted to Enhance the Food Processing Sector in India?

- **Food-Cluster Development:** Implement a comprehensive cluster development approach, focusing on **creating integrated [food processing zones](#)**.
  - These clusters should be strategically located **near major agricultural production areas** and connect seamlessly with transportation networks. Incorporate shared infrastructure like **cold storage, quality testing labs, and effluent treatment plants** to reduce individual setup costs.
  - Encourage ancillary industries within these clusters, such as **packaging and logistics, to create a complete ecosystem**.
  - This approach can reduce operational costs by 25-30%, improve resource utilization, and enhance the competitiveness of small and medium processors, while also addressing rural-urban disparities in the sector.
- **Tech-Driven Supply Chain- From Soil to Shelf:** Invest in a technology-driven, end-to-end supply chain management system.
  - Implement [blockchain technology for traceability](#), ensuring food safety and building consumer trust.
  - Integrate IoT sensors for real-time monitoring of storage conditions and transportation.
  - Develop **AI-powered demand forecasting models to reduce wastage** and optimize inventory.
  - Encourage the use of **drones (leveraging Drone-Didi Scheme) and satellite imaging for crop monitoring**, enabling processors to predict yields and plan accordingly.
- **Financial Re-engineering of the Food Processing Sector:** Develop a specialized financial framework for the food processing sector.
  - Introduce **sector-specific credit schemes** with flexible repayment terms aligned with crop cycles.
  - Implement a **credit guarantee fund** to encourage banks to lend to small and medium processors.



- Incentivize private equity and venture capital investments in **food-tech startups through tax benefits.**
- **Quality Standardization:** Implement a comprehensive quality standardization program across the food processing value chain.
  - **Harmonize Indian standards with global norms like Codex Alimentarius** to boost export potential.
  - Introduce a tiered certification system for **processors, incentivizing higher standards** with easier market access and financial benefits.
  - Establish mobile quality testing labs to reach remote areas and small processors.
  - Integrate **quality parameters into the e-NAM platform**, enabling quality-based pricing of agricultural produce.
- **Regulatory Streamlining-Cutting the Red Tape:** Implement a comprehensive regulatory overhaul to simplify and streamline processes.
  - Establish a **single-window clearance system** for all food processing related approvals, reducing the current average setup time from 6-8 months to 2-3 months.
  - Develop a unified digital platform **integrating all regulatory bodies (FSSAI, APEDA, BIS)** for real-time updates and compliance tracking.
- **Sustainable Processing-Green from Farm to Fork:** Develop a comprehensive sustainability framework for the food processing sector.
  - Introduce a **tiered green certification system for processors based on their environmental impact**, water usage, and waste management practices.
  - Provide fiscal incentives for adopting renewable energy sources and water recycling technologies in processing units.
  - Promote the development and adoption of **biodegradable packaging materials through R&D grants and tax incentives.**
- **Export Ecosystem-Global Flavors, Local Roots:** Create a robust export-oriented ecosystem for processed foods.
  - Establish dedicated **export zones with plug-and-play infrastructure** and single-window clearance for export documentation.
  - Develop country-specific strategies focusing on **product customization, packaging, and marketing** to suit different international markets.
  - Implement a comprehensive market intelligence system providing real-time data on **global demand, price trends, and regulatory changes.**
  - With 90% of PLISFPI funds still unutilized, India should **prioritize attracting major food processing firms to enhance growth.**
    - This strategy, akin to Apple's success in electronics, which saw exports soar from under **USD 3 billion in 2020 to USD 15.6 billion in 2023** and created over 400,000 jobs in India, could drive similar achievements in the food processing sector.
- **R&D Acceleration- Innovate to Elevate:** Boost research and development in the food processing sector through a multi-pronged approach.
  - Establish a network of **Food Innovation Labs** in partnership with leading academic institutions and industry players.
  - Introduce a weighted tax deduction on **R&D expenses for food processing** companies to encourage private sector investment in innovation.
  - Create a national database of traditional food processing techniques and support their scientific validation and scale-up.

***Drishti Mains Question:***

Discuss the key challenges and opportunities in India's food processing sector. How can policy measures and technological advancements address these issues to enhance the sector's growth and global competitiveness?

**UPSC Civil Services Examination Previous Year Question (PYQ)**

*Prelims*

**Q. With what purpose is the Government of India promoting the concept of “Mega Food Parks”? (2011)**

1. To provide good infrastructure facilities for the food processing industry.
2. To increase the processing of perishable items and reduce wastage.
3. To provide emerging and eco-friendly food processing technologies to entrepreneurs.

**Select the correct answer using the codes given below:**

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

**Ans: (b)**

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**Mains**

**Q. What are the reasons for the poor acceptance of a cost-effective small processing unit? How can the food processing unit be helpful to uplift the socioeconomic status of poor farmers? (2017)**

PDF Reference URL: <https://www.drishtiias.com/printpdf/revolutionizing-india-s-food-processing-landscape>

