



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)

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)

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