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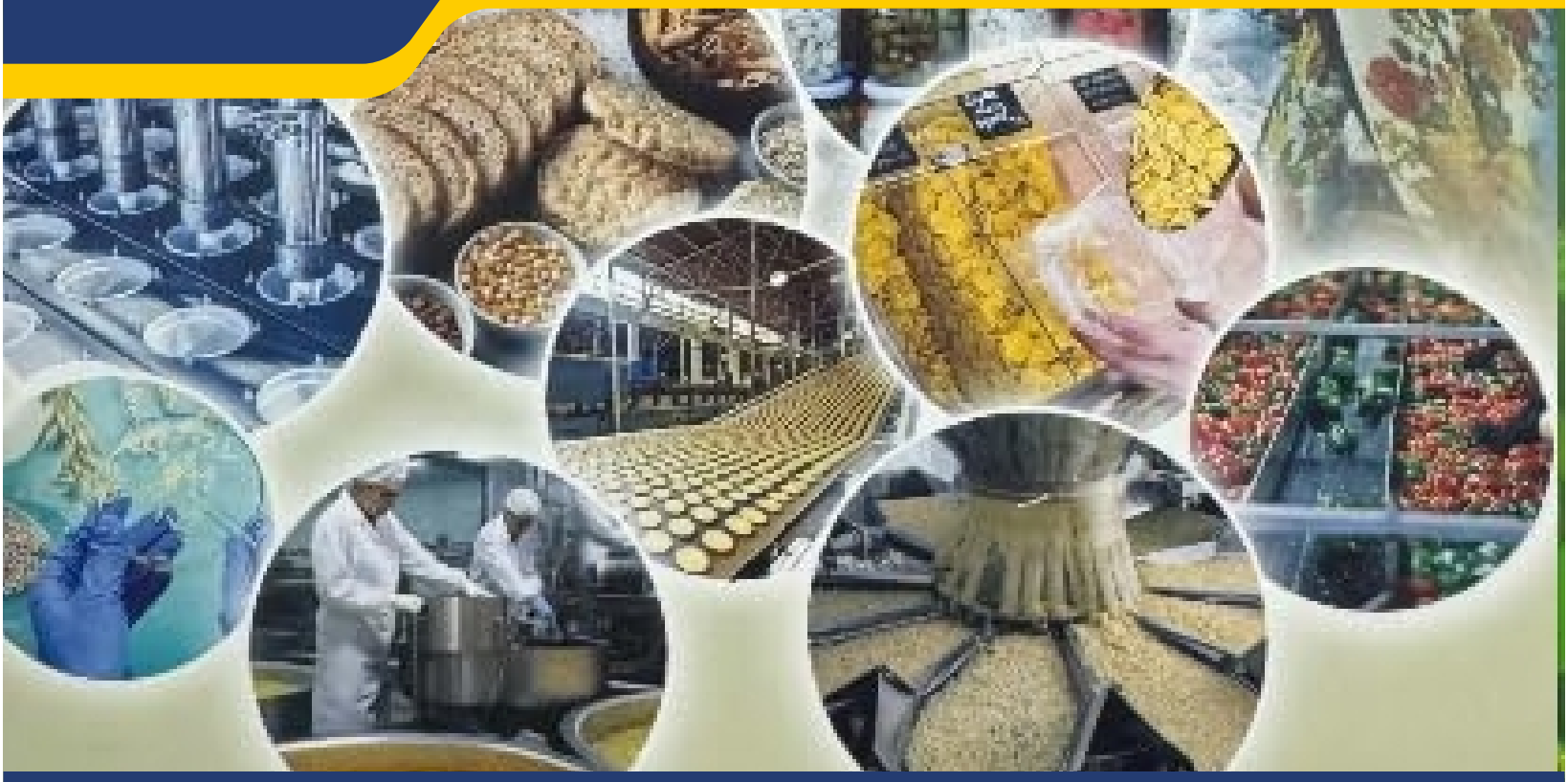

Food Processing

Comprehensive & In-depth Analysis

Simple & Lucid Language

Usage of Flow Chart, Diagrams & Figures

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Impact of Food Processing on Employment Generation and Skill Development

In the past fifty years, India has shifted from food scarcity to surplus, driven by the Green Revolution. The country now ranks first in pulses and milk and second in several other food categories globally. Despite this, less than 10% of agricultural output is processed, revealing significant growth and investment opportunities. With 70% of households depending on agriculture, the food processing sector is crucial for job creation. Recognized as a 'sunrise sector' under the 'Make in India' initiative led by Prime Minister Narendra Modi, it is actively supported through various incentives.

Status and Role of the Food Processing Sector in India

Contribution to GDP

- **Growth Rate**: The food processing sector grew at an average annual rate of 8.38% over the past five years (ending 2020-21), compared to 4.87% in agriculture and allied sectors.
- **Gross Value Added (GVA)**:
    - Contributed 10.54% to the GVA of the manufacturing sector.
    - Contributed 11.57% to the GVA of the agriculture sector in 2020-21.
- **Overall GVA Share**: Despite increasing demand for processed and ready-to-eat foods, the sector's share in overall GVA was only 1.88% in 2020-21, compared to 17.86% for manufacturing and 16.26% for agriculture.

Employment Generation

- **Registered Sector**: As of 2019-20, the registered food processing sector employed 20.32 lakh people.
- **Unregistered Sector**: Supported 51.11 lakh workers, constituting 14.18% of employment in the unregistered manufacturing sector.
- **Pradhan Mantri Kisan Sampada Yojana (PMKSY)**:
    - Facilitates modern infrastructure and efficient supply chain management.
    - Created approximately 9.69 lakh direct/indirect employment opportunities.
- **Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME)**:
    - Launched in June 2020 with a total outlay of ₹10,000 crore (2020-2025).
    - Aims to benefit 2 lakh micro-enterprises with credit-linked subsidies.
    - 65,094 loans sanctioned and ₹771 crore released as seed capital assistance, benefiting 2.3 lakh SHG members.

Table 1: GVA by Food Processing Industries (FPI) at Constant Prices (2011-12)

(₹ lakh cr.)

Sr.	Economic activity	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1	GVA-All India	85.46	90.64	97.12	104.92	113.28	120.34	127.34	132.19	125.85
2	GVA Manufacturing	14.87	15.61	16.84	19.04	20.55	22.09	23.29	22.61	22.48
3	GVA-Agriculture, Forestry, Fishing	15.24	16.09	16.06	16.16	17.26	18.40	18.79	19.82	20.48
4	GVA-FPI	1.30	1.30	1.34	1.61	1.79	1.93	2.36	2.26	2.37

Source: *Annual Report 2022-23, MoFPI, GoI*

Table 2: Share (%) of FPI in GVA of Manufacturing and Agri & Allied Sector

Sr.	Economic activity	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1	GVA Manufacturing	8.74	8.33	7.96	8.46	8.71	8.74	10.13	10.00	10.54
2	GVA Agriculture, Forestry And Fishing	8.53	8.08	8.34	9.96	10.37	10.49	12.56	11.40	11.57

Source: *Annual Report 2022-23, MoFPI, GoI*

Table 3: Share (%) of Various Sectors in Overall GVA

Sr.	Economic activity	2018-19	2019-20	2020-21
1	GVA-FPI	1.85	1.71	1.88
2	GVA-Manufacturing	18.29	17.10	17.86
3	GVA Agri and allied sectors	14.76	14.99	16.26

Source: *Annual Report 2022-23, MoFPI, GoI*

Table 4: Number of Persons Engaged in Food Processing Sector

(lakh persons)

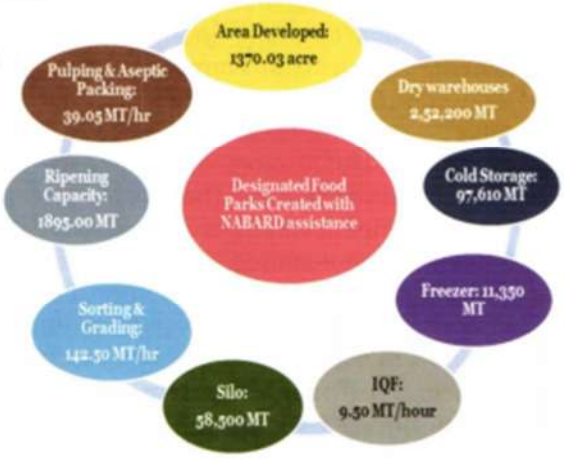
Sector	Food Processing Industry*	All Industries	(%) Share of FP sector
Registered (2019-2020)	20.32 lakh	166.21 lakh	12.22
Un-incorporated	51.11 lakh	360.41 lakh	14.18

Source: *Annual Report- FY 2022-23, MoFPI, GoI, *includes food products and beverage segments*

Skill Development Initiatives

- **Skill Demand**: An expected 13.4 lakh skilled workers needed in 11 major food processing subsectors between 2021-30.
- **Government Initiatives**:
  - Collaboration with Food Industry Capacity and Skill Initiative (FICSI) and the National Institute of Food Technology Entrepreneurship and Management (NIFTEM).
  - Strengthening Sector Skill Councils (SSCs) and developing course curricula for technical staff.

NABARD's Role in Food Processing and Storage Infrastructure



Food Processing Fund (FPF)

- **Establishment**: Instituted in 2014-15 with a corpus of ₹2,000 crore.
- **Objective**: To provide affordable credit for setting up Designated Food Parks (DFPs) and food processing units.
- **Sanctions and Disbursements**:
  - ₹1191.57 crore sanctioned for 14 Mega Food Parks (MFPs), 3 Industrial Parks, 9 Agro Processing Clusters (APCs), and 15 individual food processing units.
- **Expected Capacity Creation**:
  - Development of 1370.03 acres in MFPs, Industrial Parks, and APCs.
  - Establishment of Primary Processing Centres (PPCs) and Collection Centres (CCs) to support Mega Food Parks.
- **Milestones**:
  - Term loans extended to various entities (State Governments, SPVs, companies, etc.).
  - The Production Linked Incentive (PLI) scheme for 10 key sectors, including food processing, with a budget of ₹10,900 crore (FY 2021-22 to FY 2026-27).
  - Encourages investment and infrastructure development in Designated Food Parks and Agro Processing Clusters.

Warehouse Infrastructure Fund (WIF)

- **Establishment**: Announced in 2013-14 with a corpus of ₹5,000 crore, augmented by another ₹5,000 crore in 2014-15.
- **Objective**: To support the creation of scientific warehouse capacity for storage of food grains.
- **Financing Scope**:
  - Supports State governments, State-owned agencies, and private sector for establishing dry warehouses, cold storage, and cold chain infrastructure.
- **Project Details**:
  - 8,161 projects sanctioned, creating a total storage capacity of 13.74 million MT.
  - Actual scientific storage created amounts to 9.96 million MT.
  - Major capacities are in southern and western regions, with large storage structures in the north and small-sized structures in Gujarat, Odisha, and Tamil Nadu.
- **Types of Storage Structures**:
  - Ranges from 100 MT farm gate warehouses to modern 50,000 MT silos for bulk storage.

These points highlight NABARD's significant contributions to enhancing food processing and storage infrastructure in India.

Estimated Investment Potential in Food Processing Sector

- **Market Size and Growth**:
  - Expected annual growth rate of 8.8% from FY 2024 to 2032.
- **Infrastructure and Schemes**:
  - **National Infrastructure Pipeline (NIP)**: Planned infrastructure spending of approximately ₹100 lakh crore.
  - **Pradhan Mantri Kisan Sampada Yojana (PMKSY)**: Budgetary outlay of ₹4,600 crore till FY 2025-26.
  - **Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME)**: Outlay of ₹10,000 crore over a 5-year period till FY 2024-25.
- **Policy Initiatives**:
  - **Licensing Exemption**: Processed food items exempt from licensing under the Industries (Development and Regulation) Act, 1951.

- **Foreign Direct Investment (FDI)**: 100% FDI allowed through an automatic route.
- **Goods and Services Tax (GST)**: Lower GST rates for raw and processed food products; over 71.7% of food products covered under lower tax slabs of 0% and 5%.

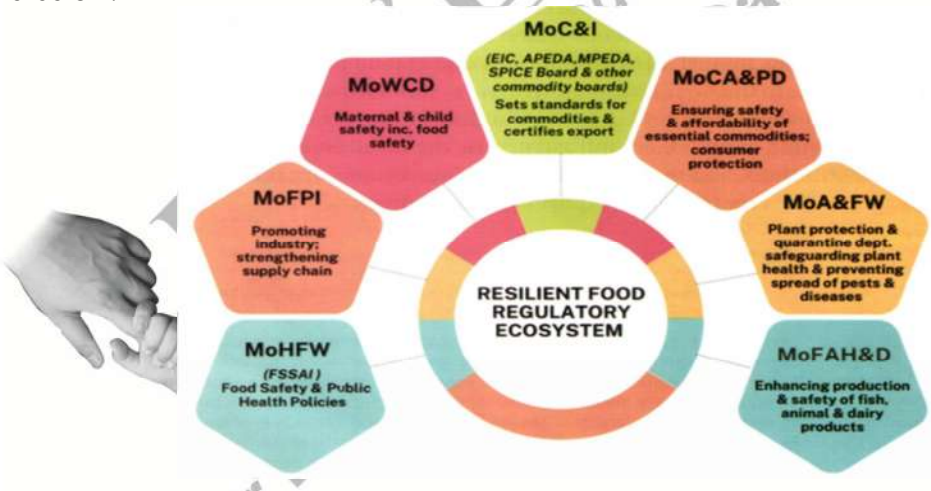
To achieve the goal of making India a developed nation by 2047, the sector's contribution needs to increase to approximately 7.2%. Policy efforts should aim to position India as a leader in five key value chains: processed fruits and vegetables, processed fish and seafood, meat, dairy products, poultry, and eggs, while also addressing skill gaps to develop a capable workforce for the sector.

India's Food Regulatory Landscape: Transitioning Towards a Robust and Contemporary System

The Food Safety and Standards Act of 2006 transformed India's food control system by consolidating various regulations. The Food Safety and Standards Authority of India (FSSAI) now sets science-based standards for food products and oversees their manufacturing, storage, distribution, import, and sale. FSSAI also promotes self-compliance through training and certification and collaborates with international organizations to align Indian standards with global benchmarks.

A Resilient Food Regulatory Ecosystem:

India strives for a strong, transparent, predictable, and risk-based regulatory framework for food safety, coordinated by various ministries and departments. It is given in the figure below.



National Food Control System

The Food Safety and Standards Act, 2006:

- Consolidates various previous acts and orders related to food issues across multiple ministries and departments.
- **FSSAI (Food Safety and Standards Authority of India)** has extensive responsibilities:
  - Formulating science-based standards for food products, additives, processing aids, contaminants, packaging, and labeling.
  - Regulating the manufacturing, storage, distribution, import, and sale of food products.
  - Establishing an integrated food safety surveillance system.

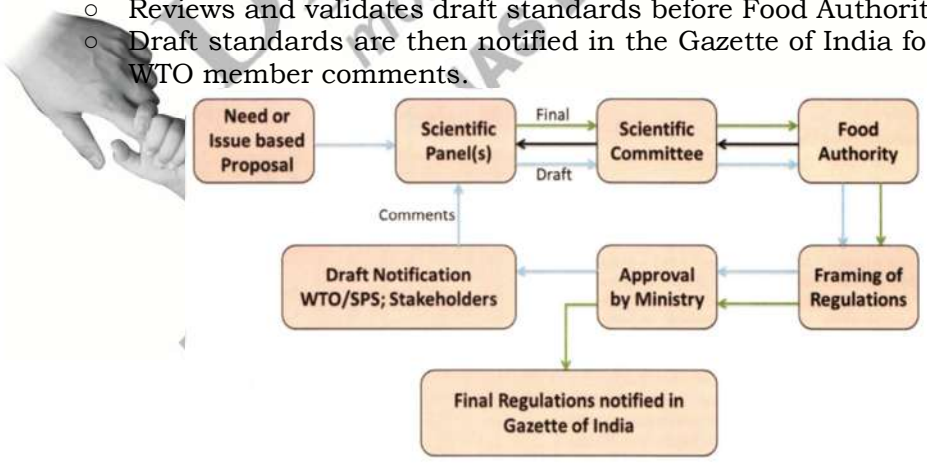
- Promoting self-compliance among food businesses through training, certification, and capacity-building.
- Collaborating with international organizations to harmonize Indian standards with global benchmarks.

Standard Setting Process and Harmonisation

- **Development Process:**
  - Follows a rigorous, scientific, and transparent methodology by various scientific bodies.
  - Emphasizes harmonizing Indian food standards with international guidelines, particularly those of the **Codex Alimentarius Commission.**
  - Aims to align with global best practices, facilitate international trade, and promote higher levels of food safety.
- **Roles of Scientific Bodies:**
  - Food Authority, Scientific Panels (SPs), and Scientific Committee (SC) work together to lay down science-based standards.
  - Standards are based on food safety and risk assessment principles.
  - Standards can be:
    - Horizontal (general, applicable to all product categories) covering food additives, contaminants, toxins, antibiotic and pesticide residues, microbiological criteria, packaging, and labeling.
    - Vertical (specific to a product or product category) prescribing identity and quality characteristics.

Scientific Panels and Committee

- **Scientific Panels:**
  - Consist of experts from universities, research institutes, and reputed government organizations (e.g., CSIR, ICAR, ICMR, IITR, NIFTEM, IIT, CFTRI).
  - Conduct risk assessments and develop draft standards.
- **Scientific Committee:**
  - Includes chairs of 21 scientific panels and six independent experts.
  - Reviews and validates draft standards before Food Authority approval.
  - Draft standards are then notified in the Gazette of India for stakeholder and WTO member comments.



Regulatory Framework

- **Finalisation Process:**
  - Stakeholder comments are addressed.
  - Final regulations are endorsed by the Scientific Committee and Food Authority.

- Legal vetting by the Department of Legislative Affairs and approval by the Ministry of Health and Family Welfare (MoHFW) for implementation.

- **Achievements:**
  - Developed over 700 standards for food products, 350 additives, and processing aids.
  - Over 9,000 provisions, most harmonized with Codex standards and guidelines.

Capacity Building and Promoting a Culture of Self-Compliance

FSSAI emphasizes the necessity of a culture of self-compliance for effective food safety policy implementation. Various programmes and initiatives introduced to support this goal.

Food Safety Training and Certification (FoSTaC):

- Aims to build the capacity of food handlers.
- Ensures the presence of trained Food Safety Supervisors in food establishments.
- Requires one Food Safety Supervisor for every 25 food handlers to ensure safe food handling practices.
- Over 1.72 million food handlers trained across the country.

Third-Party Ecosystem:

- Recognizes third-party auditing agencies to conduct mandatory food safety audits for high-risk food categories.
- Food businesses with satisfactory audit scores are subject to fewer frequent inspections, incentivizing compliance.
- **Hygiene Rating Scheme:**
  - A voluntary initiative for foodservice and retail businesses (e.g., bakery, meat, and dairy).
  - Encourages businesses to assess compliance and improve food hygiene and safety levels.
  - Supports consumers in making informed choices while dining or ordering foods.

Food Testing Ecosystem and Surveillance

- **Testing Network:**
  - Network includes primary laboratories, referral laboratories, and National Reference Laboratories (NRL).
  - Consists of 239 primary food testing labs, 22 referral labs, and 12 reference labs.
  - Over 264 Food Safety on Wheels (FSW) are positioned across the nation.
- **Functions and Achievements:**
  - Ensures rigorous monitoring and testing of food products.
  - FSWs have performed over 231,100 tests, conducted 9,600 awareness sessions, and 5,200 training sessions.
  - FSWs are equipped with Rapid Analytical Food Testing (RAFT) kits for on-site testing, reducing food testing costs.
  - FSSAI has approved over 80 RAFT kits for testing milk adulteration, pesticides in food, etc.
  - Developed public tools like the Detect Adulteration with Rapid Test (DART) book and the Food Safety Magic Box for consumer use in testing adulterants.
- **Surveillance and Data-Driven Approach:**
  - Conducts regular pan-India surveillance programs to identify noncompliance and adulteration hotspots.
  - Uses data for targeted interventions and transparency regarding food safety and quality.

- Actively works on capacity building of food laboratories, ensuring competent staff availability.
- Developing the Integrated Food Laboratory Network (INFOLNET) for real-time monitoring and data analysis.

Managing the Import of Food Products

- **FSSAI's Role:**
  - Regulates domestic and imported food safety.
  - Established the Food Import Clearance System (FICS) to ensure imported food products meet safety and quality standards.
  - FICS is integrated with customs ICE-GATE for quick scrutiny and faster approvals.
  - Introduced the Risk Management System (RMS) to categorize food items based on risk levels, streamlining the clearance process.
  - Notified authorized officers at 156 points of entry for food import clearance.
- **Additional Import Control:**
  - Animal Quarantine Certification Services (Ministry of Fisheries, Animal Husbandry & Dairying) and Plant Quarantine Inspection Services (Ministry of Agriculture & Farmers Welfare) control food imports related to animal and plant health.

Role of Different Autonomous Organisations in Export Trade in India

- **Export Inspection Council (EIC)**:
  - Official export certification body
  - Provides mandatory certification for selected food items
- **Agricultural and Processed Food Products Export Development Authority (APEDA)**:
  - Promotes and develops export of scheduled products
- **Marine Products Export Development Authority (MPEDA)**:
  - Promotes marine products industry with focus on exports
  - Inspects and sets standards for marine products
- **Tea Board**:
  - Promotes tea cultivation, processing, trade, and export
  - Provides mandatory export certification
- **Coffee Board**:
  - Provides mandatory export certification and establishes export infrastructure
- **Spices Board**:
  - Maintains and monitors quality of exported spices
  - Conducts mandatory quality checks for chilli products
- **Coconut Development Board**:
  - Develops coconut production and utilization
- **CAPEXIL**:
  - Promotes export of chemical and allied products
  - Issues shipment clearance certificates
- **SHEFEXIL**:
  - Facilitates export of shellac and lac-based products
- **IOPEPC**:
  - Promotes export of oilseeds and oils
  - Provides export certificates and RCMC

Food safety is a shared responsibility. India has implemented a 'Whole of Government' approach in its national food control system, involving multiple ministries, State governments, research and academic institutions, and autonomous organizations. Key principles guiding the setting and enforcement of standards in India include transparency, predictability, cohesiveness, and a risk-based approach. State food safety authorities play a crucial role in ensuring compliance by food businesses. India boasts a robust and expanding food testing infrastructure nationwide. Through sustained efforts and innovative strategies, FSSAI is driving the nation towards a safer, healthier food system that aligns with global standards.

Processed Foods : Rising Demand for Healthier Food Options

As the demand for healthier food options rises, initiatives like NAFED's Bharat Atta, Bharat Dal, Bharat Rice, and the promotion of millets are essential in meeting consumer expectations while supporting sustainable agriculture and food security. By encouraging millet production and consumption, NAFED helps farmers diversify their crops and provides consumers with nutritious, eco-friendly food choices. This shift towards healthier and more sustainable foods is not just a trend but a necessity for addressing global challenges such as climate change and food security.

Importance of Healthy Eating

- **Balanced Lifestyle:**
  - An individual can achieve freedom from sorrow through a balanced diet, healthy entertainment, balanced actions, right efforts, and adequate sleep.
- **Shift in Food Choices:**
  - In today's fast-paced world, processed foods have been popular for their convenience.
  - There is a noticeable shift towards healthier food options as more individuals prioritize nutritious choices over processed alternatives.
- **Awareness of Healthy Eating:**
  - People are increasingly aware that their food choices impact physical health, energy levels, mood, and long-term vitality.
  - The quote, "The journey to wellness starts with a single bite of intention," reflects this growing awareness.

NAFED's Initiatives

- **Expansion into Healthy Food:**
  - The National Agricultural Cooperative Marketing Federation of India (NAFED) has introduced initiatives like Millets, Bharat Atta, Bharat Dal, and Bharat Chawal.
  - These initiatives align with NAFED's commitment to promoting healthy eating at affordable prices.

- **Nutritional Benefits of Millets:**
  - Millets are highly nutritious grains, rich in protein, fiber, and essential vitamins and minerals (e.g., phosphorus, magnesium, iron).
  - Beneficial for individuals with diabetes due to their low glycemic index.
  - Gluten-free, making them suitable for those with celiac disease or gluten sensitivities.
  - Promote digestion, prevent asthma, and support heart health.

Promotion and Cultivation of Millets

- **Comprehensive Millets Campaign:**
  - NAFED launched a campaign in 2022-2023 to promote millets as a dietary staple.
  - Established the Millets Experience Centre, Shree Anna, at Dilli Haat, New Delhi, to showcase the nutritional benefits and culinary versatility of millets.
  - Prime Minister Narendra Modi praised NAFED's market linkages for Shree Anna products during a Millets Luncheon at Parliament on December 20, 2022, in preparation for the International Year of Millets-2023.
- **Support for Startups:**
  - NAFED showcased millet-based startups at events, increasing their visibility and accessibility.
  - Introduced exclusive Millet Corners in NAFED Bazaar stores to promote millet products.
- **Healthier Snacking Initiatives:**
  - Deployed 'Millet Vending Machines' across the Delhi-NCR region in collaboration with the Ministry of Agriculture & Farmers Welfare to encourage healthier snacking.
- **International Representation:**
  - Curated custom millet-centered gift hampers for G20 Meetings, representing India's commitment to healthy living and sustainable agriculture.
  - Millets are resilient to adverse weather conditions and provide a nutritious alternative to traditional staple grains.
- **Bharat Atta Initiative:**
  - Bharat Atta is a premium-quality whole wheat flour launched under the Government's Open Market Sale Scheme (OMSS).
  - Wheat flour branded as Bharat Atta is available at ₹27.50/kg across states through retail chains, NAFED Bazaar outlets, and mobile vans.
  - It is affordable, high in dietary fibres, vitamins, and minerals, and made from 100% whole wheat grains, retaining their natural goodness.
  - NAFED's initiatives contribute to healthier food choices and support the Government's efforts to ensure food security for all.
- **NAFED's Agricultural Promotion**
  - For over 60 years, NAFED has been promoting agriculture and allied sectors in India.
  - The launch of Bharat Atta marks another milestone in empowering farmers and providing high-quality agricultural products to consumers.
  - NAFED supports farmers in diversifying their crops and offers consumers nutritious, eco-friendly food options.
- **Bharat Chawal Initiative**:
  - NAFED launched Bharat Chawal to offer high-quality, nutritious, and affordable rice varieties. It is rich in essential nutrients, vitamins, and minerals.
  - The introduction of Bharat Chawal aligns with the Government's goal of ensuring food security for all.

- **Bharat Dal Initiative**:
    - In line with the Government's vision of self-sufficiency in pulse production, NAFED promotes the cultivation and consumption of pulses through the Bharat Dal initiative.
    - Bharat Dal focuses on reducing import dependence and increasing domestic pulse production.
    - Pulses like Tur Dal and Masoor Dal are high in protein, fiber, complex carbohydrates, vitamins, and minerals such as iron, calcium, magnesium, and potassium.
    - Pulses help in maintaining a healthy weight, reducing chronic disease risk, managing cholesterol levels, and providing sustained energy.
    - Pulses are environmentally friendly, requiring less water and improving soil fertility.

Government Support for Farmers

- **Price Support Scheme (PSS)**: The government ensures fair prices for crops through schemes like the PSS.
- **Price Stabilisation Fund (PSF)**: The PSF helps maintain adequate food supply and stabilize prices.
- **Stakeholder Collaboration**: NAFED's success stems from its comprehensive approach, collaborating with farmers, retailers, and government agencies to promote healthier food options and positively impact the agricultural sector and consumer health.

NAFED's initiatives like Bharat Atta, Bharat Dal, Bharat Chawal, and the promotion of millets are crucial for meeting consumer demand for healthier food while supporting sustainable agriculture and food security. By choosing these products, consumers ensure better nutrition, support local farmers, and promote agricultural diversity. This shift towards healthier and more sustainable food choices addresses global challenges like climate change and food security, empowering consumers to shape a nutritious and environmentally responsible food system.

Export Potential and Global Competitiveness of Indian Processed Foods

The food processing industry is a vital sector of the Indian economy, leveraging India's status as a leading producer of dairy, cereals, fruits, vegetables, animal proteins, fish, spices, and tea. This sector, dominated by SMEs, generates significant employment and higher incomes for farmers.

Despite being the 18th largest exporter, India's share in global merchandise exports is around 1.8%. Exports contribute about 23% to India's GDP, a notable figure compared to the US (12%), Japan (19%), and China (21%). Post-COVID-19, exports recovered but slowed, with merchandise exports at USD 437 billion in 2023-24. India's share in global imports of processed food remains low, despite its vast production capacity.

Export Overview of India

- **Wide Range of Exports**: India exports over 10,000 tariff lines, with food and agricultural products constituting approximately 11% of total exports.
- **Key Export Items**: Dominant products include rice, spices, buffalo meat, sugar, and oil meals.
- **International Markets**: Strong presence in the USA, China, UAE, Saudi Arabia, Bangladesh, Iran, Indonesia, Vietnam, Sudan, and the Netherlands.

Policy Initiatives for Agri-Exports

- **Agricultural Export Policy (2018)**: Aims to achieve USD 100 billion in agri-exports and create a conducive environment through supportive measures.
- **Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)**:
  - Approved by the Union Cabinet on March 31, 2021.
  - Focuses on value-added segments: ready-to-cook/ready-to-eat foods, processed fruits and vegetables, marine products, and mozzarella cheese.
  - Promotes innovative and organic products from SMEs.
  - Encourages global promotion of 'Brand India' through branding and marketing support.
  - Requires more encouragement and support for SMEs, as evidenced by the low number of applications received.
- **Federation of Indian Export Organisations (FIEO)**:
  - Provides market research reports, country-specific information, and data on global trade trends.
  - Helps members make informed decisions and explore new export opportunities.
- **Pradhan Mantri Kisan Sampada Yojana (PMKSY)**:
  - Addresses infrastructure challenges faced by SMEs in the food processing sector.
  - Promotes technology adoption, establishment of cold chains, and other processing facilities.
  - Aims to improve the supply chain and storage capabilities in the food processing industry.
- **Boosting Food Exports through Mega Food Parks**
  - Mega Food Parks create modern infrastructure for food processing across the entire supply chain, from farm to market.
  - Establish modern processing facilities to meet international quality standards for food products.
  - Improved infrastructure reduces spoilage and extends shelf life, making exports more viable through higher value addition.
  - Clustering of processing units facilitates knowledge sharing and access to common resources, leading to higher quality and competitiveness in the export market.
  - : Programmes within the Ministry of Food Processing Industries (MoFPI) offer grant-in-aid to approved food processing units, incentivizing them to set up units within Mega Food Parks.

Export Potential and strategy

India holds only a 3.7% share in the top 10 globally consumed commodities, indicating significant room for growth.

Table 1: India's position in top 10 items consumed globally

Hs Code (6-digt)	Product label	World imports from world		India's exports		India's share in world imports 2022
		Value in 2022 (USD bn)	CAGR (2018-22)	Value in 2022 (USD bn)	CAGR (2018-22)	
210690	Food preparations, n.e.s.	58.351	7%	0.581	20%	1.00%
151190	Palm oil and its fractions, whether or not refined (excl. chemically modified and crude)	42.711	18%	0.003	130%	0.01%
190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...	31.576	9%	0.167	5%	0.53%
220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	27.739	1%	0.001	-17%	0.002%
100630	Semi-milled or wholly milled rice, whether or not polished or glazed	25.430	6%	9.400	8%	36.96%
040690	Cheese (excl. fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese and ...	23.160	4%	0.028	16%	0.12%
230910	Dog or cat food, put up for retail sale	22.886	13%	0.063	13%	0.27%
230990	Preparations of a kind used in animal feeding (excl. dog or cat food put up for retail sale)	22.711	7%	0.279	2%	1.23%
220300	Beer made from malt	17.435	2%	0.045	1%	0.26%
180690	Chocolate and other preparations containing cocoa, in containers or immediate packings...	15.929	3%	0.098	-4%	0.61%

- **Data-Driven Policies**
  - **Definition of Food Processing**: Includes manufactured processes (transforming raw products through various means) and other value-added processes (e.g., increasing shelf life).
  - **Alignment with HS Codes**: Aligning categories at the 8-digit HS level can provide more precise insights into value-added processed food exports.
  - **International Standards**: Adoption of separate HS codes for processed food, as seen in Singapore, could help track and promote value-added exports.
- **Compliance with International Standards**
  - **Stringent Standards**: Food products are subject to stringent standards in major international markets, posing both opportunities and challenges.
  - **WTO SPS Agreement**: Advocates for harmonized sanitary and phytosanitary measures but allows national standards to ensure food safety and quality.
  - **Centralized Repository**: Need for a centralized repository of standards to help SMEs comply with varied requirements.
- **Free Trade Agreements**
  - **Market Access**: Negotiating Free Trade Agreements (FTAs) helps in better market access through duty concessions.
  - **Mutual Recognition Agreements (MRAs)**: Including MRAs in FTAs ensures that products certified locally do not require additional certification.

- **Quality of Raw Materials**
  - **Farmer Producer Organisations (FPOs)**: Government initiative to promote 10,000 FPOs ensures a steady supply of consistent-quality raw materials for processed food products.
  - **Value Chain Interaction**: Enhance interaction and linkages between raw material suppliers and processing units.
- **Skill Development**
  - **Specialized Training**: Capacity-building programs and training sessions tailored to local needs in food processing clusters.
  - **Professional Courses**: Introducing courses in food technology, food science, food engineering, and food packaging to develop industry skills.
  - **Food Safety Training**: Basic training related to food safety and HACCP certification is essential.
- **Infrastructure and Logistics**
  - **Cold Chains and Warehouses**: Specific needs for cold chains, temperature-controlled warehouses, and reefer vans in the food and agriculture sectors.
  - **Transportation Quality**: Adequate infrastructure at clusters, sea, and airports to maintain the quality of goods during transportation.
- **Enhanced Marketing**
  - **Global Trade Fairs**: Exposing global buyers to Indian processed food exporters through trade fairs encourages engagement and showcases capabilities.
  - **Government Support**: Larger government support for startups and MSMEs to participate in global trade fairs and engage with buyers in key markets.

In conclusion, India's processed food sector has significant export growth potential. By leveraging its agricultural resources, investing in modern infrastructure like food parks, and upholding food safety standards, India can enhance its global competitiveness. Continued government support, industry collaboration, and innovation are vital to transforming this sector into a key driver of economic growth and establishing a strong position in the international food market.

Production Linked Incentive scheme for Food processing industries

The Production Linked Incentive (PLI) scheme by the Government of India is a performance-based incentive program that rewards companies for incremental sales from products manufactured in domestic units. The scheme aims to boost the manufacturing sector and reduce imports. Its objectives include promoting the Make in India initiative, encouraging foreign manufacturers to establish production in India, and incentivizing domestic manufacturers to expand their production and exports. The Government of India has introduced PLI schemes totaling ₹1.97 lakh crore (approximately US$28 billion) across 14 sectors.

Production Linked Incentive Scheme for Food Processing Industry (PLISFPI) Overview

Incentive Claims Submission:

- Beneficiaries must submit incentive claims for a financial year by December 31st of the following financial year.
- For FY 2021-22, ₹584.30 crore has been disbursed in 41 cases.

Beneficiary Selection:

- Based on eligibility criteria outlined in the Scheme Guidelines.
- Guidelines were finalized after stakeholder consultations.

State-wise Number of Companies:

Sl. No.	STATE/ UT	Number of Companies
1	ANDHRA PRADESH	7
2	DELHI	20
3	GOA	1
4	GUJARAT	29
5	HARYANA	2
6	HIMACHAL PRADESH	2
7	KARNATAKA	9
8	KERALA	8
9	MADHYA PRADESH	2
10	MAHARASHTRA	34
11	NAGALAND	1
12	ODISHA	1
13	PUNJAB	1
14	RAJASTHAN	3
15	TAMIL NADU	8
16	TELANGANA	9
17	UTTAR PRADESH	3
18	UTTARAKHAND	3
19	WEST BENGAL	13

Employment Generation:

- Aim: Create employment for approximately 2.5 lakh people.
- As of September 30, 2023, employment for 2,37,335 persons reported.
- Employment data is maintained company-wise, not state-wise.

Scheme Approval and Implementation:

- Approved on March 31, 2021.
- Outlay: ₹10,900 crore.
- Implementation period: FY 2021-22 to FY 2026-27.

Scheme Components:

1. Incentivising manufacturing in:
    - Ready-to-Cook/Ready-to-Eat foods
    - Processed fruits and vegetables
    - Marine products
    - Mozzarella cheese
2. Promoting innovative or organic products from SMEs.
3. Incentivising branding and marketing abroad for Indian brands.

Disbursement of Incentives (FY 2021-22):

Segment	Incentive Disbursed (₹ Crore)
Processed Fruits & Vegetables	137.71
Ready to Cook/ Ready to Eat	362.35
Marine Products	72.31
Mozzarella Cheese	8.91
Organic Products	3.02
Total	584.30

Consultative Approach:

- Active engagement with stakeholders during formulation.
- Regular engagements to ensure relevance and effectiveness of guidelines.

Technology in Food Processing Industries:

- New technologies like Dielectric Heating are being utilized to enhance processing efficiency.

The PLISFPI aims to enhance the food processing industry through financial incentives, generating employment, promoting innovation, and aligning with global best practices. The scheme targets key segments, supports SMEs, and fosters international marketing of Indian brands.

One District One Product (ODOP) Brands

- As part of the Atmanirbhar Bharat Abhiyan, the Ministry of Food Processing Industries (MoFPI) is implementing the PM Formalisation of Micro Food Processing Enterprises (PMFME) Scheme.
- The scheme aims to provide financial, technical, and business support for setting up or upgrading micro food processing enterprises in India.

Scheme Duration and Budget:

- Operational period: 2020-21 to 2024-25.
- Outlay: ₹10,000 crore.

ODOP Approach:

- Adopts One District One Product approach to leverage benefits of scale.
- Focuses on procurement of inputs, availing common services, and marketing of products.
- Provides a framework for value chain development and support infrastructure alignment.

Objectives:

- Enhance competitiveness of existing micro-enterprises in the unorganised food processing sector.
- Promote formalisation of the sector.
- Build capacity of micro enterprises through increased access to credit.
- Integrate with organised supply chains by strengthening branding and marketing.

- Increase access to common services.
- Strengthen institutions, research, and training in the food processing sector.

Credit Linked Subsidy:

- Sanctioned to 12,024 micro food processing units based on ODOP under the PMFME Scheme.
    - Rajasthan: 109 units
    - Uttar Pradesh: 756 units
    - Gujarat: 69 units
    - Odisha: 240 units

Monitoring and Support:

- Growth of ODOP units and other groups under the PMFME scheme is assessed and monitored through regular follow-up/review meetings with States/UTs, lending banks, concerned Ministries/Departments, and other stakeholders.
- Beneficiaries receive handholding support under the PMFME Scheme.

Branding and Marketing Component of PMFME Scheme

Support Provided:

- Market Study and Product Standardization.
- Packaging Material.
- Quality Control and Food Safety Adherence for Consumer Retail Sales.
- Warehousing and Storage Rentals.
- Marketing and Promotion.

Achievements:

- As of 30th November 2023, 14 ODOP brands have been launched in the country

State/UT	Product	Brand	Brand Ownership
Bihar	Makhana (Darbhanga, Madhubani)	Makhana King	NAFED
Delhi	Bakery Products (West Delhi)	Dilli Bakes	NAFED
UP	Multi Flora Honey (Saharanpur)	Madhu Mantra	NAFED
Rajasthan	Coriander Powder (Kota)	Cori Gold	NAFED
J&K	Lal Mirch Powder (Kulgam)	Kashmiri Mantra	NAFED
Haryana	Amla Juice (Gurugram)	Amrit Phal	NAFED
Maharashtra	Raagi Flour (Thane)	Somdana	NAFED
Uttar Pradesh	Multi Flora Honey & Lemon Honey (Saharanpur)	Madhurmithas	NAFED
Punjab	Mango Pickle (Amritsar) Mixed Pickle	Pind Se	NAFED
Meghalaya	Spicy Dried Pineapple (Ri Bhoi)	Anaras	NAFED
Punjab	Jaggery, Pickle and Murraba (Amritsar, Hoshiarpur, Gurdaspur, Fatehgarh Sahib and SAS Nagar)	Aasna (SPV)	Punjab Agro Unati Grameen Marketing Pvt. Ltd. (PAGMARK)
Maharashtra	Raagi (Nandurbar and Thane), Sorghum (Solapur) and Tomato (Pune and Latur)	Bhimthadi (SHG)	Bhimthadi Foundation
Karnataka	Millet based products (Davanagere)	Seemi	Davanagere & Chitradurgadistricts Organic Farmers Cooperative Federation (DCOFCF)
Karnataka	Red gram based products (Kalaburgi)	Bhima	Karnataka State Pulses Abhivrudhi Mandali Ltd.

Financial Support:

- Provided to various beneficiaries in Pali, Deoria, Jhansi, Pratapgarh, Navsari, and Balasore Parliamentary Constituencies (details in Annexure-II).

Capacity Building Component of PMFME Scheme

Training Programs:

- Focus on 'Entrepreneurship Development' and 'Food Processing'.
- Beneficiaries include FPOs (Farmer Producer Organizations), SHGs (Self-Help Groups), and Cooperatives.

Training Achievements:

- As of 30th November 2023, 54,767 beneficiaries have been trained, including members of FPOs, SHGs, and Cooperatives.

The PMFME Scheme successfully boosts micro food processing enterprises through branding, marketing, financial support, and capacity building.

Smart Food Processing In India

Food processing is essential for extending the shelf-life of food products. It offers numerous benefits, such as reducing the risk of spoilage, improving palatability, and enhancing digestion. Additional advantages include cost-effective storage, simplified marketing and distribution, and improved food safety. The expansion of the processed food industry also holds promise for creating new employment opportunities, particularly in rural areas. Overall, the food processing sector presents significant potential and vast market opportunities.

Current Status of Food Processing in India

- **Rapid Market Growth**: India is now the fastest-growing major market for packaged food globally, with the food processing industry being one of the largest sectors in the economy.
- **Diverse Sector**: The food processing sector includes several leading companies that specialize in a wide range of products, including confectionery, beverages, dairy, and snacks. These firms contribute significantly to the industry.
- **Drivers of Growth**: Key factors fueling industry growth include rising living standards, changing lifestyles, urbanization, and an increasing demand for packaged and ready-to-cook food products.
- **Health Consciousness**: There is a growing demand for organic, healthy, nutritious, and wellness products due to heightened health and hygiene awareness among consumers.
- **Innovation Potential**: The food processing sector holds considerable potential for innovation to enhance shelf life, nutritional value, safety, and quality of food products.
- **Value-Added Foods**: Nutrient-rich and value-added foods are increasingly popular, particularly in urban areas, with high demand for convenience foods, processed fruits and vegetables, soft drinks, pet food, alcoholic beverages, confectionery, and sports drinks.
- **Functional Foods**: Products containing dietary fibers and various fiber-enriched items are experiencing high demand. Functional foods include vitamins, nutraceuticals, herbs, and plant-derived ingredients that promote health and wellness.
- **Nutraceutical Applications**: There are numerous applications for nutraceuticals in industries such as powdered drinks, cereals, cookies, chocolate drinks, pet food, and dietary supplements.

Technological Innovation in Smart Food Processing

a) Internet of Things (IoT) in Food Processing

- **Monitoring and Analysis**: Sensors can monitor, analyze, and report changes in food processing, enabling real-time data transfer and decision-making for manufacturers.
- **Enhanced Supply Chain**: IoT improves the properties and requirements of food products, helping farmers, manufacturers, retailers, and customers through better logistics and performance management.
- **Future Paradigm Shift**: The integration of smart devices, sensors, and communication technology is expected to transform the food industry, making operations more cost-effective and efficient.

b) Artificial Intelligence (AI) Applications

- **Addressing Supply Chain Challenges**: AI can enhance food safety, market orientation, quality assurance, and the preservation of local product identities by improving traceability and minimizing post-harvest losses.
- **Transformation of Agriculture**: AI technologies are revolutionizing traditional agriculture in India, aligning with smart food processing practices and ensuring economic quality assurance.

c) Robotics and Automation

- **Core Technologies**: Robotics in food processing relies on industrial vision techniques and non-destructive sensors for quality inspection and processing.
- **Advantages of Robotics**: Robotic applications promise safer outcomes compared to manual handling, ensuring speed, continuous work, and minimal stress for processing non-uniform products.
- **Investment Challenges**: Current robotic systems require significant investments, making them less accessible for many food processing entities.
- **Labor Shortages**: The increasing shortage of unskilled labor in the food industry is driving the adoption of robotics for various applications, including material handling, cleaning, quality inspection, cutting, sorting, and packing.

Challenges and Opportunities in Food Processing

Challenges

1. **Infrastructure and Investment**:
   - Inadequate infrastructure is a significant limitation in the food processing sector, particularly in handling perishable produce.
   - Issues include insufficient storage facilities, poor compliance with hygiene and phytosanitary standards, and inefficient transport and logistics.
2. **Regulatory Framework and Standards**:
   - The Ministry of Food Processing Industries (MoFPI) was established in 1988 to support the food processing sector's development.
   - The sector is regulated by various laws, including the Fruit Product Order (1955), the Meat Food Products Order (1973), and the Vegetable Oil Product Order (1998).
   - MoFPI oversees several organizations, including the National Institute of Food Technology and Entrepreneurship Management (NIFTEM) and the Food Processing Industries Confederation (FPIC).
   - Certain food products are reserved for small-scale industries under the 8th Schedule of the Industries (Development & Regulation) Act, 1951.

Opportunities

1. **Economic Transformation**:
   - Food processing has immense potential to enhance people's lives and contribute to the national economy, especially with organized state intervention.

2. **Exploitation of Local Products**:
    - Small units can leverage traditional products by utilizing available raw materials and accessing production techniques, marketing, and after-sales services.
3. **Export Opportunities**:
    - The opening of the Indian economy presents opportunities for economic upliftment through food exports. Industrial growth and investment are crucial for capitalizing on these opportunities.
4. **Growing Demand for Convenience Foods**:
    - There is a rising demand for ready-to-eat meals and convenience food preparations, indicating significant potential for processing perishable fruits and vegetables.
5. **Innovative Food Products**:
    - Industrial development has spurred the creation of innovative food products, including those derived from food grains for industrial alcohol plants.
6. **Utilization of Raw Materials**:
    - A strategic approach is needed to utilize raw materials effectively in food production, with significant investment opportunities in the industry.
7. **Growth of Convenience Foods**:
    - The popularity of ready-to-eat meals, juices, ice creams, and bakery products has increased due to organized production, packaging, and distribution, alongside educational and industrial development.
8. **Addressing Waste**:
    - Despite good-quality produce available from rural and urban development, a significant portion still goes to waste, highlighting the need for systematic growth in domestic and international markets.

In the past three decades, ready-to-eat meals, juices, ice creams, bakery products, and other convenience foods have gained popularity in households, driven by organized production and distribution, alongside advancements in education and industry. Rural and urban areas have generated a surplus of high-quality fruits, vegetables, and processed foods, but a significant portion of this produce goes to waste. While traditional products are available in local markets, systematic growth in domestic and international markets is essential to minimize waste and fully leverage these resources.