MINISTRY OF FOOD PROCESSING INDUSTRIES
GOVERNMENT OF INDIA

INTERNATIONAL YEAR OF MILLETS 2023

सत्यमेव जयते

G20 भारत 2023 INDIA

Azadi Ka Amrit Mahotsav

FOOD PROCESSING

Towards Sustainable Growth Opportunities

SECTOR PROFILE

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ABSTRACT

- The Indian food processing sector has witnessed remarkable growth, surpassing a 9% average annual growth rate since 2014-15. The Gross Value Addition (GVA) in the food processing sector has shown a Compound Annual Growth Rate (CAGR) of 7.27% in the past five years. The sector contributes approximately 20% to the overall GVA at basic prices, highlighting its competitiveness and ability to cater to international markets. India's processed food exports have experienced a significant surge, reaching US$13.07 billion in 2022-23. The Ministry of Food Processing Industries has provided support and incentives to the sector through its flagship schemes, such as the Pradhan Mantri - Kisan Sampada Yojana, Pradhan Mantri Formalisation Micro Food Processing Enterprises, and the Production Linked Incentive Scheme.

- India holds the distinction of being the world's largest producer and consumer of milk, with significant advancements in the dairy processing ecosystem. The dairy sector has grown at a rate of 6.08% since 2014-15. India's milk production accounts for about 24% of the global milk production. The dairy processing sector in India offers a wide range of products, including milk, butter, cheese, ghee, yogurt, flavoured milk, lactose-free dairy products and value-added products like ice creams and yogurts.

- The dairy processing sector in India is experiencing a favourable outlook, as there is a growing demand for dairy products both within the country and globally. Factors such as rising disposable incomes, changing consumption patterns, and demand for healthy food supplements contribute to the sector's growth. The growth of the dairy processing sector in India is supported by a strong regulatory framework, research and development initiatives, and government schemes focused on the sector's development.

- The document also provides insights into the global trends in processed dairy products, highlighting the increasing demand for plant-based replacements and the potential impact of environmental regulations on the dairy industry. India can capitalise on the growing demand for dairy products globally as global demand for dairy products is projected to experience growth in various product categories including Skimmed Milk Product, cheese, whey powder, butter, and Whole Milk Powder. This document provides an overview of the global trends in processed dairy products, highlighting India's strength in dairy processing and its opportunities.

- Overall, the Indian food processing and dairy processing sectors demonstrate significant potential and play a crucial role in contributing to the country's economy and meeting rapidly evolving consumer demand.

01. INTRODUCTION

India is the largest producer and consumer of milk in the world, with an annual production of around 221 million metric tons in 2021-22[1]. With high volume production, there can be considerable post-harvest wastage of milk at farm level and market level due to poor handling and sub-optimal storage facilities[2]. Processing of milk, thus, becomes important in reducing losses, improving shelf-life, addressing nutritional security of population as well as increasing farmer income.

The diary processing ecosystem in India has evolved considerably over the years with well-developed backward and forward linkages along the value chain. The sector processes a diverse basket of products such as milk, butter, cheese, ghee, yogurt, flavoured milk, lactose free dairy products etc.

Major share of dairy products consumed in India is in the form of fresh milk. Since 2014-15, the dairy sector has grown at a rate of 6.08% compared to the global dairy production growth of 1.1% in 2021, reaching a total production of 887 Mt%[3]. Consequently, the sector has played important role in improving the per capita availability of milk in India to 444 grams per day in 2021-22[4], whereas the global average of milk availability is around 321 grams per day[5].
Table 1 depicts the growth of annual milk production and per capita availability of milk over the years.

TABLE 1

ANNUAL MILK PRODUCTION, INDIA AND GLOBAL

INDIA'S MILK PRODUCTION (MMT)

2014-15
146.3

2021-22
221.1

CAGR
6.08%

GLOBAL MILK PRODUCTION (MMT)

2014
789

2021
924.8

CAGR
2.29%

PER CAPITA AVAILABILITY IN INDIA (GRAMS/DAY)

2014-15
319

2021-22
444

CAGR
4.83%

[1] Basic Animal Husbandry Statistics, 2022
[2] Study to Determine Post Harvest Losses of Agri-Produces in India, MoFPI
[3] Annual Report 2021-22, Department of Animal Husbandry and Dairying | Food Outlook Report, FAO 2022
[4] Department of Animal Husbandry and Dairying
[5] OECD-FAO Agricultural Outlook Report, 2022-2031

With sufficient supply of milk domestically, there is immense potential for processed dairy products in India. This is bolstered by strong demand within the country as well as global market for processed dairy products. Products such as ghee, butter, cheese, skimmed milk powder, flavoured milks, fermented products, fortified dairy alternatives etc are expected to witness substantial growth in the coming years. Globally, the demand for higher processed dairy products like Cheese will remain high in the European Union (EU) and United States of America (USA). Similarly, developing economies in Africa and Asia will record a high demand for Skimmed Milk Powder in the coming years., the demand is expected to grow. This puts the Indian dairy processing sector on a very optimistic cusp of opportunities.

This document highlights the global trends in dairy products, India's strength in dairy processing, opportunities, the supporting regulatory framework, R&D and skill development ecosystem and government initiatives to support the dairy processing sector in the country.

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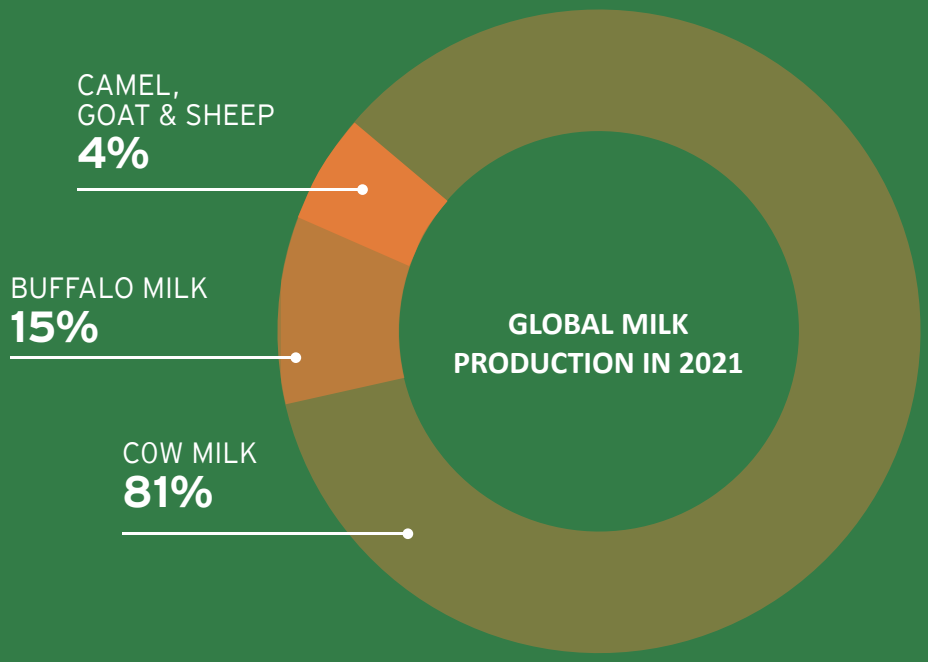
2. GLOBAL TRENDS IN PROCESSED DAIRY PRODUCTS

Milk and associated dairy products are an important source of nutrition. It supports millions of livelihoods across the globe. In 2021, the world milk production comprised of mainly cow milk (81%), followed by buffalo milk (15%), camel, goat and sheep (approx. 4% combined)[6].



2.1 GLOBAL CONSUMPTION

As population size and income level increases in various countries, more dairy consumption globally is expected in the future. The overall per capita consumption of milk by 2031 (in terms of milk solids equivalent) is expected to grow the highest, at 2% per annum (21.2 Kg) in the low-middle income countries, followed by 1.5% per annum (5.4 Kg) in low-income countries. However, the per capita consumption will see a slow growth in high income countries at 0.4% per annum (21.9 Kg) by 2031[7].

Most of dairy production globally is consumed as fresh dairy products that are either unprocessed or minimally processed, such as pasteurized milk or minimally fermented products. In low and middle-income countries, fresh dairy products make up more than two-thirds of the average per capita dairy consumption, whereas consumers in high-income countries, show a preference to processed dairy products. Figure 1 shows current and expected per capita consumption of processed and fresh dairy products.

[6] OECD-FAO Agricultural Outlook 2022
[7] Ibid.

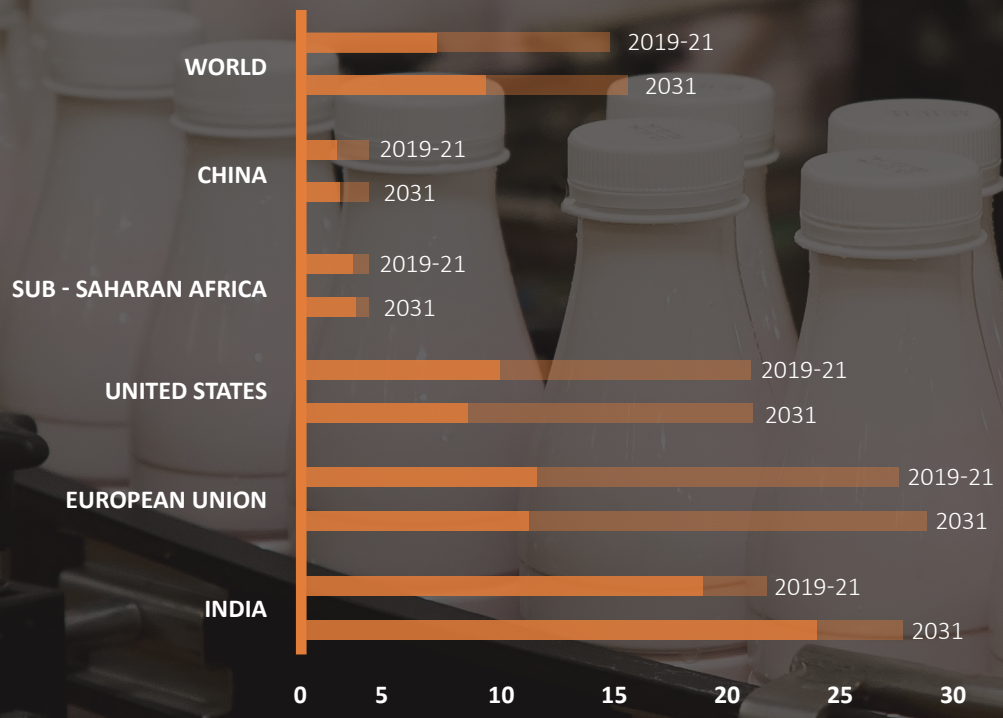


FIGURE 1:
PER CAPITA CONSUMPTION OF PROCESSED AND FRESH DAIRY PRODUCTS IN 2019-21 AND EXPECTED CONSUMPTION FOR 2031[8].

2.2 GLOBAL TRADE SCENARIO

Majority of the exports came from New Zealand, USA, Germany, Netherlands, France and Belgium. China was the largest importer of Milk and Milk cream products in 2021, touching 1,310,077 tons of imports, followed by Netherlands, Algeria and the UAE.

In terms of trade in processed dairy product, World's dairy imports in 2021 was led by cheese, milk powder (WMP and SMP) and whey powder, butter, etc. This is underpinned by demand from China and Germany in particular. Leading exporters of the milk and its products were New Zealand, Germany, the Netherlands, France, and the United States in 2021. Export from major dairy producers like India are negligible as most production volumes are catered to domestic demand. Exports from emerging economies like India is also inhibited by various non-tariff barriers in most importing countries arising out of strict regulatory compliance requirements as well as Sanitary and Phytosanitary requirements mandated by countries.

[8] OECD-FAO Agricultural Outlook 2022, OECD Agriculture Statistics Database

World dairy trade is projected to expand over the next decade to reach 14.2 MT in 2031. The growth rates are expected to vary across dairy products with the strongest growth at 1.7% per annum for Skimmed Milk Product, 1.6% per annum for cheese, 1.5% per annum for whey powder, 1.3% per annum for butter and 0.9% per annum for Whole Milk Powder. Most of this growth will be met by increased exports from the United States, the European Union and New Zealand and will jointly account for around 65% of cheese, 71% of WMP, 74% of butter, and 80% of SMP exports in 2031[9].

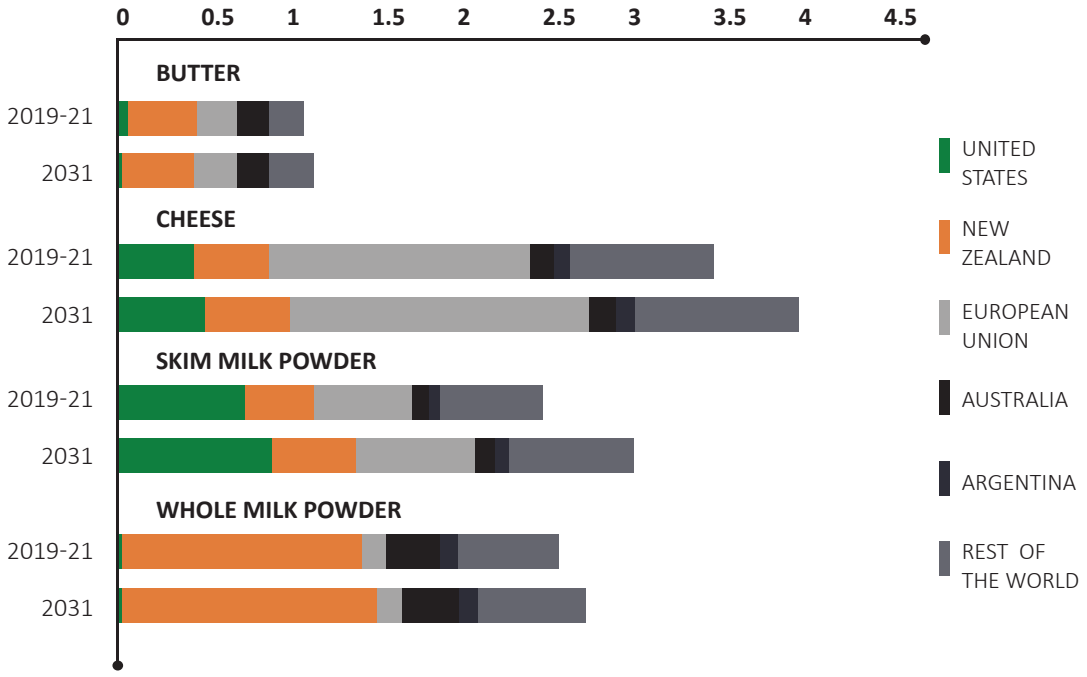


ILLUSTRATION:
CURRENT AND PROJECTED EXPORTS OF PROCESSED DAIRY PRODUCTS[10].

2.3 GLOBAL TRENDS[11]

Increased demand of plant-based replacements of dairy products has increased in USA, Europe and Asia. This is attributed to health and consumer concerns regarding environmental impact of dairy production and awareness of lactose intolerance.

Similarly, prospective environmental regulations could have negative impact on global dairy industry. Green House Gas emissions from dairy production and processing activities make up a high share of total emissions in many countries. However, the global trend for processed dairy products looks promising in the near- and medium-term forecasts. Countries like India can capitalise on the growing demand for dairy products globally.

[9] Ibid
[10] Ibid
[11] Ibid

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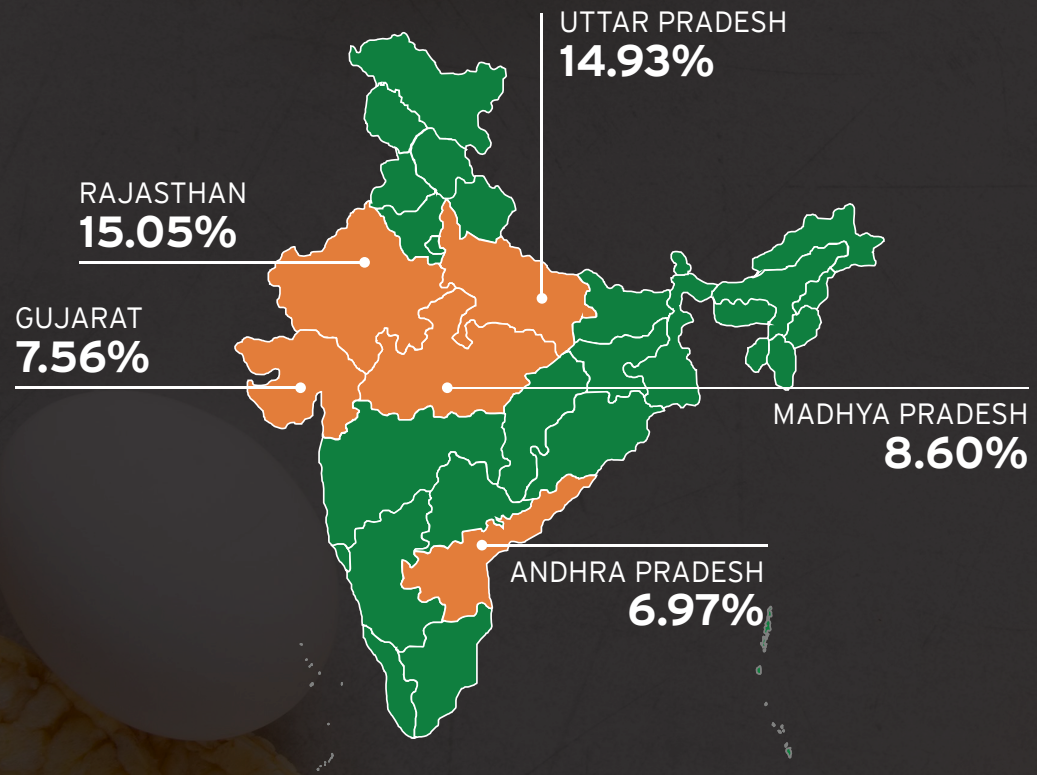
03. OVERVIEW OF DAIRY PROCESSING IN INDIA

India is the largest producer of milk globally with an annual production of around 221 million metric tons in 2021-22[12]. Dairy is a high priority sector for Government of India due to its socio-economic significance. It is the single largest agricultural commodity contributing 5% of the national economy and employing 80 Mn+ farmers directly. Further, the country boasts a large domestic packaged dairy products market worth Rs. 3.0 lakh crore witnessing a strong double-digit growth[13].



[12] Basic Animal Husbandry Statistics, 2022
[13] MoFPI

3.1 MARKET OVERVIEW

The dairy products market in India ranks third in the Asia Pacific region and is self-reliant in terms of dairy production. The industry's turnover is forecast to grow at a CAGR of 3.8% over 2021-2026[14]. Top 5 Milk producing States in 2021-22 are: Rajasthan (15.05%), Uttar Pradesh (14.93%), Madhya Pradesh (8.60%), Gujarat (7.56%), Andhra Pradesh (6.97%). They together contribute 53.11% of total Milk production in the country.

Demand for dairy products is largely driven by household demand, which generated 68.6% of total demand in 2021[15]. Liquid milk (pasteurized and homogenised) formed the largest product category of processed dairy consumption in India.

3.2 KEY GROWTH DRIVERS

Key growth of processed dairy products is driven by the following key drivers.

Demographics:
India has a large vegetarian population relying on dairy products for daily protein intake. Furthermore, a huge cohort of young population in India is inclined to consume more dairy products aided by nutrition drives at school level through Mid-day meal schemes. Similarly, smaller packaged dairy products are being aggressively marketed by major brands for the second and third tier markets to deepen a brand's penetration and increase the volume in the country.

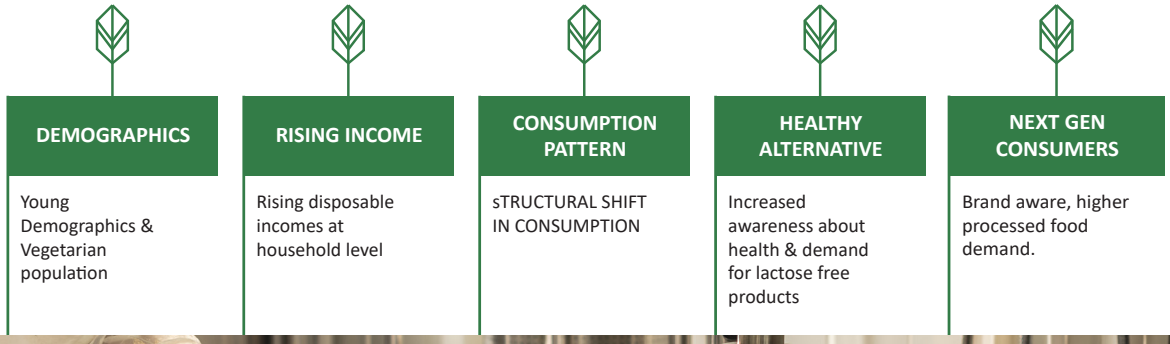
Rising Disposable Incomes:
The household level disposable incomes have risen in India over the years, aided by dual income households and rapid urbanisation. This has led to increase in preference for processed dairy products, like butter and cheese. With disposable incomes, a household is able to afford value added dairy products, with preference for convenience, taste and variety.

Structural Shift in Consumption Pattern:
Rising awareness about health benefits and nutritional value of processed dairy products combined with preference for hygiene practices for dairy has become a major demand driver in both rural and urban India. Similarly, there has been growing demand for processed dairy products like flavoured milk, processed cheese, dairy whitener, with rising preference for convenience.

[14] Euromonitor – Dairy Products in India, 2022
[15] Dairy Sector Outlook 2022, Euromonitor

Demand for Healthy Food Supplements:
Rising health consciousness and requirement for protein and calcium supplements in processed dairy products has driven the demand exponentially for products like whey protein, fortified milk, lactose free alternatives of milk etc.

Next Generation Consumer:
A major demand driver in urban India, especially in Tier-1 and Tier-2 cities is the brand conscious young urban consumer, interacting with global cuisines and flavours. This factor has increased the demand for processed artisanal dairy products like artisanal cheese, gouda, condensed milk etc, although in a nascent stage.



3.3 KEY PROCESSED DAIRY PRODUCTS IN DOMESTIC MARKET

Dairy products are an essential ingredient of Indian cuisine, forming an integral part of India's collective tradition and culture. India's milk and dairy consumption patterns vary across the states. Five states alone account for over half of the country's dairy products' consumption, which can be attributed to their respective population sizes: Uttar Pradesh (19 %), Rajasthan (9 %), Gujarat (8%), Maharashtra (7%), and Bihar (7%)[16].

[16] India - Dairy and Products Annual Report 2022, Global Agricultural Information Network

The following are the key processed dairy products widely used in Indian market:

- Clarified Butter
- Butter
- Cheese
- Flavoured milk
- Milk derivatives: Whey proteins, infant food etc
- Value added products: Ice creams, Desserts, Yoghurts, Fresh cream, Condensed milk

3.4 KEY INDUSTRY PLAYERS

In 2021, India's installed milk processing capacity is 66.3 million litres/day in Indian dairy cooperatives, 73.3 million litres/day in private sector companies, and 2.5 million litres/-day at producer companies[17].

The processed dairy products market in India is dominated by domestic companies with a total of 58,562 companies in 2021[18]. In market segment, the five largest companies accounted for 44.2% of production value in 2021[19]. Gujarat Co-operative Milk Marketing Federation Ltd remained the leading company in India's dairy products industry and accounted for 16.5% of production value in 2021.

[17] Indian Dairy Vision-2022. National Action Plan for Dairy Development.
[18] Euromonitor 2022
[19] Ibid.

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KEY PLAYERS

COOPERATIVE SECTOR

AMUL
NANDINI
PARAG
MOTHER DAIRY
VERKA
SUDHA
AANCHAL
SNOWCAP
VITA
HIM
SARAS
SANCHI
DEVBHOG
MAHANAD
GOKUL
WARANA
DUDH PANDHARI
RAJHANS
KATRAJ
SHIVAMRUT
KRISHNA
BENMILK
OMFED
PURABI
SIKKIMILK
GOA DAIRY
VIJAYA
MILMA
AAVIN
MEDHA
KEVI
PONLAIT
GOMATI
MULCO

PRIVATE SECTOR

BRITANNIA
NESTLE
ITC LTD
HATSUN AGRO
DANONE
PARAS
LACTALIS HERITAGE
SERAP
SCHREIBER
SAAHAJ
MAHAAN
CREAMLINE
ARLA
COUNTRY DELIGHT

04. GOVERNMENT INTERVENTIONS FOR DAIRY PROCESSING SECTOR

Government of India has taken up various initiatives to boost the dairy processing

4.1 GOVERNMENT POLICIES

Government of India has from time to time adopted policies that benefit the dairy processing sector directly. This ranges from FDI regulations, imposing tariffs on dairy imports, easing requirements for operating dairy processing units etc. Some of the prominent policies are listed below:

POLICIES	DETAILS
Easing FDI regulations	100% FDI in the food processing, including Dairy Products, through the automatic route. 100% FDI in Retail Trade, including e-Commerce, for the food products manufactured and/or produced in India
Milk and Milk Product Order (MMPO), 1992	Promulgated under the Essential Commodities Act, this order regulates milk and milk products production in India. The order requires permission only for units handling more than 10,000 litres per day of milk or 500 tons per annum milk solids.
Income Tax exemptions	The government supports the sector through 100% exemption of Income Tax on profits and gains for new Dairy Processing Units for initial 5 assessment years; Corporate tax has been substantially reduced in the budget announcement of 2019, making India among the countries with lowest corporate tax. where new companies **Corporate tax slab** New companies: 15% Existing companies: 22% + cess
Enabling environment	The government classified food processing sector including dairy processing under 'agricultural activity' and is considered under Priority Sector Lending for ensuring credit availability in the sector. Special fund of ₹ 2000 Cr set up in NABARD (National Bank for Agricultural and Rural Development) to provide affordable credit to boost food processing sector.

POLICIES	DETAILS
Goods and Services Taxation	Most of the dairy products are covered under 0-5 % range of GST rates, except cheese, condensed milk, butter/fat, drinks containing milk which is at 12%[20].

4.2 GOVERNMENT SCHEMES

The following schemes by various ministries support the dairy processing sector in India

A. Pradhan Mantri Kisan SAMPADA Yojana (PMKSY): PMKSY is a comprehensive scheme implemented by MoFPI which aims to create modern infrastructure with efficient supply chain management from farm gate to retail outlet.

The key objectives of PMKSY are

- Creation of modern infrastructure for food processing mega food parks/ clusters and individual units
- To create effective backward and forward linkages - linking farmers, processors and markets
- To create robust supply chain infrastructure for perishables

Under PMKSY, the sub-scheme titled Creation/Expansion of Food Processing and Preservation Capacities (CEFPPC) is being implemented. The progress of CEFPPC scheme in dairy processing sector is listed below.

DAIRY PROCESSING PROJECTS UNDER CEFPPC SUB-SCHEME OF PMKSY

No. of Dairy Processing Projects	Total Project Cost	No. of States covered	Major Products
33	₹ 568.42 Cr	15	Milk, Curd, Paneer, Ghee, Khoa, Ice Cream, Flavoured milk, SMP, Butter, Cheese etc

[20] https://cbic-gst.gov.in/gst-goods-services-rates.html

B.

PRODUCT LINKED INCENTIVES FOR FOOD PROCESSING INDUSTRIES (PLIFPI):

Government of India approved Production Linked Incentive Scheme for Food Processing Industry including Mozzarella Cheese. The aim of the scheme is to create global processing champions from India by improving competitive strength of Indian companies vis-à-vis their global counterparts in terms of output, value addition, linkages etc.

The scheme has an outlay of ₹ 10,900 Cr to be implemented over a six-year period from 2021-22 to 2026-27.

Under the PLI scheme, Mozzarella processing plants with a cumulative annual capacity of over 42.5 tons is being set up in Gujarat (Kheda, Banaskantha) and Maharashtra (Pune).

C.

PM FORMALIZATION OF MICRO FOOD PROCESSING ENTERPRISES (PMFME):

The PMFME is a centrally sponsored scheme with an outlay of ₹ 10,000 Cr to being implemented over a period of five years from 2020-21 to 2024-25. The scheme provides financial, technical and business support for existing micro food processing enterprises. As of 2023, a total of 67 RTE/RTC units got support from the scheme to the tune of ₹ 4 Cr across the country[21].

D.

ANIMAL HUSBANDRY INFRASTRUCTURE DEVELOPMENT FUND (AHIDF):

The AHIDF has a corpus of ₹ 15,000 Cr under Atma Nirbhar Bharat Abhiyan. Projects under the scheme shall be eligible for loans up to 90% of project cost, and interest subvention of 3% for eligible applicants. Dairy products like cream, butter, cheese, ice-cream, flavoured milk, UHT milk, Skimmed Milk Powder etc are eligible under AHIDF.

E. DAIRY PROCESSING AND INFRASTRUCTURE DEVELOPMENT FUND:

The Govt. of India set up the Dairy Processing and Infrastructure Development Fund with a corpus of ₹ 8,004 Cr with the National Bank for Agriculture and Rural Development (NABARD). The main objective of the scheme is to provide subsidized loan at 6.5% to capital stressed milk cooperatives for primarily replacing their old chilling and processing plants and incorporation of plants to manufacture dairy related value added products.

[21] PMFME Scheme Division, MoFPI

05. GOVERNANCE AND REGULATORY LANDSCAPE

The dairy sector in India is governed by various regulations and policies to ensure the quality and safety of dairy products, promote fair trade practices, and protect the interests of consumers and dairy farmers. These regulations are implemented by multiple government agencies at the national and state levels mandated by MoFPI, FSSAI, BIS, AGMARK etc. A brief overview of the government and regulatory landscape for dairy processing sector in India is given below.

5.1 MINISTRY OF FOOD PROCESSING INDUSTRIES

MoFPI is a ministry of the Government of India set up in 1988, with a view to develop a strong and vibrant food processing industry. The specific regulatory objectives of MoFPI are:

- Facilitate better utilization and value addition of dairy products among other agricultural produce with a view to enhance the income of farmers
- Minimize wastage at all stages in the dairy processing including food processing value chain, by development of infrastructure for storage, transportation and processing of dairy and agro-food produce
- Induct modern technology into the dairy and food processing industry from both domestic and external sources
- Encourage R&D in dairy and food processing for product and process development and improved packaging
- Promote export of processed dairy as well as food products

5.2 FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA

In 2008, FSSAI was established under the aegis of the Ministry of Health and Family Welfare (MoHFW) to enforce the provisions of the Food Safety and Standards Act 2006. Some of the key regulatory objectives of FSSAI include:

- Framing regulations to lay down food standards and guidelines
- Laying down procedure and guidelines for accreditation of laboratories for food testing
- Providing scientific advice and technical support to the Government in areas that have a direct or indirect bearing of food safety and nutrition
- Collating data regarding food consumption, contamination, identification of emerging risks, introduction of a rapid alert system etc.
- Disseminating information and promoting awareness about food safety and nutrition in India
- Contributing to the development of international technical standards for food, sanitary and phytosanitary standards

To further enable it to meet its objectives, FSSAI enacted the Food Safety and Standards Rules, along with several other regulations as listed below

FOOD SAFETY AND STANDARDS REGULATIONS IN INDIA

PROCEDURAL REGULATIONS

Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011

Food Safety and Standards (Prohibition and Restriction on Sales) Regulation, 2011

Food Safety and Standards (Laboratory and Sampling Analysis) Regulation, 2011

Food Safety and Standards (Food Recall Procedure) Regulation, 2017

Food Safety and Standards (Import) Regulation, 2017

FOOD STANDARDS

Food Safety and Standards (Food Product Standards and Food Additives) Regulation, 2011

Food Safety and Standards (Packaging and Labelling) Regulation, 2011

Food Safety and Standards (Contaminants, Toxins and Residues) Regulation, 2011

Food Safety and Standards (Food or Health Supplements, Nutraceuticals, Foods for Special Dietary Uses, Foods for Special Medical Purpose, Functional Foods and Novel Food) Regulation, 2016

Food Safety and Standards (Fortification of Food) Regulation, 2016

Food Safety and Standards (Organic Foods) Regulation, 2017

5.3 BUREAU OF INDIAN STANDARDS

The Bureau of Indian Standards, empowered by the Bureau of Indian Standards Act, 1986, operates a product certification scheme by which it grants licenses to manufacturers covering practically every industrial discipline from agriculture and textiles to electronics.

While the adoption of regulations under BIS is voluntary in nature, the Food Safety and Standards (Prohibition and Restriction on Sales) Regulations, 2011 has prescribed mandatory certification under the BIS Act for the following products:

INFANT MILK FOOD

INFANT FORMULA

CONDENSED MILK

MILK POWDER

ICE CREAM

DAIRY WHITENER

5.4 AGRICULTURAL MARK

AGMARK is a certification mark for agricultural products in India, assuring that they conform to a set of standards approved by the Directorate of Marketing and Inspection, an agency of the Indian Government. AGMARK is legally enforced in India by the Agricultural Produce (Grading and Marking) Act of 1937 (amended in 1986).

The present AGMARK standards cover quality guidelines for 222 different commodities. The AGMARK certification is employed through fully state-owned laboratories located across the nation that act as testing and certifying centers. The Food Safety and Standards (Prohibition and Restriction on Sales) Regulations, 2011 lays down mandatory certification under AGMARK for dairy products such as Ghee, Creamery Butter etc.

5.5 STANDARDS OF WEIGHTS AND MEASURES IN INDIA

The Standard of Weights and Measures Act, 1976 was enacted primarily to establish standards of weights and measures, to regulate trade or commerce in weights, measures and other goods that are sold or distributed by weight, measure or number.

Further, the Legal Metrology Act, 2009 was passed by the Indian Parliament with the aim of protecting consumer interests. Consequently, The Legal Metrology (Packaged Commodities) Rules, 2011 were prescribed in order to regulate pre-packaged commodities which are mandatory to comply with labelling requirements.

5.6 EXPORT INSPECTION COUNCIL

The Export Inspection Council (EIC) was set up by the Government of India under Section 3 of The Export (Quality Control and Inspection) Act, 1963 (22 of 1963). The EIC is the official export –certification body of India which ensures quality and safety of products exported from India. Some of the key functions of EIC include:

- Notify commodities which will be subjected to quality control and / or inspection prior to export
- Establish standards of quality for such notified commodities
- Specify the type of quality control and / or inspection to be applied to such commodities

However, the regulatory checks through EIC are voluntary and are not covered in the EIC Act 1963.

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06.
R&D AND SKILL DEVELOPMENT ECOSYSTEM FOR DAIRY PROCESSING

R&D and availability of skilled workforce is at the core of a competitive dairy processing sector. India hosts numerous technical institutes, universities, centres of excellence etc to support the dairy processing industry in adopting latest processing technologies, promote IPR registrations for products as well as process, ensure skill development etc. Some of the key institutions forming the backbone of R&D ecosystem in India are listed in table 5.

INSTITUTIONS	HIGHLIGHTS
National Dairy Research Institute - Karnal	• Established at Karnal in 1923, NDRI is the largest R&D organization in the country catering to dairy processing sector • Promotes innovations in processing and packaging of dairy products • Facilitates technology transfer • Provides support to entrepreneurial ventures and startups in dairy processing sector
National Institute of Food Technology, Entrepreneurship and Management (NIFTEM) -Kundli	• MoFPI established the NIFTEM at Kundli, Haryana in 2012. • NIFTEM currently offers several courses and undertakes R&D projects in the area of dairy processing and food technology • Ranked 127 in NIRF India Rankings 2022, under the engineering category
National Institute of Food Technology, Entrepreneurship and Management -Tanjavur	• Previous known as Indian Institute of Food Processing Technology (IIFPT), NIFTEM – T is an Institute of National Importance (INI) • NIFTEM-T currently offers courses and undertakes R&D projects in the area of dairy and food processing • The institute is designated as Centre of Excellence for non-thermal processing
National Dairy Development Board (NDDB)	• NDDB is a statutory body headquartered in Anand, Gujarat • Provides technical assistance in product/process development, equipment design, packaging solutions to the sector • IDMC Ltd, a wholly owned subsidiary of NDDB is a leading technology and solutions provider in dairy processing machinery and equipment manufacturing
Technical Institutions	• There are a total of 46 government and private technical institutions providing B.Tech/B.Sc/Diploma courses in dairy technology • Prominent institutions are - NDRI Bangalore and Karnal - Sheth. M.C College of Dairy Science, Anand - Dairy Science College Bangalore - Agricultural Universities – Uttar Pradesh, Tamil Nadu
Food Industry Capacity and Skill Initiative (FICSI)	• FICSI offers wide range of programs and opportunities: ○ Comprehensive skilling programs ○ Certification and placement opportunities ○ Capacity building and entrepreneurship programs ○ Strong industry collaboration and ecosystem

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07.
UNLOCKING POTENTIAL OF DAIRY PROCESSING INDUSTRY IN INDIA

The global trends in dairy processing and overview of dairy processing in India discussed in earlier sections, analysed parallelly brings into light immense opportunities the sector beholds. Increased demand projections both in domestic and global markets, impacts dairy processing sector positively. Given the huge production base of dairy in India aided by highest bovine population, abundant availability of varieties of cattle feed, resilient indigenous breeds, India put forwards multitude of opportunities for investments in dairy processing sector. India can be used as a processing base as well as be considered as a dynamic consumer market. The following sectors within dairy processing show promising potential.

7.1 DAIRY PROCESSING TECHNOLOGY AND MACHINERY

India has the potential to be the global hub of dairy processing technology and processing machinery. Technologies incorporating Internet of Things, Block chain technology etc can revolutionise dairy processing landscape and address issues related to food safety concerns, traceability etc. Processing machinery and equipment for heat treatment, fermentation, testing etc also has high potential.

7.2 SUSTAINABLE PACKAGING SOLUTIONS

With growing impetus on sustainability and reducing plastic, cost-effective innovative packaging solutions for processed dairy products exhibits great potential for large scale adoption in India. With the increasing menace of plastic sachets and containers widely used for packing processed dairy products, sustainable solutions involving recyclable, bio-degradable, eco-friendly packaging has high potential for growth.

7.3 HIGH POTENTIAL PRODUCTS

Processed dairy products are expected to witness a growing demand both globally and in domestic market. Consumption pattern of dairy products varies distinctly depending on geographies and consequently, processed dairy products have varying potential in different markets.

7.3.1 EXPANSION OF DOMESTIC MARKET:

Owing to strong growth drivers like rising disposable income, increasing health awareness and preference of convenience, the demand for processed dairy products is expected to increase in the upcoming years. The following products have immense potential in domestic market.

- Lactose free milk and drinks
- Recombined/Fortified and flavoured Milk
- Concentrated and Condensed milk
- High quality A2 milk
- Processed cheese like Mozzarella, Gouda, Parmesan
- Yoghurt and fermented dairy products
- Skimmed Milk powder
- Whey proteins
- Baby food, Maternity food etc

7.3.2 EXPANSION OF EXPORT MARKETS:

The processed dairy product sector is expected to witness sustained global demand in the long term. There is substantial regional variation in consumption of dairy products globally. The following products will have geography specific potential.

Cheese:
Germany, France, UK, Belgium, USA, Russia, Japan, China. Cheese is the second most important dairy product consumed in Europe and USA after fresh dairy products

Skimmed Milk Powder:
China, Algeria, UAE, Mexico, Indonesia, Netherlands, Saudi Arabia

Butter:
France, Netherlands, Germany, Belgium, China, Russia, USA, Italy

CONCLUSION

The market for dairy processing in India has enormous growth potential. India has a strong foundation in the production of dairy goods owing to its sizable bovine population, robust dairy industry and broad consumer base. The government's initiatives and assistance have been instrumental in fostering the expansion of the dairy processing sector over the years.

The Government of India has proactively encouraged investment, offered conducive technical and regulatory environment , and efforts to improve market access for dairy products through policies like the National Dairy Plan and the creation of dairy processing facilities. These efforts have promoted quality standards, value addition, and job prospects within the industry over the years.

The National Dairy Development Board (NDDB) and the Food Safety and Standards Authority of India (FSSAI), among other organisations, have been instrumental in providing a sound governance and regulatory environment, enabling nutrition security as well as ensuring quality control of processed dairy products. This regulatory framework encourages the export of high-quality dairy products and instils consumer confidence.

The long-term development and sustainability of the dairy industry will depend on promoting sustainable dairy farming practises, maintaining animal welfare, and helping small-scale dairy producers. The Indian dairy processing market can reach its full potential by technology upgradation in small dairy farmers and fostering a favourable regulatory framework. The industry has the potential to make a significant impact on rural livelihoods, satisfy the rising demand for nutrient-dense dairy products, and establish India as a dominant force in the global dairy market.Therefore, government backing, regulatory governance, and strategic initiatives are positioned to boost expansion in the Indian dairy processing sector.

MINISTRY OF FOOD PROCESSING INDUSTRIES
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