



Confederation of Indian Industry



Food Processing, Packaging and Technologies



Food and Agriculture Centre of Excellence

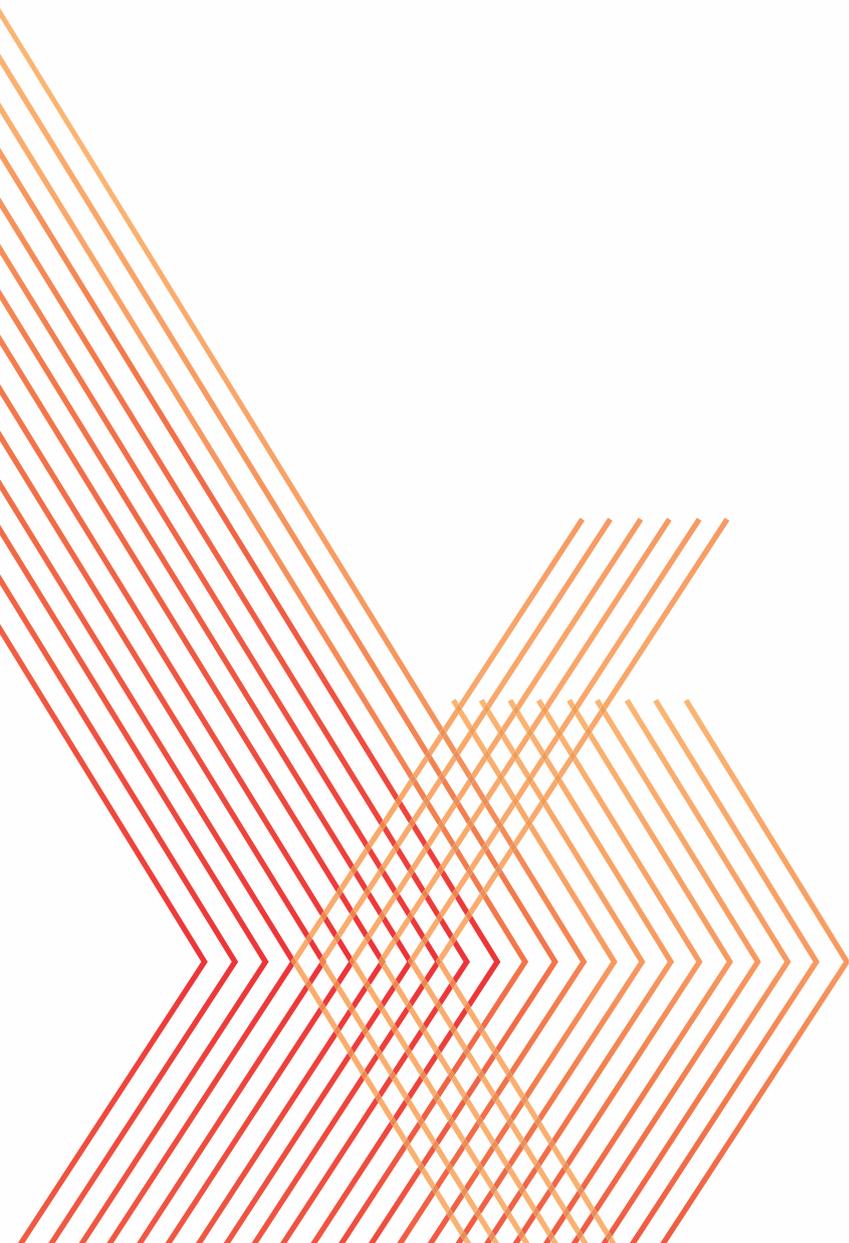


Indian Food Processing Sector

TRENDS & OPPORTUNITIES

August 2019







INDIAN FOOD PROCESSING INDUSTRY

Sector overview

Food processing industry provides the vital linkage between industry and agriculture and is of enormous significance for India's

development. With India moving from a position of scarcity to surplus in food production the prospects for increasing processing levels are enormous.

Production advantages (2018-19)

1. **Cereals** - second largest producer of food grains globally (284.95¹ million tons)
2. **Fruits & vegetables** - Ranks as the second largest producer of Fruits and Vegetables (F&V) in the world (311.7¹ million tons)
3. **Milk** - largest producer of milk globally (176.35 MMT)
4. **Meat** - largest livestock population in the world (7.7 MT of meat produced annually)
5. **Poultry** - around 95.2 bn eggs annually
6. **Marine** - second largest fish producer in the world (12.60 million metric tons)

¹MoFPI data



India currently processes less than 10%¹ of its agri output (only around 2% of fruits and vegetables, 6% of poultry, 21% of meat, 23% of marine and 35% of milk) and most of the processing that is done in India can be classified as primary processing – done through rice, sugar, edible oil and flour mills etc. However, primary processing offers lower value-addition compared to secondary processing that includes processing of high value items viz fruits and vegetables, dairy, bakery, chocolates etc.

Thus, given the high production levels along with low processing current processing rates, the sector presents huge opportunities.

The need of the hour is to move up the value chain in processed food products by establishing efficient backward linkages to contribute to nation's food security as well as contribute towards improving the income level of the farmers by reducing food wastages (*which are as high as US\$1.5 billion-Rs 92,000 crores² annually*) and enhance food as well as processed food exports (*which currently stand at 2.31% and 10.69% respectively³*).

Additionally, the sector provides huge employment generation potential as well

(registered a growth of 10.35%⁴ between 2010-11 to 2016-17).

Growth rate and Investments

Riding on favorable policy ecosystem the Food Processing sector has been growing at an Average Annual Growth Rate (AAGR) of around 8.41 per cent between FY14 and FY18 and constitutes as much as 8.83 per cent and 10.66 per cent of GVA in Manufacturing and Agriculture sector respectively⁵.

As per the latest Annual Survey of Industries (2016-17) data food processing accounted for

- 15.95% of the total number of factories
- 16.78% of the operational factories
- employed 11.36% of the workforce
- 14.09% of the output

Interestingly, food processing ranked number one on all these parameters.

Besides being a large sourcing hub for agriculture produce, India has the advantage of a large and growing market. Changing consumption patterns due to urbanization, changes in the gender composition of work force, and growing consumption rates have contributed to the increase in the size of processed food market.

With these forces in play, going forward the India market size for food is expected to reach USD 544 billion by 2020-21⁶ whereas the food industry output is expected to reach US \$ 535 billion in 2025-26⁷.

Further, more than two thirds of our 1.3 billion population are young with growing incomes also create a large market for food products. All these factors lead to growing consumption of food which is expected to reach US \$ 1.2 trillion by 2025-26⁸.

¹MoFPI data

²MoFPI estimates

³MoFPI annual report 2018-19

⁴MoFPI annual report 2018-19

⁵MoFPI Annual report 2018-19

⁶CII estimates

⁷CII estimates

⁸CII estimates



Key Sub segments: India's significant production strength, along with low levels of current processing offer huge opportunities for growth of the food processing industry.

India is the second largest producer of the Fruits and Vegetables in the world; however, the processing levels in F&V currently stand at a low of 2%⁹. Thus, there is a huge opportunity in harnessing the potential of processed fruits and vegetables in the form of frozen (IQF), canned, pulp, puree, paste, sauces, snacks, dressings, flakes, dices, dehydration, pickles, juices, slices, chips, jams, jelly, etc.

Processing levels of marine food in India are currently at 23%¹⁰. Thus, presenting significant opportunity for marine processing players. Processing of fish into canned and frozen forms is carried out mostly for exports. Besides, there is an increased demand for processed and ready to eat marine products in the domestic and overseas market.

Poultry is a highly vertically integrated industry in India and matches the efficiency levels of many western countries. However, the current processing levels in poultry are 6%, while for meat it stands at 21%. This

presents significant opportunity for scaling up the segment.

The dairy segment in India is comparatively advanced with a 35%¹¹ processing level at present. However, the scope is still significant. Per capita availability of milk in India has reached 375 grams per day in 2017-18, which is more than the world average of around 294.2 grams per day in 2017. Thus, the opportunities for value added products such as ghee, flavored yogurt, butter (with variants), flavored milk, cheese etc. are abundant.

Emerging segments: With India's young and urban population growing significantly, the demand pattern for food products is shifting from traditional meals.

The packaged food segment has been reporting double digit growth in 2018 with edible oils and dairy products accounting for a major share. Sale of packaged flat bread (Chapattis, naans, roti, paratha, kulcha) have also increased, backed on a lower tax bracket with the introduction of GST and variable serve packs. Packed dessert mixes and other premium packaged bakery goods (croissants,



⁹MoFPI
¹⁰MoFPI
¹¹MOFPI



filled muffins, etc.) have also been witnessing increasing consumer demand. Meanwhile, repositioned as a healthy snack, the breakfast cereals segment is becoming more competitive with new entrants as well as innovative variants targeting the health-conscious consumers.

Interestingly, the demand for frozen vegetables is declining in retail outlets with the year-round availability of fresh produce; however, demand for frozen vegetables is picking up among foodservice players. With policy barriers on slaughtering and selling beef fresh, processed meat sales were impacted in 2018. However, the frozen processed sea food segment gained popularity and witnessed increase in demand for international sea food. Growth in the sea food segment is also fuelled by internet retailing channels, increasing focus on nutritious food, and the convenience of long-term storage.

Consumer preference trends show an increasing focus on nutritious food, and the convenience of long-term storage. While in cereals, the introduction of variants such as muesli and granola have impacted the traditional breakfast cereal product, flakes; in

edible oils, a shift towards olive oil and rapeseed oil as preferred edible oil was witnessed in 2018. Meanwhile, naturally healthy beverages and Ayurveda-based juices continued to witness significant value growth in 2018. Organic packaged food witnessed a double-digit growth in retail volume and current value sales in 2018.

Other food segments which are showing high growth include sauces, soups, noodles & pasta, Chocolate confectionary, specialized cheese (Mozzarella, Cheddar and Parmesan), etc.

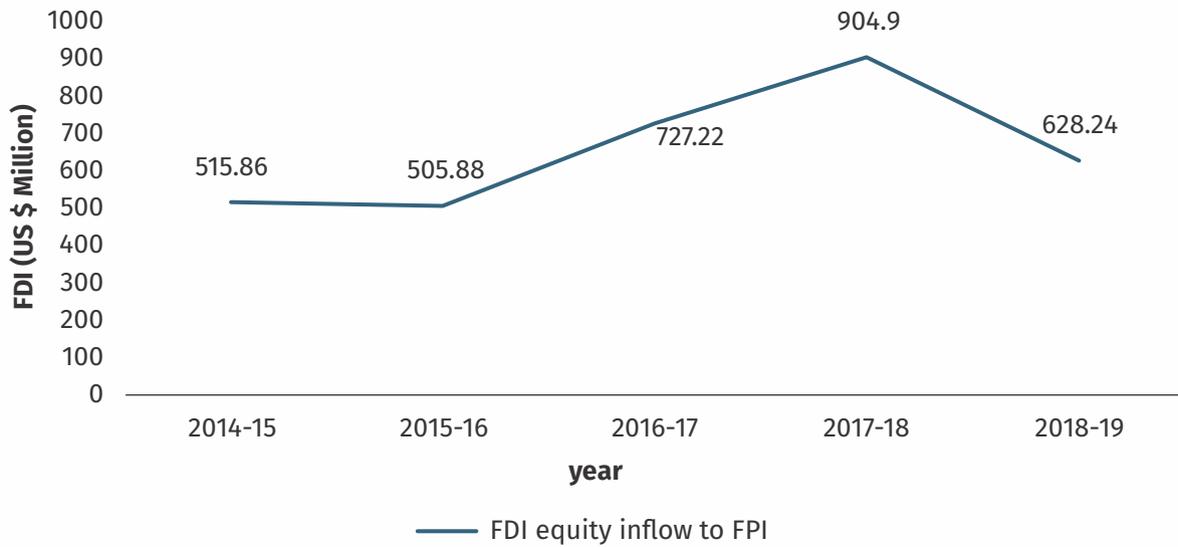
Global Investments: India has significantly improved its rank in World Bank's Ease of Doing Business Survey 2019, and is ranked 77th, a leap of 23 ranks over last year ranking, among 190 countries assessed by the World Bank. The continued efforts on improving ease of doing business will in the long run help boost investor confidence.

Backed by the enabling business environment, FDI inflow into Indian food industry has been increasing steadily. Between April 2014 to March 2019¹², the sector has witnessed FDI equity inflow of USD 3.28 billion. Over the past five years ending in FY19, FDI inflow into Indian food industry has been increasing at a CAGR of 4.02%.



¹²Department for Promotion of Industry & Internal Trade

FDI equity inflow to FPI



Source: Department for Promotion of Industry & Internal Trade

In terms of geographical spread of the food processing sector, Southern region has the highest numbers of registered factories with Andhra Pradesh accounting for about 14.75%

followed by Tamil Nadu accounting for about 12.77% and Telangana accounting for about 9.99% of the total registered factories in FPI sector industries.

States accounting for highest no. of Registered Food Processing Units in India

State	Number of Registered Units
Andhra Pradesh	5861
Tamil Nadu	5077
Telangana	3969
Punjab	2906
Maharashtra	2808

Source: Annual Survey of Industries, 2016-17, MSOPI, Govt of India





Current Export Levels

During 2018-19, India's exports of agricultural and processed food products totaled USD 38.49 billion. During the period, top five exported commodities were marine products (USD 6.80 billion), basmati rice (USD 4.71 billion), buffalo meat (USD 3.59 billion), spices (USD 3.31 billion) and non-basmati rice (USD 3.00 billion).

Indian agricultural/horticultural and processed foods are exported to more than 100 countries/regions; chief among them are the Middle East, Southeast Asia, SAARC countries, the EU and the US.

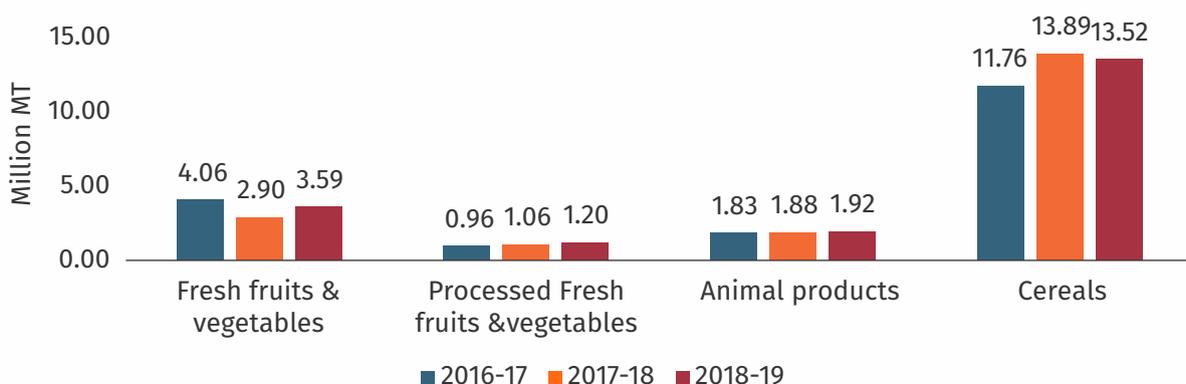
However, India's total agriculture export basket accounts for little over 2% of world agriculture trade and Agricultural exports' contribution to India's GDP is also as low as 2%.

Majority of Indian exports are low value, raw or semi-processed and marketed in bulk which are then processed in other countries, indicating the scope to move up the value chain.

The share of India's high value and value added agro produce in its agriculture export basket is less than 15% compared to 25% in US and 49% in China. This is despite India's geographical location which gives it a unique advantage when it comes to exports, having convenient connectivity to Europe, Middle East & Africa from the western coast, and Japan, Singapore, Thailand, Malaysia, Korea, Australia & New Zealand from the eastern coast.

Further, India is unable to export its vast horticultural produce due to lack of uniformity in quality, standardization and its inability to curtail losses across the value chain.

GROWTH IN INDIAN AGRICULTURE EXPORTS



Source: APEDA

Equipment for Processing

In India the gross value of plant and machinery deployed in food processing sector, is estimated to reach USD 51.19 billion by the year 2024-25. This growth is attributed to factors such as the increasing demand for convenience food and the increasingly busy lifestyles of consumers.

In terms of import of Food Processing and Dairy Equipment, during 2018-19 the highest valued imports were of machinery for manufacturing food/drink (Rs14.8 billion), bakery machinery (Rs2.4 billion), parts of other food processing machinery (Rs 2 billion) and machinery for manufacturing confectionary cocoa or chocolate (Rs 1.9 billion).

While the consumer is shifting towards more advanced value-added food categories, there is also a growing demand for processing basic products such as fruits, vegetables and grains which require technologically advanced equipment. Thus, there is a huge demand for advanced methods, technology, and machinery with least impact on sensory qualities such as colour and texture.

In addition to availability of processing machinery, the next phase of growth of food processing sector will also require equipment

and machinery that support infrastructure creation across the value chain. There is a massive requirement for pack houses at the farm gate, cold storage facilities across the value chain, multi-modal logistics, infrastructure at port gateways with phyto-sanitary facilitation etc. Thus, equipment manufacturers specialising in manufacturing equipment for these infrastructural facilities have an edge.

Thirdly, as the industry landscape shifts, many food processing companies are attempting to expand their product line-up without making significant changes to their production process. Thus, versatile equipment that can produce many different product types, allowing companies to increase their output without major changes to their facilities will be preference.

Fourthly, the automation requirement in food processing equipment is quite advanced and sophisticated. Lastly, food processing requires high precision in the equipment for quality, safety and hygiene.

Policy ecosystem

The Government of India has accorded 'high priority' status to the food processing industry. The Ministry of Food Processing Industries (MOFPI) has been set up as a nodal



agency for formulation and implementation of the policies and plans for the food processing industries.

With an overall objective of positioning India as the 'Food Basket' to the world, several initiatives have been undertaken with the objective of promoting investments, innovation and bringing best practices. This vision is in line with the 'Make in India' initiative of the Government.

a. Attracting investments

- 100% FDI is permitted under the automatic route in Food processing industries.
- 100% FDI is permitted in Manufacture of food products and for trading (including through e-commerce) for food products manufactured and/ or processed in India.

The whole idea is to increase FDI in the food processing industry which in turn offers huge opportunity for the sector by way of enhanced scope for technology transfer, backend integration and expansion of the food processing industry as well as increased employment by way of setting up of more food processing units.

b. Enabling sourcing

In tandem with policies enabling the food

processing sector, several progressive marketing reforms and schemes have also been launched for agriculture products, which allow for better sourcing opportunities for food processing industries.

- The Agricultural Produce and Livestock Marketing (Promotion and Facilitation) [APLM] Act 2017, allows for clauses such as allowing single licenses for traders and de-listing perishables from the ambit of the APMCs, both of which will be significant enablers for better sourcing for food processing. However, the uptake of the Act among states needs to be fast-tracked.
- The electronic National Agriculture Market (e-NAM) portal was launched in 2016 with the vision of a single agriculture market. The portal currently connects 585 mandis across 16 states and 2 UTs; forming the largest integrated virtual agriculture market in the world.

c. Infrastructure support

With a view to augment private investment to food processing sector, an umbrella scheme **Pradhan Mantri Kisan SAMPADA Yojana** (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters)



has been launched with an allocation of Rs. 6,000 crores for the period 2016-20.

The existing schemes under MoFPI have been subsumed under PM-SAMPADA and the focus is on creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet. In the long term the scheme aims to providing better returns to farmers, create employment opportunities, reduce wastage of agricultural produce,

increase the level of processing and enhance export of the processed foods.

The PM Kisan SAMPADA Yojana is expected to leverage investment of Rs. 31,400 crores for handling of 334 lakh MT Agro-produce valued at Rs. 1,04,125 crores, benefiting 20 lakh farmers and generating 5,30,500 direct/indirect employment in the country by the year 2019-20.

Infrastructure Support

The Ministry of Food Processing Industries is implementing Mega Food Park Scheme with the aim of creating modern infrastructure facilities for food processing along the value chain from farm to market with strong forward and backward linkages through a cluster based approach. As per the scheme, financial assistance of upto Rs. 50.00 Crore per Mega Food Park project is approved.

As of July 2019, of the 42 Mega Food Parks planned,

- 11 are operational
- 4 are completed
- 22 are Under Implementation
- 1 has been commissioned
- 4 are in the final stages of pre-construction Of these, five were inaugurated during 2017-18, including
 - Himalayan Mega Food Park at Kashipur in Udham Singh Nagar district in Uttarakhand
 - Greentech Mega Food Park at Roopangarh Village in Ajmer, Rajasthan
 - Satara Mega Food Park in Satara District, Maharashtra
 - Paithan Mega Food Park in Aurangabad District in Maharashtra
 - Gujarat Agro Infrastructure Mega Food Park

a. Boosting exports

Towards boosting agri exports from India, Agricultural Export Policy, 2018 has been formulated with a focused plan to boost India's agricultural exports to USD 60 billion

by 2022. Strategic focus under the policy includes, policy measures, infrastructure and logistics

support and greater involvement of state governments in agri exports while



Operational aspects will include a focus on clusters, promoting value added produce, marketing of “Brand of India” etc.

Identifying that India's export basket is dominated by products with little or no processing or value addition, the Agri Export Policy, in addition to agricultural produce also focuses on promotion of value added, indigenous and tribal products.

The policy seeks to diversify the country's export basket and destinations, by boosting high value and value-added agricultural exports through a focused cluster-based approach. This will change the focus from the current scenario where in a few commodities account for more than 50 per cent of Indian agri-exports, though these commodities will continue to be exported.

Also, under the new policy, export restrictions such as export duty, export bans and quota restrictions on most processed agricultural products will be removed; barring commodities other than those identified as essential from the food security perspective, such as onions.

Fiscal incentives

As a part of the policy support, to promote investments, the food processing units and supportive infrastructure are offered attractive tax incentives

I. Goods and Service Tax (GST)¹³

As per the latest revision in the GST rates, of the all food categories taken together under different chapter heads/sub-heads, 36% of the food items have been exempted from GST (0%) and 37% of the food items shall attract GST of 5%. Hence, almost 73% of the food items are under lowest tax slab of 0% or 5%. These items constitute bulk of raw material that goes into further value addition. Hence cost of production of processed item is expected to fall.

Only 17% of the total food items under different chapter heads/ sub-heads fall under GST slab of 12%. Similarly, 8% of the total food items under different chapter heads/sub-heads fall under GST slab of 18%. The remaining 1% (i.e., only 3 items) of the items under different heads/sub-heads attract GST of 28%.

¹³MoFPI annual report 2018-19

Low GST for food products is likely to have positive impact on food processing sector and prices of food products.

According to the industry, a rationalization of GST rate structure in case of the food processing sector to 5 % (suggested) for perishable food items and 12 % (suggested) for non-perishable food items, would further help to boost the potential of food processing in India.

II. Income tax

Business of processing, preservation and packaging of fruits or vegetables or meat and meat products or poultry or marine or dairy products or from the integrated business of handling, storage and transportation of food grains: *100% deduction of the profits and gains derived from such industrial undertaking for five assessment years beginning with the initial assessment year and thereafter, twenty-five per cent (or thirty percent where the assessee is a company) of the profits and gains derived from the operation of such facility in a manner that the total period of deduction does not exceed ten consecutive assessment years and subject to fulfilment of the condition that it begins to operate such business on or after the 1st day of April, 2001 under [section 80-IB, 11(A) of the Income Tax Act, 1961]*

Setting up and operating a cold chain facility; and setting up and operating warehousing facility for storage of agricultural produce: *Deduction to the extent of 150% is allowed for expenditure incurred on investment Under Section 35-AD of the Income Tax Act 1961.*

III. Custom duty

- All goods related to Food Processing, imported as part of the Project Import, irrespective of their tariff classification,

are entitled to uniform assessment at concessional basic customs duty of 5%.

- Concessional 5% Basic Customs Duty (BCD) available under project imports for cold storage, including pre-cooling unit, pack houses, sorting and grading lines and ripening chambers.
- Customs duty reduced from 10% to 5% for refrigerated containers
- Exemption of import duty for Import of Raw material/Intermediate Food Items against the export of finished products under advance authorization scheme of the Department of Commerce.

IV. Financing

The food processing sector enjoys priority Sector Lending. Further, to boost easy access of finance infrastructure status is provided for projects like Mega Food Parks and Cold Chain. A special fund of Rs.2000 crore has been set up in National Bank for Agriculture and Rural Development (NABARD) to provide credit at affordable rates to boost food processing sector. Under this fund, loan is extended to individual entrepreneurs, cooperatives,





farmers producer organizations, corporates, joint ventures, SPVs and entities promoted by the Government for setting up, modernization, expansion of food processing units and development of infrastructure in designated food parks. Loans are extended up to 95% of the eligible project cost for entities promoted by the State Governments while other categories of promoters are extended loans up to 75% of the project cost.

Regulatory Support

Food Standards and Regulations in India are evolving to ensure safety and quality of food for consumer's and facilitate fair and open trade. There has been an evident shift from 'checking adulteration' to 'ensuring safety' and has provided the country a meaningful opportunity to widen the scope of standards to encourage the food business operators towards self-compliance instead of being under surveillance.

India has set a strong regulatory framework by developing various horizontal and verticals standards to encourage and support food processing industry along with ensuring

compliance and implementation of these standards.

Harmonization with international standards has taken momentum in India to meet with Global standards. Also, over the years, Indian participation in the Codex processes have increased considerably. These factors in the long-run are all pre-requisites for Indian food processing to meet its full potential.

Details on the Indian food regulatory ecosystem are in the following section.

Conclusion

India's high production levels of agriculture and allied segments along with low processing current processing rates, represents huge untapped opportunities for all players of the food processing chain. Backed by progressive policies, fiscal incentives and an enabling regulatory environment, the Indian market size for food is expected to reach USD544 billion by 2020-21¹⁴

India is witnessing a major shift in consumption pattern towards convenience food, which can be seen from the fact that apart from oils and fats convenience food

¹⁴CII estimates

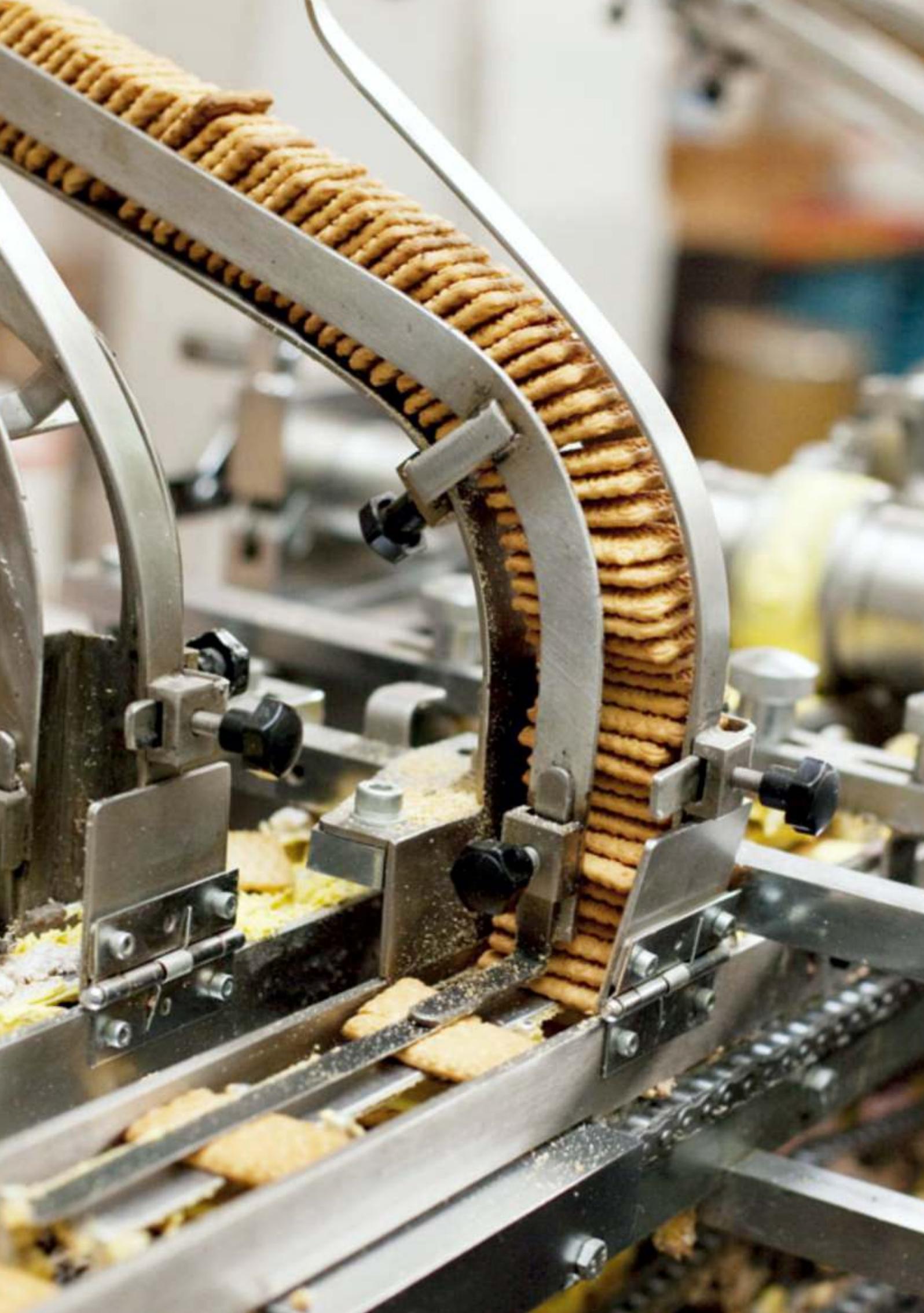
items ready meals, rice, pasta & noodles and savory snacks have been registering impressive sales growth.

The Consumers today are more conscious than ever about making responsible food choices, and are paying more attention to attributes like smells, tastes and other sensory experiences. Packaging and labelling are emerging as a key product differentiation strategy. Sustainable sourcing has become a pre-requisite all along the food value chain and companies today are increasingly being evaluated on their supply chain responsibility.

With emergence of e-commerce, the food retail segment is further evolving. Online grocery while is at a nascent stage at present owing to the fragmented and unorganized nature of the Indian market is expected to grow to \$17.39 billion by 2022 due to fast-paced urbanization, changing customer lifestyle and tech-savvy demographic changes.

Thus, going forward the demand for processed food in India is expected to be directed by consumer preference of convenience, nutritional value, brand-consciousness and awareness regarding sustainable production.







EMERGING FOOD REGULATORY ECOSYSTEM

Introduction

Food trade has huge impact on both the health of populations and the economies of nations. Global food trade has increased rapidly in the last decade. During this time, along with growth in international trade, the food regulatory ecosystem has also seen significant transformation. This improved environment has helped countries to increase their imports and exports with a variety of foods

In long and complex supply chains, it is important to keep food safe and maintain its quality till consumption. For this, Food safety standards and regulations are essential to ensure food is safe at all points along supply chains. Additionally, globally recognized standards enable trade, by making it more transparent, efficient and allowing the smooth flow of food products between markets.

Strengthening the Indian Food Regulatory Ecosystem

Food Standards and Regulations in India are evolving to ensure safety and quality of food for consumer's and facilitate fair and open trade.

The journey began with the enactment of The Food Safety and Standards Act (FSSA) in 2006, under the Ministry of Health & Family Welfare and the Food Safety and Standards Authority of India (FSSAI) initiated the process of framing the regulations, covering all food products. This act brought into force in place of PFA (Prevention of Food Adulteration Act) and overrides all other food related laws. A single reference point for all food safety and standards matters, by moving from multi-level, multi-departmental control to a single line of command. It specifically repealed eight laws which were in operation prior to the enforcement of FSSA.

This Act is responsible for ensuring availability of safe and wholesome food for human consumption, including development of science-based standards. These are necessary to complement the development of the food processing industries. Science-based standards when consistently applied and properly enforced, play a crucial role in determining the safety and quality of agricultural commodities and food products, thereby ensuring the highest level of protection for consumers and facilitating fair and open trade.

This transformation clearly indicates an evident shift from 'checking adulteration' to 'ensuring safety' and has provided the country a meaningful opportunity to widen the scope of standards to encourage the food business operators towards self-compliance instead of being under surveillance.



Harmonizing and Adopting International Best Practices

With recent reforms in global food environment, there have been substantial changes in the patterns of food production and consumption in India also and the Indian Food Processing industry is undergoing a significant transformation with aid of improving policy environment.

In this direction, to meet with Global standards the process of harmonization with international standards has taken

momentum in our country. An enormous amount of work is being done by the Food regulatory set up in India. What is important is that this work is carried out in partnership with the food businesses and industry in developing science-based globally compatible Standards e.g. harmonization of the additives standards with International Standard Setting bodies like Codex. In addition, introduction of various new horizontal and vertical standards such as, Claims and Advertisement, Health Supplements and Nutraceuticals have created an enabling environment for industry at large and a framework for new categories.

Also, over the years, Indian participation in the Codex processes have increased considerably. With the efforts from NCCP (National Codex Contact Point) at FSSAI, for the first time we have a committee of Indian origin on Spices and India was elected twice as the coordinator of CODEX regional Asia committee (CCASIA).

Given the significant role the Codex Alimentarius Commission (CAC) plays as the global reference point for the food processing sector to develop harmonized international food standards, guidelines and codes of practice to facilitate the international food trade, it is pertinent that such engagement of the Indian regulator would facilitate trade in the food sector in line with World Trade Organization (Sanitary and Phyto-sanitary (SPS) and TBT Agreements).

Formulation of new Standards and evolving Regulatory Landscape

India has set a strong regulatory framework by developing various horizontal and verticals standards to encourage and support food processing industry along with ensuring compliance and implementation of these standards. Several processes have also been put in place to ensure continuous review with

the Scientific panels and Standards Review groups.

Some key regulations that apply across products and businesses include the Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation; Food Safety and Standards (Food Products Standards and Food Additives) Regulation; Food Safety and Standards (Prohibition and Restriction of Sales) Regulation; Food Safety and Standards (Packaging and Labelling) Regulation; Food Safety and Standards (Contaminants, Toxins and Residues) Regulation; Food Safety and Standards (Laboratory and Sampling Analysis) Regulation; Food Safety and Standards (Food Recall Procedure) Regulation, Food Safety and Standards (Advertising and Claims) Regulation, 2018 amongst others.

Standards setting is a continuous process, e.g. introduction of new regulations like advertisements and claims, labelling & display, food fortification, amendments in existing regulations to harmonize with global standards like codex. Through these regulations' new aspects such as Front of pack labelling, Menu labelling and guidance on Claims are being introduced with due consideration of International Best Practices



while ensuring safe and wholesome food for consumers.

The recently notified Advertising and Claims regulation (November 2018) has provided a framework that enables level playing field for industry while protecting interests of the consumer. These regulations define general principles for claims and advertisements; criteria for nutrition claims (including nutrient content /comparative claims), non-addition claims, health claims (reduction of disease risk), claims that are specifically prohibited amongst others and procedures for approval of claims where required.

It encourages Food Businesses to make responsible claims, based on certain predefined conditions and facilitates a simplified regulatory process without the need for any cumbersome approval mechanisms.

Similarly, the recently draft notified Labelling and Display is aimed at helping consumers make informed choices by providing consumers more comprehensive nutritional labelling information This recent draft regulation has introduced a new provision of Front-of-Pack (FOP) labelling, with an intent to help consumers identify nutrients of concern such as fat, sugar and sodium. The



regulation is in the draft stage is under discussion with stakeholders to identify an appropriate FoP scheme for the country.

Standards for fortified foods is yet another example to encourage the production, manufacture, sale and consumption of fortified foods. The regulation has been notified with an objective to combat micronutrient malnutrition through packaged food especially the staples like rice, wheat flour, milk, edible oil etc. This would enable addressing the nutrient deficiencies among population by providing adequate levels of the respective nutrients in the diet at reasonable cost creating opportunities for SMEs & MSMEs. In addition to help build awareness of this new category, the regulator has introduced the + F logo to help consumers make informed choices.

Other key regulatory measures for facilitating Trade have been the Regulations on Food Import, which will not only help to streamline the process of imports in the country, but also reduce current turn-around times at ports through the Risk based sampling approach.

In addition to facilitate ease of doing business for FBOs digital systems have been out in place to regularize the Food Licensing and Registration System (FLRS), This simplified

web-based system helps FBOs to apply for license/registration certificate from anywhere in the country and status of applications can also be tracked at various stages of processing.

Further to support the regulatory environment, a strong network of modern Food Testing Laboratories is being created to upgrade the food testing capacity. Additionally, various NABL accredited Food Testing Laboratories and Referral Laboratories with high end testing facilities as per Food Safety and Standards Regulations (FSSR) are being notified to strengthen the Food Testing Laboratories eco-system in the country.

All these efforts are laying the foundation of a robust science based regulatory regime encouraging a conducive regulatory environment, creating investor confidence and ensuring safe food for consumers

Capacity Building initiatives

With formulation of standards and setting of appropriate regulatory systems, focus has been laid to build capacity of the Food Processing Sector by training of the work force involved in this sector. Initiatives such as Food Safety Training and Capacity Building: Food





Safety Training & Certification (FoSTaC) have been designed to enhance public awareness while simultaneously training food handlers across the supply chain. Such tools have been instrumental in improving knowledge on all aspects of food safety to be inculcated during the involvement of any procedure w.r.t food handling, production, processing and its utilization.

FSSAI required all FBOs should have at least one trained Food Safety Supervisor for a minimum of 25 food handling staff on all their premises and over 1 lakh such supervisors have already been trained.

Consumer Interest at Centerstage

Consumer safety is of paramount importance to the regulatory and the industry, a simplified and science-based approach towards regulation will create a win-win situation for the consumer, industry and regulator.

Food Safety and Standards Authority of India (FSSAI) has launched various initiatives connecting with all stakeholders for creating a food safety culture in country. These initiatives touch consumers, every place where food is consumed / produced -

whether home, school, workplace, restaurants, street foods. The objective is to promote safe and healthy diets. This initiative aims to empower the citizens by improving their health by making right food and dietary choices.

The Eat Right Movement, SNF (Safe and Nutritious Food) are such unique initiatives that work towards bring a social and behavioural change in the society. The tools provide guidance and required behavioural change in every domain- at home, school, workplace or eating out.

In line with the changing demand and evolving regulatory ecosystem, industry has taken voluntary initiatives to reformulate packaged foods with reduced levels of salt, sugar and saturated fats and providing healthier choices to consumers. This voluntary step of portfolio transformation by the industry is in keeping with the global narrative shaping the industry.

These key milestones in Indian food regulatory ecosystem have created an enabling and conducive regulatory environment thereby building capacity and facilitating trade for the food processing sector. However, to further strengthen the food safety network in the country there is



still more to be done and it can be achieved only by collaboration of all stakeholders and active contribution and partnership by the industry.

Regulatory framework around Plastics and Food Safety

Packaging plays a vital role in containing and protecting food as it moves through the supply chain to the consumer. It is also the segment which has seen the maximum number of innovations and technology advancements. For example, monolayer (single layer) packaging offers immense ease of recyclability, coated/corona treatment enhance the surface properties of packaging films, transparent barrier films with very high oxygen and moisture permeability are replacing aluminium foil. With the advent of E-commerce, and online retail becoming an essential part of people's life, protective packaging that can withstand logistic shocks during transit and storage is emerging as a significant source of growth.

The food packaging industry is India's fifth largest sector with a current worth of nearly

\$40 billion¹ and by 2020, the sector is expected to reach over \$65 billion². With a per capita consumption of 24kg per year³, the Indian packaged food market is still at an early stage and offers huge growth opportunity.

In India, both flexible and rigid packaging is used in processed foods. Flexible packaging consists of either monolayer or multilayer films of plastics. Multi-layered laminated sheets of plastics mainly include PE, PP, PET, and PVC. Polyethylene and polypropylene account for ~ 62% of polymer usage in the flexible packaging industry. For each of these polymers, there is already a regulation in place which takes care of the safety of the food product packed inside.

In India, for most of the large companies (multinational and Indian food companies) packaging is fully compliant with the BIS standards and all packaging regulations as laid out by the government.

In October 2014, the union government of India placed a specific focus on sanitation and waste management through Swachh Bharat Mission (SBM). In line with the objectives of

¹The German Engineering Federation (VDMA)

²The German Engineering Federation (VDMA)

³The German Engineering Federation (VDMA)

this mission, the Ministry of Environment Forest & Climate Change (MoEFCC) came up with Plastic Waste Management Rules (PWMR), 2016, further amended in 2018.

The said legislation acted as a turning point, with respect to plastic waste management, as the concept of Extended Producer Responsibility (EPR) was integrated into regulatory compliance. The regulation has identified various key stakeholders including Indian Industry, with an objective to ensure sound management of plastic waste.

In line with global regulations the EPR framework is evolving in India taking into consideration the nuances of the Indian ecosystem. Some of the significant developments are-

1. While under sub-rule 9 (3) of PWM Rules, 2016, the manufacturing and use of non-recyclable multi-layered plastics was suggested to be phased out in two-years' time from the date of notification of aforesaid legislation. The PWM Rules, Amendment Notification 2018, the MoEFCC laid down that, "the phasing out of Multi-layered Plastic (MLP) would be now applicable to MLP which are "non-recyclable, or non-energy recoverable, or with no alternate use."

2. The amendment rules also provide provision for energy recovery from waste. Therefore, if MLP finds its place in waste to energy stream it can be considered as energy recoverable and hence, there would be no need to phase out MLP production and usage by Industry. To take advantage, it would be important to create an ecosystem for innovation to help develop technology solutions for use of compostable plastic in place of multi-layered packaging. This will also require efficient waste management ensuring that correct composting practices are set up across the length and breadth of the country.

In addition to PWM Rules, 2016, states authorities are issuing directions on packaging which is placing additional regulatory compliance requirements on Industry creating further complexities.

Given the constantly evolving ecosystem around plastic waste management, there is a need for drawing and implementing a facilitating framework that helps innovation to thrive while addressing the concerns around maintaining ecological balance and environmental sustainability in the long run.







SUB-SECTORAL PROFILES

This section aims to look at each of the key traditional sub-sectors with respect to current status, growth rates, exports, and the opportunities available.

Food grains

Global production scenario: As per FAO estimates, global cereal production in 2019 is estimated at 2 685 million tons, a minor 1.2 percent increase from 2018 level. The bulk of the growth is attributed to a higher production of wheat, currently forecast at nearly 771 million tons, owing to record wheat production forecasted in India. At the same time, FAO's forecast of world rice production stands at 516 million tons here again while production is expected to increase in India the decreases in production in China, Brazil and United States will likely be offset the expansion. On coarse cereals a slight decline in production from last year level is expected on account of decline in production in US coupled with poor crop prospects in China as well as in East and Southern Africa.

Global Trade prospects: FAO estimates a nominal 2% increase (8.3 million tons) in

cereal trade from the previous year on account of an increase in wheat trade. On the otherhand rice trade is expected to contract by as much as 3.1 percent.

Indian production scenario: India, the second largest producer of food grains globally, is estimated to produce a record 284.95¹ million tonnes food grain during 2018-19.

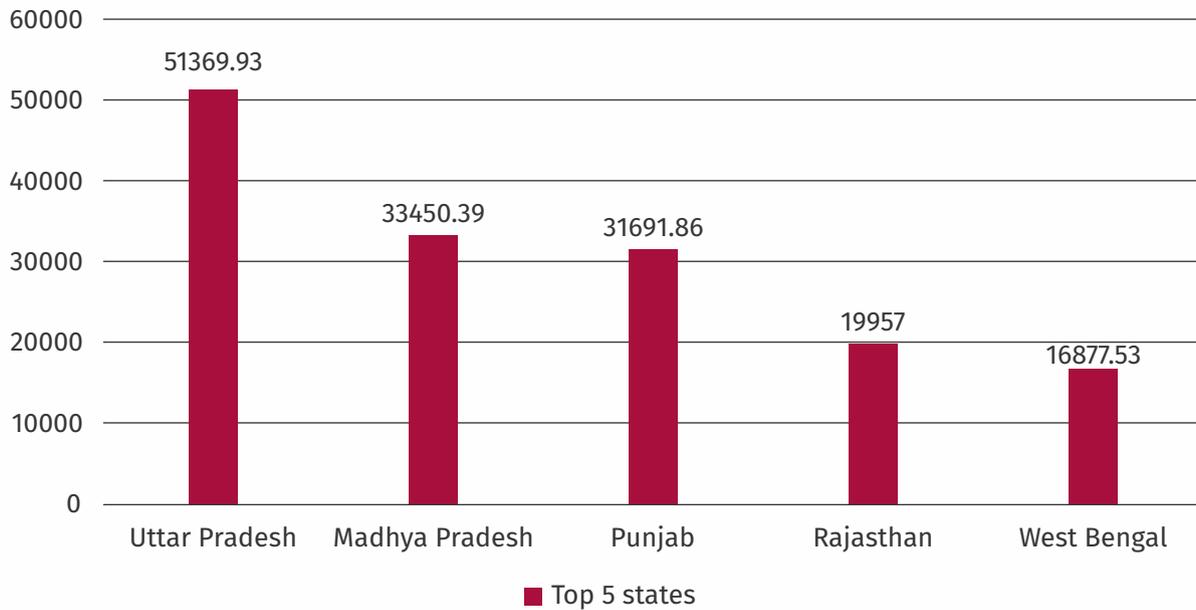
As per 4th Advance Estimates, the estimated production of major crops during 2018-19 is as under:

- Total Food grains – 284.95 million tonnes
- Rice – 116.42 million tonnes
- Wheat – 102.20 million tonnes
- Coarse Cereals – 42.95 million tonnes
- Cereals – 261.55 million tonnes
- Maize – 27.23 million tonnes
- Pulses – 23.40 million tonnes

¹4th Advance Estimates

Uttar Pradesh, Madhya Pradesh, Punjab, Rajasthan and West Bengal are the key food grain producing states in the country accounting for almost 50% of the food grain production.

Top 5 states in Food grain production 2017-18 (000'tons)



Source: Ministry of Agriculture & Farmers' Welfare, Govt of India

Exports²

India is not only one of the key producers of cereals globally, but also a major exporter and it is among the top ten exported items from India. Exports of cereals from India grew by 34.36 per cent to \$8.1 billion in 2017-18 on account of increasing demand in global markets.

During 2018-19, India exported 13.5 million MT of cereals worth Rs 568.4 billion. Rice (including Basmati and Non-Basmati) occupy the major share in India's total cereals export with 95.7% during the same period. Whereas, other cereals including wheat represent only 4.3 % share in total cereals exported from India during this period.

Major Export Destinations (2018-19): Iran, Saudi Arabia, UAE, Nepal and Iraq.

Opportunity in the sub segment

India is witnessing wastage in the range of 4.65% – 5.99%³ in cereals majorly due to lack of storage infrastructure and primitive grain handling mechanism. To reduce this wastage level and fulfil the increasing demand for grains and its processed forms, India needs adequate infrastructure, processing facility and research & development in this area.

- Processing of cereals to high value products like snacks, ready to cook/ready to eat products, bakery products etc.
- Share of healthy variants of cereals-based products such as multi-grain flour, brown bread, brown rice, multigrain bread, whole wheat bread etc. is witnessing significant growth.

²APEDA

³CIPHET estimates 2015



- Super cereals or millets are witnessing a huge demand domestically and in global markets due to the health benefits that they offer.
- Opportunity for millet-based value-added products.

Fruits and vegetables

China, India, Brazil, USA, Italy, Spain, Mexico, Iran the Philippines and France are the top ten aggregate fruit producers in the world. For vegetables China and India ranking as 1st and 2nd account for nearly 60% of global production.

India is the second largest producer of the Fruits and Vegetables in the world with a production of 311.7 million tons⁴. India's horticulture production is estimated to rise by 1 per cent to record 314.67 million tonnes in 2018-19⁵ on account of higher area under coverage.

According to APEDA data, India is the largest producer of ginger and okra amongst vegetables and ranks second in production of potatoes, onions, cauliflowers, brinjal, Cabbages, etc. Amongst fruits, the country ranks first in production of Bananas (25.7%), Papayas (43.6%) and Mangoes (40.4%). The production volumes for major fruits & vegetables are⁶:

Commodity	Production Volume (Mn MT)	Commodity	Production Volume (Mn MT)
Banana	28.13	Potato	45.95
Mango	18.83	Tomato	19.16
Citrus	11.74	Onion	18.73
Papaya	4.6	Brinjal	12.43
Guava	3.91	Cabbage	8.79

⁴Final estimates of 2017-18, MoA&FW

⁵First advance estimates for 2018-19, MoA&FW

⁶Horticultural - Statistical Year Book India 2018



Major producing States

Maharashtra, Andhra Pradesh, Uttar Pradesh, Gujarat, and Karnataka are the leading producers of fruits in India, having a combined share of around 51% in the total fruits production. For vegetables, major producers include West Bengal, Uttar Pradesh, Bihar, Madhya Pradesh, and Gujarat, together accounting for around 55% of the national production.

Exports

During 2018-19, India exported fruits and vegetables worth Rs. 10236.93 crores/ 1,469.33 USD Millions which comprised of fruits worth Rs. 4817.35 crores/ 692.01 USD Millions and vegetables worth Rs. 5419.48 crores/ 777.25 USD Millions⁷.

Grapes, Pomegranates, Mangoes, Bananas, Oranges account for larger portion of fruits exported from the country while Onions, Mixed Vegetables, Potatoes, Tomatoes, and Green Chilly contribute largely to the vegetable export basket.

The major destinations for Indian fruits and vegetables are Bangladesh, UAE, Netherland, Nepal, Malaysia, UK, Sri Lanka, Oman and Qatar.

India's exports of Processed Food stood at Rs. 31111.90 Crores⁸ in 2018-19 which majorly included Dried and Preserved Vegetables and Mango Pulp.

Opportunity in the sub segment

India witnesses nearly 4.58 – 15.88%⁹ wastage in fruits and vegetables annually, due to lack of modern harvesting practices and inadequate cold chain infrastructure. Further the processing levels in F&V currently stand at a low of 2%.

- Opportunity therefore lies in investing in initiatives that help reduce wastage levels including adequate infrastructure (cold chain, processing infrastructure), R&D for processed food & packaging, innovative on farm preservation systems and skill development.

Further India's share in the global market is still nearly 1% only, however, there is increasing acceptance of horticulture produce from the country due to concurrent developments in the areas of state-of-the-art cold chain infrastructure and quality assurance measures.

- Thus, there is a huge opportunity in harnessing the export potential of processed fruits and vegetables in the form of frozen (IQF), canned, pulp, puree, paste, sauces, snacks, dressings, flakes, dices, dehydration, pickles, juices, slices, chips, jams, jelly, RTS drinks etc.

Opportunities for technology and equipment suppliers

- New technology in F&V processing

⁷APEDA data

⁸APEDA data

⁹CIPHET Estimates 2015

- Cold chain & packhouses- Farm level, logistics, end product storage and at point of retail
- Packaging technology
- Food testing labs with latest
- equipment and technology

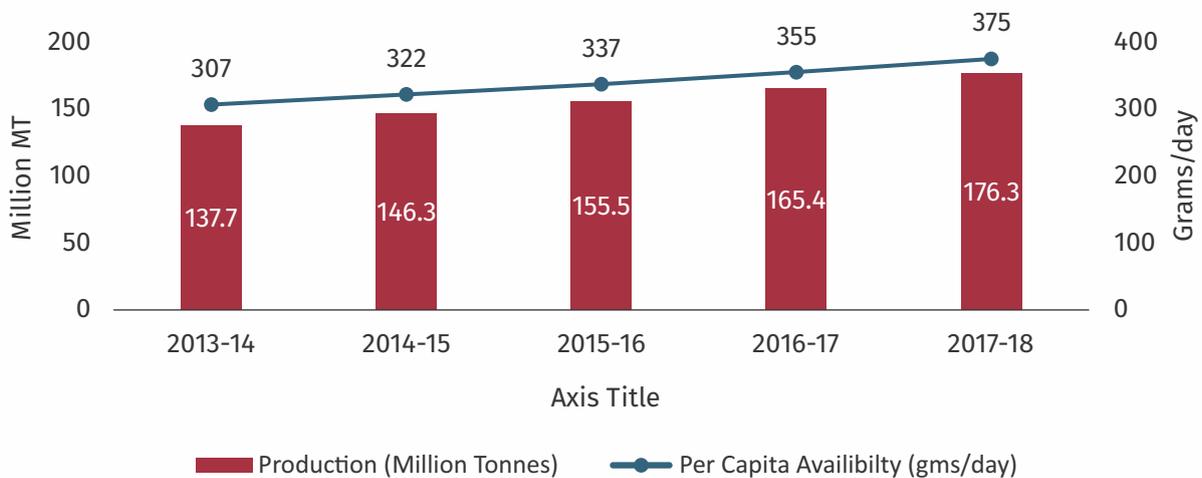
Dairy

India is the largest producer of milk globally, achieving an annual output of 176.35 million

MT during the year 2017-18 as compared to 165.4 million MT during 2016-17 recording a growth rate of 6.62%. Per capita availability of milk in India has reached 375 grams per day in 2017-18, which is more than the world average of around 294.2 grams per day in 2017.

Over the past 5 years, milk production in India has increased by a CAGR of 6.37% while that of global milk production has increased at a CAGR of 9.3%¹⁰.

Growth in India's milk production



Source: Department of Animal Husbandry, Dairying and Fisheries

The Indian dairy market is amongst the largest and fastest growing markets in the world. Going forward, India's milk production is expected to reach 180 million MT by 2020, from the current 176.3 million MT, while the demand is projected (by NDDDB) to reach 200 million MT.

India has managed to attain top position in milk production globally owing to huge bovine population. However, the full potential of Indian milk herd still remains unattained.

Changing lifestyle patterns, increasing disposable incomes and increasing health consciousness are the key growth drivers for milk and high value milk products in India.

To tap the surging demand, most dairy players have entered the processed dairy segment with introduction of value-added products like ghee, flavored yogurt, butter (with variants), flavored milk, cheese etc.

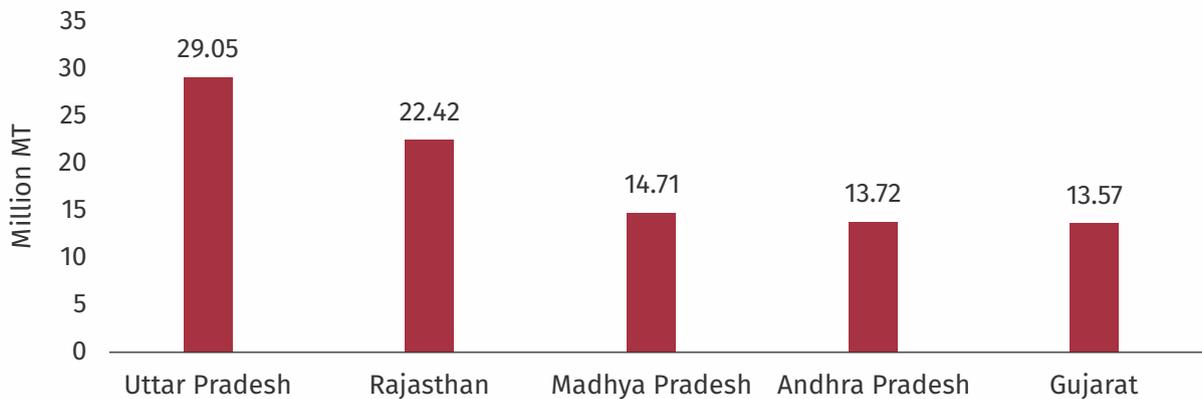
¹⁰http://www.nddb.coop/information/*tat*/acro



Leading States

Uttar Pradesh is the largest milk producing state in India contributing 16.5% to the India's total milk production in 2017-18, followed by Rajasthan, Madhya Pradesh, Andhra Pradesh and Gujarat contributing 12.7%, 8.3%, 7.8% and 7.7% respectively.

Top 5 Milk Producing States in India



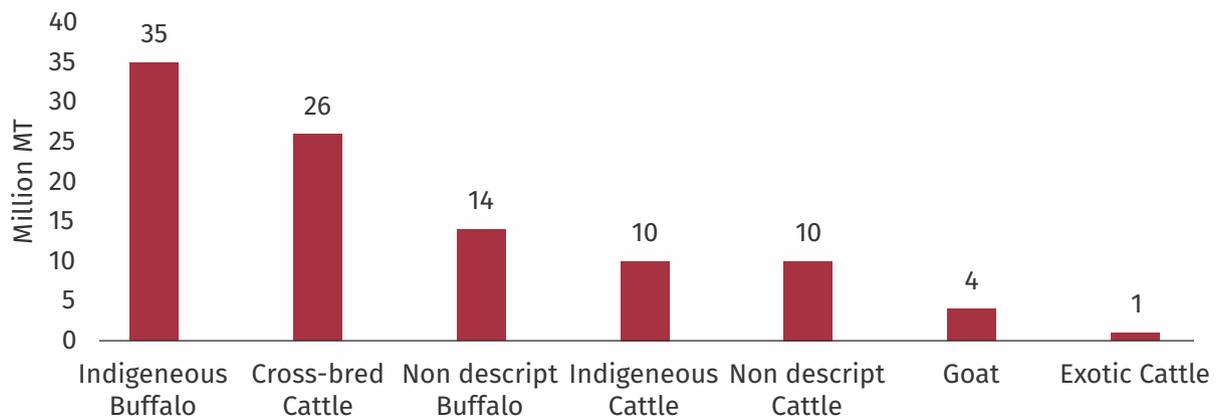
Source: Department of Animal Husbandry, Dairying and Fisheries

Species-wise Milk Production

Around 35% of the milk produced in India is through indigenous buffalo breeds, followed by cross bred cattle, non-descript buffalo indigenous cattle and non-descript cattle. A small amount of milk (about 5%) is produced by exotic cattle breeds and goats.



Species - wise Milk Production in 2017-18



Source: Department of Animal Husbandry, Dairying and Fisheries

Exports

- India exported dairy products of around USD 345.7 million in the year 2018-19.
- In terms of products, SMP (Skimmed Milk Power) is the most important product, followed by ghee, butter, fresh cheese and WMP (Whole Milk Power).
- The major destinations included Turkey, UAE, Egypt, Bangladesh, and Bhutan.

Sectoral Challenges

Despite its inspiring performance, the sector

faces several issues throughout the value chain. The segregated structure of the sector and marginality of the majority of farmers, and limited impact of technological innovations have resulted in several significant issues that are plaguing the sector. Given the fragmentation and small volume of milk handled by individual farmers, milk procurement itself becomes challenging. The breeding related issues and unavailability of high yield pure breeds, lack of expert knowledge about feeding and healthcare of the cattle, drugs and antibiotic related unawareness, absence of technological means to predict optimum production cycle of the animal are some of the key areas that need immediate intervention.

Indicative Opportunity in Dairy Sector

Technology & Equipment Suppliers	Dairy Processing Players
<ul style="list-style-type: none"> • Advanced technology equipment for increasing milk procurement efficiency, value addition for dairy products, etc. • Innovation in packaging solutions • New product development for cattle feed • New veterinary care technology & cattle diagnostics services 	<ul style="list-style-type: none"> • New product development in value added dairy products viz. cheese, smoothies, flavored milk, custard, yogurt and other ethnic Indian products

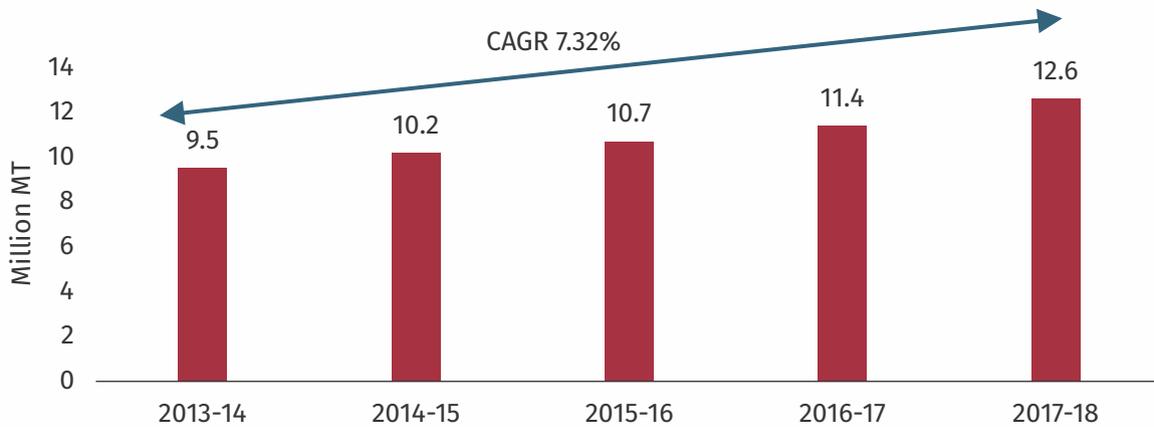


Fisheries

Gindia, with a production of around 12.6 million MT (2017-18) is the second largest fish producer in the world, after China. Of the country's total production nearly 65% is from inland sector and about 50% of the total production is from culture fisheries.

The country's geographical advantage, in terms of a long coastline (7,517 km), abundant rivers and canals, reservoirs, ponds 10% of the global biodiversity in terms of fish and shellfish species, has allowed continuous and sustained increments in fish production.

Growth in India's Fish Production



Source: Department of Animal Husbandry, Dairying and Fisheries

Traditional independent fish retailers still dominate the distribution channel of fish and seafood in India. However, retail sales volume via modern grocery retail channels like supermarkets and hypermarkets, have grown rapidly from a smaller base in recent years, particularly in major cities.

Processing levels of marine food in India are currently at 23%. Thus, presenting significant opportunity for marine processing players. Processing of fish into canned and frozen forms is carried out mostly for exports. Besides, there is an increased demand for processed and ready to eat marine products in the domestic and overseas market.

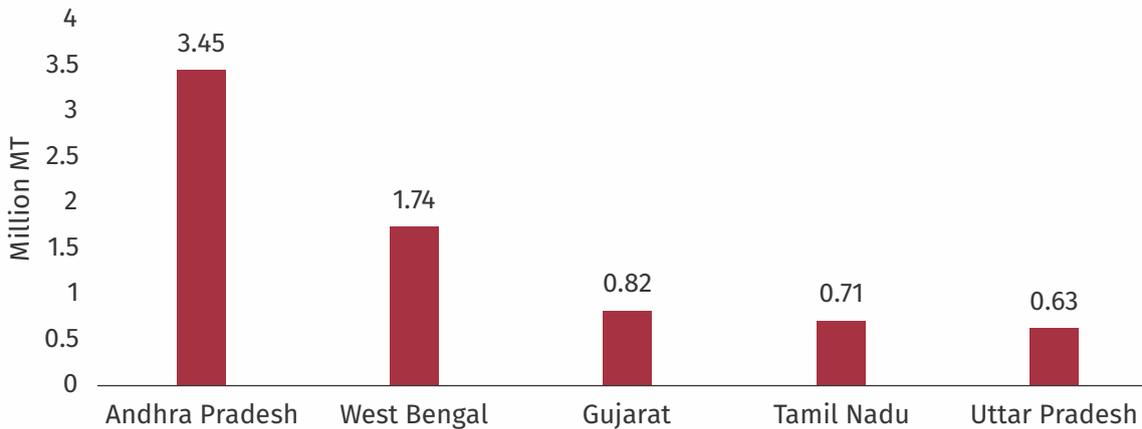
The export market is currently valued at USD 5.8 billion per million tonnes. Given that most exports currently are in the frozen form and there is immense potential for exporting value added products.

Leading states

The top five states for fisheries production in India are Andhra Pradesh, West Bengal, Gujarat, Tamil Nadu and Uttar Pradesh with a combined share of around 58% of the total fish production. It is pertinent to note that the production numbers for Karnataka and Kerala have fallen significantly over the past two years; both states were among the top 5 fish producing states till 2015-16.

- Inland Fish Production: The top five states are Andhra Pradesh, West Bengal, Uttar Pradesh, Bihar and Odisha contributing close to 68% to freshwater aquaculture.
- Marine Fish Production: The top five states are Gujarat, Andhra Pradesh, Tamil Nadu, Maharashtra and Kerala contributing close to 72% to the total production.

Top 5 Fish Producing States in India



Source: Department of Animal Husbandry, Dairying and Fisheries

Exports

- More than 50 different types of fish and shellfish products are being exported from India to 75 countries around the world¹¹.
- India's marine product's exports has been increasing significantly, recording 1.37 million MT of exports worth USD 7.08 billion in 2017-18. The quantity was up by 21.35% while the value rose 19.1% over the previous year.
- South East Asia (44.7%), USA (18%), EU (13.8%) and Japan (6.2%) are the major

export destinations for Indian marine products.

- Frozen shrimp contributes 41% in quantity and 68.4% in value terms to exports. Frozen Fish was the second largest export item, accounting for a share of 25.6% in quantity and 10.4% in value.
- Marine products are exported through 30 different sea/air/land ports across the country. Pipavav is the major port with respect to export volume and Vizag is the major port with respect to export value.

Indicative Opportunity in Fisheries Sector

Technology & Equipment Suppliers	Processing Players
<ul style="list-style-type: none"> Upgradation and capacity expansion for cold chain. Innovations in packaging for increased shelf life and product differentiation. Infrastructure development for fishing harbours/landing centers/wholesale markets as per international standards. 	<ul style="list-style-type: none"> Value addition and product development, especially RTE/RTC products for the domestic as well as export market. Potential to process value added products with Indian taste like fish/shrimp pickle, fish/shrimp curry, skewers, marinated fish with Indian spices etc.

¹¹<http://nfdb.gov.in/about-indian-fisheries.htm>

Meat & Poultry

India has the world's largest population of livestock, with over 300 million bovines, 65 million sheep, 135.2 million goats and about 729 million poultry as per the latest livestock census.

India is the largest producer of buffalo meat and second largest producer of goat meat. It is the third-largest egg producer in the world after China and the USA and the fourth-largest chicken producer in the world after China, Brazil and the USA. During 2017-18, India produced around 7.7 million MT of Meat and around 95.2 billion eggs.

Poultry is a highly vertically integrated industry in India and matches the efficiency levels of many western countries. However, the current processing levels in poultry are 6%, while for meat it stands at 21%. This

presents significant opportunity for scaling up the segment.

Towards providing safe and hygienic meat to consumers, the Government of India has taken steps for modernization of municipal abattoirs; additionally, export oriented units have invested significantly in establishment of large abattoirs-cum-meat processing plants with the latest technology.

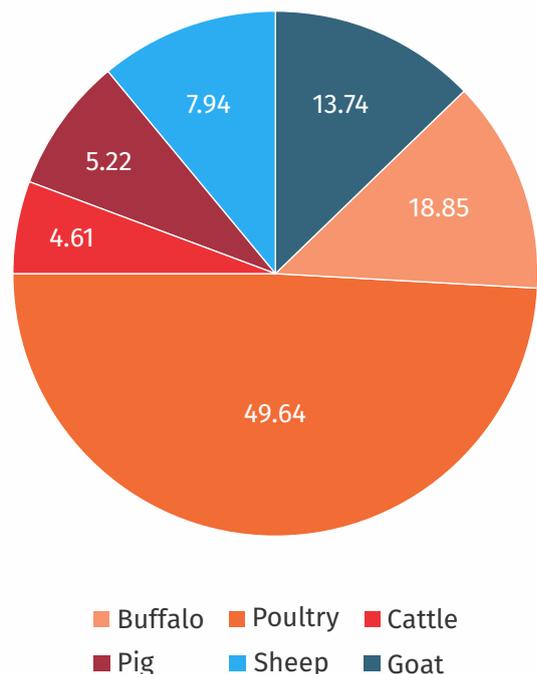
Farm automation, abattoirs, logistics, processing and point of sale cold storage infrastructure are an opportunity in India, given the changing preference of Indian consumers for clean, safe and hygienic meat and meat products.

Species-wise Meat Production

Almost 50 percent of the total meat production across India was contributed by poultry during 2017-2018.



Species-wise meat production in India



Source: Department of Animal Husbandry, Dairying and Fisheries

Leading States

- Eggs: Tamil Nadu, Andhra Pradesh, Telangana, West Bengal and Maharashtra are the top egg producers in the country.
- Meat: Uttar Pradesh, Maharashtra, West Bengal, Andhra Pradesh and Telangana are the top meat producers in the country.

Exports

Exports of animal products represent an important and significant contribution to the Indian Agriculture sector. The export of Animal Products includes Buffalo meat, Sheep/ Goat meat, Poultry products, Animal Casings, Milk and Milk products.

During 2018-19, India's exports of Animal Products was worth USD4.4 billion, which included the major products like

- Buffalo Meat (USD 3608.72 Million),
- Sheep/ Goat Meat (USD 113.74 Million)
- Poultry Products (USD 98.42 Million)
- Dairy Products (USD 345.71 Million)
- Processed Meat (USD 1.95 Million)

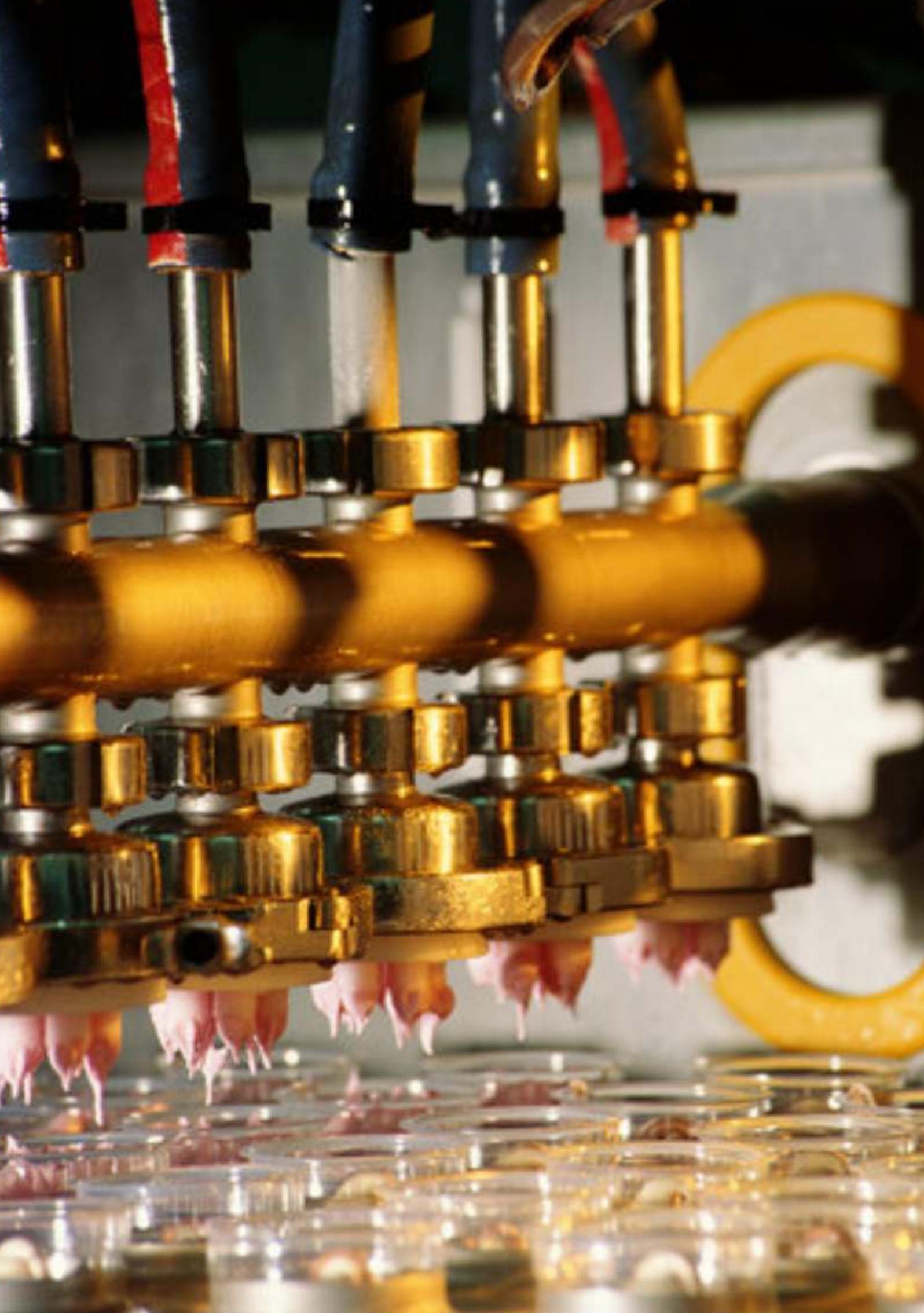
The demand for Indian buffalo meat in international market has sparked a sudden increase in the meat exports. Buffalo meat dominated the exports with a contribution of over 89.08% in total Animal Products export from India.

The main markets for Indian buffalo meat and other animal products are Vietnam, Malaysia, Egypt Arab Republic, Iraq and Saudi Arabia.

Indicative Opportunity in Meat and Poultry Sectors

Technology & Equipment Suppliers	Processing Players
<ul style="list-style-type: none"> • New technologies for meat & poultry processing • Modern abattoirs • Innovations in cold chain for better utilisation efficiency. • New veterinary technology/services • Food testing labs 	<ul style="list-style-type: none"> • New products-value added products like frozen/chilled products, RTC/RTE, Indian ethnic products/snacks • Egg powder plants • New feed formulations and manufacturing







GROWTH TRENDS IN EMERGING PROCESSING SUB SEGMENTS¹

The India market size for food is expected to reach USD 544 billion by 2020-21² whereas the food industry output is expected to reach US \$ 535 billion in 2025-26³. Within the Indian food and beverage industry, there are certain segments that are gaining increasing acceptability and thereby creating immense opportunities for increasing domestic consumption as well as exports.

The segment provides a snapshot of key trends in some of the processing subsegments with the idea to highlight key opportunities and growth prospects.

Packaged food segment

The packaged food segment has been reporting double digit growth in 2018 with edible oils and dairy products accounting for

a major share. Other segments supporting this growth are - Chocolate confectionery, sweet biscuits, snack bars, savoury snacks, spreads, sauces, dressings and condiments, baby food and baked goods.

The growth in the segment is also supported by shift in consumer preference for branded packaged products, amid rising awareness of healthy living. The growth is further fuelled by increasing competition in the segment with new product launches and new entrants leading to increased choices for consumers and the strong growth is expected to continue till 2023.

Demand towards branded packaged food is also driving the convenience seeking urban consumers to shop online or in hypermarkets and supermarkets.

¹Source Country Reports - Passport by Euromonitor

²CII estimates

³CII estimates



A deep dive in to the packaged food subsegment reveals unique growth trends some of which are highlighted in the following section -

Breakfast cereals

The breakfast cereals segment is becoming more competitive with new entrants as well as innovative variants targeting the health-conscious consumers. The segment is getting re-positioned as a healthy snack segment with introduction of variants such as muesli and granola. The entry of new variants has impacted the traditional breakfast cereal product, flakes, market for which has registered a decline in retail value growth during 2018.

Bakery products

With introduction of GST price packaged flat bread (Chapattis, naans, roti, paratha, kulcha) moved to a lower tax bracket of 5% resulting in rise of sale. Additionally, packaged flat bread responded to the consumer need for availability of single and multi-serve pack sizes which further supported sales.

The dessert mixes sub-segment is evolving from conventional mixes to more global dessert mixes recipe viz cakes, pastries, ice creams, biscuits etc.

The bakery segment is further evolving with introduction of premium variants such as croissants, filled muffins, cookie cakes, sweet puffs etc in packaged formats.

Processed fruits and vegetables

Given year-round supply of fresh fruits and vegetables, frozen vegetables sales are declining in retail outlets, but picking up among foodservice players.

Consumers are becoming more exposed to International snacks however frozen potato products remain the popular snack option.



While the processed fruits and vegetables have some established organized players, the segment is witnessing new entrants which are growing fast.

Processed Meat and Seafood

Owing to policy barriers on slaughtering and selling beef fresh and processed formats sales were impacted in 2018. However, the frozen processed sea food segment gained popularity and witnessed increase in demand for international sea food. Growth in the sea food segment is also fuelled by internet retailing channels, increasing focus on nutritious food, and the convenience of long-term storage.

Encouraged by the benefit in terms of increased shelf life of meat, independent small grocery retailers are also setting up compact freezers and chillers thus strengthening the backend.

Pasta and Noodles

Overall noodles sales recovered completely during 2018 after a major setback in 2015

Pasta dishes have become a common meal option for Indian consumers with Italian and Mediterranean cuisines gaining popularity



Edible oils

Consumer shift towards olive oil and rapeseed oil as preferred edible oil was witnessed in 2018, however olive oil given its high prices continued to face a considerable challenge from blended oils products. In the lower income segment Palm oil continued to find a huge consumer base given the lower prices in 2018.

Ready meals

Ready meal is still a small category in India partly due to a strong preference for fresh food among Indian consumers however with increasing working population seeking convenience the segment offers growth potential. To tap the market, manufacturers are offering a range of options to suit the consumer palate, encompassing everything from traditional Indian meals to exotic dishes.

Within the ready meals segment frozen ready meals remained the largest category in value terms in 2018 and posted the fastest growth in current value sales.

Sauces, Dressings and Condiments

Dry sauces were the largest category within sauces, dressings and condiments in India in value terms in 2018 and continued to post strong double-digit growth in current value sales. Mayonnaise and salad dressings also

recorded strong growth in current value sales in 2018 given the growing exposure to Western cuisine via foodservice outlets.

Soup

Growth in Soup consumption supported current value sales in 2018, though the category remained relatively small as compared to other countries such as China and Japan. While Tomato remained the most popular flavour within soup in India in 2018, the category is witnessing an influx of new flavours, including classic international options.

Dehydrated soup remained the dominant soup category in India in value terms in 2018, given convenience, ease of preparation as well as perception of a healthier option.

Chocolate confectionary

While demand for premium chocolates saw an increase, availability was limited.

Flavour innovation is a new trend driving chocolate confectionery with manufacturers experimenting with new flavours such as coffee, cinnamon etc in addition to fruit flavours such as strawberry and orange peel. Positive buzz around dark chocolate, which has lower sugar content also favoured rising demand in the sector.

Dairy

Increasing consumption of burgers, pizza and pasta, is driving growth in the dairy segment with cheese being a key ingredient in such dishes. Within the cheese category variants such as Mozzarella, Cheddar and Parmesan, are gaining popularity.

In 2018, unprocessed cheese in India continued to be dominated by paneer and unorganised channel remained the largest supplier.

Within the drinking milk product category, flavoured milk continued to outperform other variants. Also, premium milk with longer shelf life, is gaining popularity.

Beverages

Naturally healthy beverages continued to witness significant value growth in 2018 with demand for natural ingredients and flavours such as orange, mango and apple remaining the most popular. Ayurveda-based juices, such as aloe vera and amla, and vegetable juices are also witnessing greater demand in India.

Organic beverages segment is also evolving with Organic tea capturing the largest share.

In the fortified/functional beverage segment, sports drinks continued to see a strong value sales performance in 2018.





TRENDS SHAPING THE FUTURE OF THE SECTOR

The segment provides an insight into the key emerging trends that are shaping the future of the food processing sector. Many of these trends are not exactly new, but instead the result of burgeoning trends that have been slowly working their way into mainstream consumer behaviours. The idea is to present a concise list of opportunities for global and Indian industry in the Indian food processing sector.

Convenience

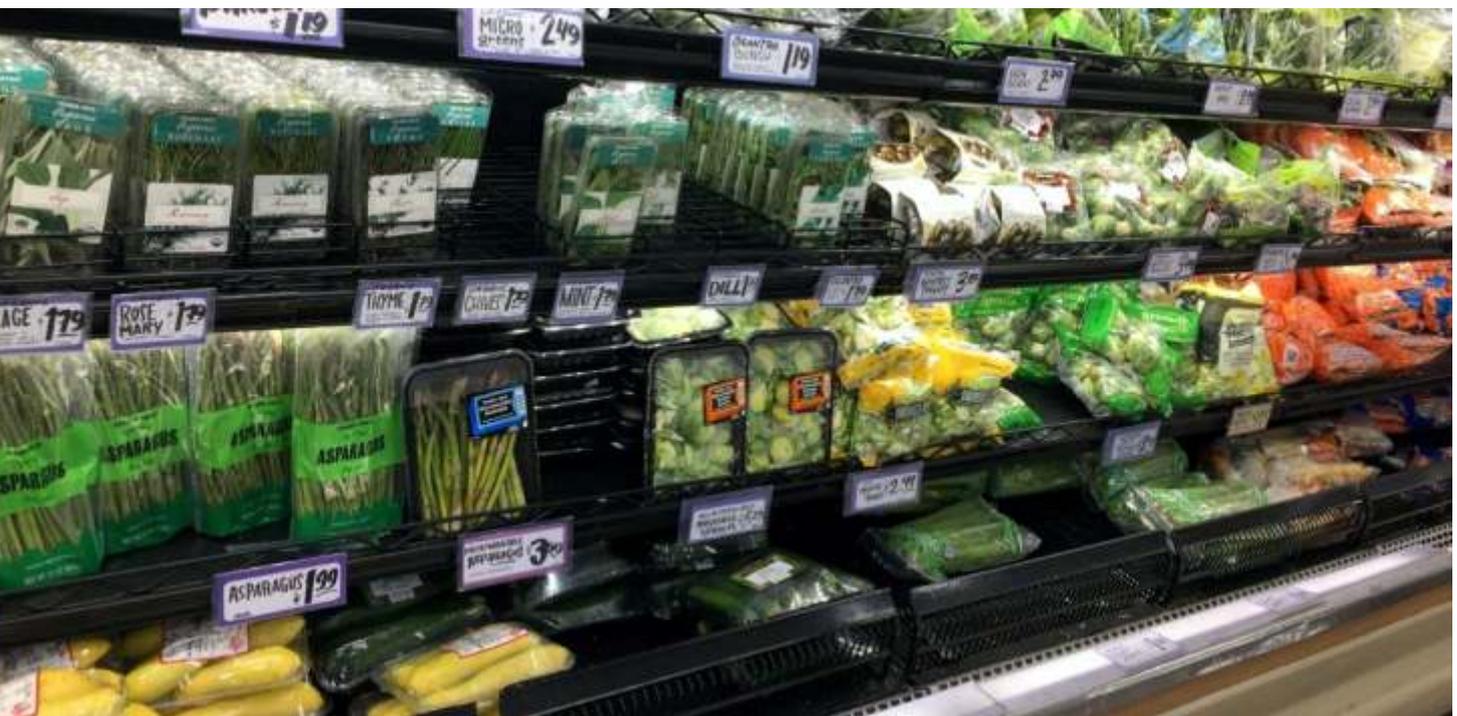
With a sizable and increasing urban population (>30 per cent as per 2011 census, and, 62.5% of the population are between ages of 15 – 59 years (2011 Census)), India is witnessing a major shift in consumption pattern towards convenience food. This is evident from the fact that apart from oils and fats convenience food items ready meals, rice, pasta & noodles and savory snacks have been registering impressive sales growth. We are also witnessing fast growth in breakfast cereals, ice-cream and soups segments.



India: Sales Volume of Packaged Foods in 2014 and 2018 ('000 Tons)

Category	2014	2018	% change
Baby Food	86	98	14
Baked Goods	2,614	2,960	13
Biscuits and Snack Bars	1,636	1,910	17
Breakfast cereals	44	69	57
Confectionery	451	640	42
Dairy	15,800	20,997	33
Ice Cream and Frozen Desserts	289	460	59
Edible Oils	5,898	11,070	88
Processed Fruit and Vegetables	46	59	28
Processed Meat and Seafood	30	46	56
Ready Meals	51	85	67
Rice, Pasta and Noodles	2,156	3,786	76
Sauces, Dressings and Condiments	396	604	53
Soup	8	12	50
Margarine and Spreads	7	13	86
Savory Snacks	702	1129	61

Source: Euromonitor



As evident food processing industry is expanding sales in every category of processed foods, both in volume and value terms. Industry sources estimate that over 400 million Indians regularly consume some type of processed food. Urban areas account for over 75 percent of sales, as consumers seek convenience and quality thus it offers market for higher-value frozen and refrigerated foods.

Further, more than two thirds of our 1.3 billion population are young with growing incomes also create a large market for convenience food products. All these factors lead to growing consumption of food which is expected to reach US \$ 1.2 trillion by 2025-26¹.

Apart from convenience the young population is placing higher importance on physical and emotional wellbeing, and thus swiftly moving towards healthier alternatives. As, a result, companies are today aiming at expanding product portfolio to include nutrition-based food categories to cater to the growing demand.

Thus, the opportunity lies in combining taste and health benefits while making it convenient for prospective customers.

Mindful eating

The Consumers today are more conscious than ever about making responsible food choices, and increasingly want to know what is in their food and how it is produced. They are paying more attention to attributes like smells, tastes and other sensory experiences and are becoming more aware of what they put into their bodies thus seeking out ways to make positive decisions about what they buy. With emergence of the trend **food safety, traceability and sustainability** have gained centerstage and are shaping the consumer buying behavior.

Consumers today are increasingly interested to know what ingredients are in a food product, as well as its nutritional properties.



The increasingly thoughtful and mindful consumer are changing the way that companies produce, package and label their products and detailed, honest and accurate labeling is emerging as a key product differentiation strategy.

With food supply chain becoming more complex and more global traceability is gaining vitally important for food safety as well as operational efficiency. Even the number of food recalls happening across the globe signifies the increasing need for food traceability. **Along with empowering consumers, food traceability is also enhancing the value of a brand. The consumers look up to such brands with trust and consider their products authentic. Besides, this works like a big boost for the brand and taking corrective measures in the event of an anomaly will be easy.**

Sustainable sourcing has become a prerequisite all along the food value chain and companies today are increasingly being evaluated on their supply chain responsibility. It entails ensuring that materials sourced by a company has been done in a sustainable and ethical manner – integrating social and environmental performance factors. For the food industry, sustainability is not only about supplying the right ingredient, it is also about gaining competitiveness.

¹CII estimates

As India continues to increase its footprint as a key sourcing area across sectors, it is strategically positioned to take a leading role in promoting sustainable trade across value chains. There is an increased awareness on sustainability risks as well as opportunities amongst the businesses today and they are viewing responsible sourcing from India as a step towards brand building and creating supply chain leadership. The rewards are not only great; but these businesses stand every chance of growing as more companies accept the sustainability norm.

With environmental sustainability gaining centerstage it is being increasingly recognized that a quarter of the world's greenhouse gas emissions come from putting food on the table. In the food segment emissions from food distribution, processing, retail, and food services sectors combined are projected at nearly a million tons of CO₂ with just four key sources: electricity, natural gas, waste, and fleets. ***With the sector becoming more focused in reducing its carbon and water foot print climate smart solutions are increasingly in demand and leading to innovations.***

Sustainability concerns led innovation: Plant based meat

Consumer attitude towards meat is today changing. According to BBC 3.5 million people today identify as vegan, 20% of under-35s have tried veganism, and 25% of the evening meals are turning meat-free. Thus, there is a rapid growth in plant-based eating, as per Euromonitor estimates, the market for meat substitutes is expected to hit \$2.5 billion by 2023. The growth is also fueled by the environmental benefits these alternatives offer.

According to a study by Center for Sustainable Systems at the University of Michigan, a plant-based burger generates 90% less greenhouse gas emissions, requires 45% less energy, has 99% less impact on water scarcity, and 93% less impact on land use than a ¼ pound of traditional U.S. beef.

While it may seem more of a global trend, plant-based meat is gaining grounds in India as well. As per researcher by University of Bath, the Good Food Institute, and the Hong Kong Center for Long Term Priorities consumers in India and China were much more interested in buying clean meat and plant-based meat, compared to those in US. India might be a more natural market and plant-based meat in India could mean a wider array of protein-based food options for vegetarians.

Packaging & Branding

The food packaging industry is India's fifth largest sector with a current worth of nearly \$40 billion² and by 2020, the sector is expected to reach over \$65 billion³. With a per capita consumption of 24kg per year⁴, the Indian packaged food market is still at an early stage and offers huge growth opportunity.

The food packaging industry is also the one that has seen the maximum number of innovations in terms of packaging and branding. With the advent of E-commerce, and online retail becoming an essential part of people's life, protective packaging that can withstand logistic shocks during transit and storage is a significant source of growth.

Packaging in India at present is highly fragmented most of the firms are micro, small

²The German Engineering Federation (VDMA)

³The German Engineering Federation (VDMA)

⁴The German Engineering Federation (VDMA)



and medium enterprises (MSMEs). As the industry grows and matures, there is expected to be a trend towards **consolidation as supply-side companies merge and acquire smaller companies to increase scale, reduce competition and improve bargaining power with customers.**

Also, packaging serves as an extension of the overall product experience and is emerging as a new value driver evident from the fact that consumers are now showing a greater interest to know the complete value chain of the products, they are consuming, including the means used to source the raw materials, contents or ingredients used in the manufacturing of the product, packaging and labelling norms etc. Further, **Thus, with packaging emerging as the most direct and relevant form of reaching new levels of product differentiation and impacting buying behavior the un-organized sector presents huge opportunity.**

Packaging and branding are also emerging as a purchase influencer and communicator giving consumers alternatives to compare the value offerings before making a purchase. For

example, innovative packaging is helping improve convenience by enhancing 'carry ability' of products and increase their shelf life.

Technology and Automation

Food processing is one sector that can not flourish without technology and automation. Globally, the food processing & handling equipment market is projected to reach USD 196.6 billion by 2025, at a CAGR of 6.2% from 2019⁵. Asia Pacific is projected to be the fastest-growing region in the food processing & handling equipment market in 2019 with China and India contributing to the growth of the food & beverage and consumer product industries.

Automation is the future for the sector to address the required levels of quality control, production speed, labor shortages and overall profitability. Further automation will not replace people but will improve the skills workers need to keep up with the pace of change.

⁵Report on "Food Processing & Handling Equipment Market by Type (Food Processing Equipment, Food Packaging Equipment, and Food Service Equipment), Application, Form (Solid, Liquid, and Semi-Solid), and Region - Global Forecast to 2025"



Personalized nutrition

Consumers in India have become more health-conscious and are keeping a watch on what they are consuming. Personalized nutrition is gaining grounds and understanding the trends companies are increasingly investing in the segment. From one size fits all the world is moving to adopt Artificial intelligence, DNA testing etc for providing consumers with alternatives. Similarly, with focus on personalized nutrition dietary supplements manufacturers are shifting focus on specialty ingredients that are developed keeping in mind specific health needs of the consumers, such as lutein for eye care, omega3 for heart health, among others.

eCommerce

India's digital e-commerce market, accelerating at a rapid pace, is expected to grow from the US \$38.5 billion in 2017 to US \$200 billion by 2026⁶. The Indian e-commerce industry has been on an upward growth

trajectory and is expected to surpass the US to become the second largest e-commerce market in the world by 2034. India's E-commerce revenue is expected to jump from US\$ 39 billion in 2017 to US\$ 120 billion in 2020⁷, growing at an annual rate of 51 per cent, the highest in the world.

With emergence of e-commerce, the food retail segment is further evolving. Online grocery while is at a nascent stage at present owing to the fragmented and unorganized nature of the Indian market is expected to grow to \$17.39 billion by 2022 due to fast-paced urbanization, changing customer lifestyle and tech-savvy demographic changes.

The evolution of ecommerce has marked a shift from traditional supply chain to digitally driven supply chain and it is impacting various facets at the back end. Technology enabled innovations like digital payments, hyper-local logistics, analytics driven customer engagement and digital advertisements will support further growth in the sector.

⁶IBEF as of Dec 2018

⁷IBEF as of Dec 2018



Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process. Founded in 1895, India's premier business association has around 9000 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from around 276 national and regional sectoral industry bodies.

CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, healthcare, education, livelihood, diversity management, skill development, empowerment of women, and water, to name a few.

India is now set to become a US\$ 5 trillion economy in the next five years and Indian industry will remain the principal growth engine for achieving this target. With the theme for 2019-20 as 'Competitiveness of India Inc - India@75: Forging Ahead', CII will focus on five priority areas which would enable the country to stay on a solid growth track. These are - employment generation, rural-urban connect, energy security, environmental sustainability and governance.

With 66 offices, including 9 Centres of Excellence, in India, and 10 overseas offices in Australia, China, Egypt, France, Germany, Singapore, South Africa, UAE, UK, and USA, as well as institutional partnerships with 355 counterpart organizations in 126 countries, CII serves as a reference point for Indian industry and the international business community.



FACE is CII's Centre of Excellence dedicated to building efficiencies across the agricultural value chain from farm to fork. FACE is charged with the mission of improving competitiveness of India's agriculture and food sector by catalyzing innovation, building capacity and enhancing productivity across the value chain. FACE works with farmers, companies, development institutions and the government to

- Improve on and off-farm productivity through the dissemination of best practices and technological innovation
- Invest in capacity building initiatives and skill development for supply chain participants across the value chain
- Strengthen linkages across the value chain through market access initiatives, thereby reducing losses and increasing farmer incomes

FACE's service portfolio comprises commodity specific value chain assessments and supply chain advisory services for food and agri businesses, training and consulting services in the area of food safety, and sectoral research across different market segments. FACE also works on projects in PPP mode, to develop business models that are scalable and replicable across geographies.

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