Connecting farm and industry: Through value chain empowerment
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Executive Summary</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Introduction</td>
<td>10</td>
</tr>
<tr>
<td>2.1</td>
<td>Agriculture sector in India - An overview</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Trends in agriculture and food processing in India</td>
<td>12</td>
</tr>
<tr>
<td>3.1</td>
<td>Current scenario</td>
<td>12</td>
</tr>
<tr>
<td>3.2</td>
<td>Role and significance of food processing in India</td>
<td>14</td>
</tr>
<tr>
<td>3.3</td>
<td>Production and export of major agricultural commodities in India</td>
<td>15</td>
</tr>
<tr>
<td>3.4</td>
<td>Food processing sector in India</td>
<td>17</td>
</tr>
<tr>
<td>3.5</td>
<td>Key drivers</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Forward and backward linkages</td>
<td>20</td>
</tr>
<tr>
<td>4.1</td>
<td>Agriculture value chain in India - An overview</td>
<td>20</td>
</tr>
<tr>
<td>4.2</td>
<td>Overcoming value chain gaps</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Government initiatives</td>
<td>30</td>
</tr>
<tr>
<td>5.1</td>
<td>Schemes implemented by GOI</td>
<td>30</td>
</tr>
<tr>
<td>5.2</td>
<td>Other Initiatives</td>
<td>33</td>
</tr>
<tr>
<td>6</td>
<td>Way forward</td>
<td>34</td>
</tr>
</tbody>
</table>
Acknowledgement

D S Rawat
Secretary General
(ASSOCHAM)
It is a pleasure for me that ASSOCHAM is organizing “2nd National Conference on Strengthening Backward and Forward Linkages in Food Processing” on 16th March 2018 at the Capitol Hotel, Bengaluru. The conclave will focus on the food processing sector in India with a view to increase investments, business opportunities and employment.

Food processing industry (FPI) in India is a sunrise sector that has gained prominence in the recent years. Easy availability of raw materials, changing lifestyles and favorable fiscal policies has given a considerable push to the industry’s growth.

FPI serves as a vital link between the agriculture and manufacturing sectors of the economy. Strengthening this link is critical to reduce wastage of agricultural raw materials, improve the value of agricultural produce by increasing shelf-life as well as by fortifying the nutritive value of the food products and ensure remunerative prices to farmers as well as affordable prices to consumers.

Recently, the trend has been towards increasing integration and collaboration across players in the value chain, to garner mutual benefits. Such integration is being driven by the manufacturers, who are looking to integrate backward and establish linkages with both raw material producers and aggregators/logistics providers.

To plug in the gaps in supply chain, availability of raw material and linkages with the market to effectively and seamlessly integrate the backward and forward linkages, ASSOCHAM in support with Ministry of Food Processing Industries is planned to organize National Conference on “Strengthening of Backward and Forward Linkages in Food Processing” on 16th March 2018 at Bengaluru.

We are confident that the deliberations and suggestions at this conference will benefit all the stakeholders. ASSOCHAM extend its earnest gratitude to Ministry of Food Processing Industries for supporting this conference. We also thank to Ernst & Young for bringing out a very comprehensive study. This extensively researched publication will highlight challenges in cold chain sector and the way forward to create a robust and strong cold chain industry.

I wish the event a great success but also assume that ASSOCHAM shall continue to organize such programs for larger public benefits with great degree of excellence.
India is a key producer of food products. The Indian food industry has seen significant growth and change in past few years driven by changing trends in markets and consumer segments. However, food manufacturers still face a challenging and volatile environment. As global market players take their place on the stage and face stiff competition in both developed and developing markets, food manufacturers are focusing more closely than ever on the need to maximize efficiency in the value chain. With a vast consumer base that is growing and with a strong base for food production, the sector presents a good opportunity for everyone.

*India is in a favorable position as a producer to service demand—both of the domestic and international market, considering it is one of the largest producer in the world*¹

If we look at the Indian food industry, there are some clear opportunities for growth in the future. However, certain success factors are crucial in realizing the true potential. These include yield/productivity potential, scale and supply chain efficiency, output improvement, value enhancement, waste minimization, risk mitigation, institutional development, effective marketing, deploying superior technology, product innovation and pricing. These present a significant opportunity for growth to meet the increasing demand for food. As a result, the Indian context presents opportunities for participation amongst players in farming, infrastructure, storage and logistics, etc. to meet the demand of food products both locally as well as the internationally. An immediate focus on effective implementation on these lines will strengthen India’s position in the global value chain.

EY’s vision is embedded in its philosophy of building a better working world. I would like to take this opportunity to thank ASSOCHAM for partnering with EY for this report. We thank all the members for their valuable insights and suggestions. This paper comprehensively focuses on connecting farms with industry and presents certain solutions and approaches that can accelerate the progress. I hope this report and the recommendations in it would help in building a better working world for the food processing and agriculture sector in the country.

Amit Vatsyayan
Partner, Advisory Services,
Ernst & Young LLP

Message from EY
1 Executive summary
The Indian economy has undergone a structural transition from being an agriculture driven economy to an economy now driven predominantly by services and manufacturing. However, agriculture still contributes about 16.4% of the total Gross Value Added (GVA) and continues to support a vast majority of the population by providing employment opportunities to about 52% of the workforce.

India has a vast diversity of basic natural resources, large agriculture sector, complex animal genetic diversity, and cost competitiveness, which indicates the immense potential the country offers. In this context, the Indian food industry assumes significance in India’s economic development mainly because of the vital linkages and synergies that it promotes between the agriculture sector and industry/manufacturing sector. However, despite being one of the largest producers of various food grains and fruits and vegetables, processed foods account for a small proportion of the total food production.

Understanding the importance and building an efficient and effective supply chain using state of the art techniques is one of the strategic priorities to serve the population. This focus encourages value addition and simultaneously ensures remunerative prices to the farmers.

Additionally, food processing industries are significant to the country’s economic development because of the vital linkages and synergies that it promotes between the agriculture sector and manufacturing sector. A holistic approach with focus on 4Vs (higher Value capture, maximizing Value creation, Value added services and minimizing Value loss) can definitely improve efficiencies in the entire value chain. Furthermore, the spread of modern organized/convergent retail chains coupled with an improvement in back-end infrastructure and establishment of cold storage facilities is expected to give a boost to the agriculture and food processing industry, thereby significantly reducing wastages and spoilage.

---

2.1 Agriculture sector in India: An overview

Though the share of agriculture in India’s economy has progressively declined due to a high growth rate in manufacturing and service sectors, its importance in India’s economic and social fabric remains undiminished. With a contribution of about 16.4% to the total GVA, agriculture and allied sectors provide employment opportunities to about 52% of the workforce.

The Indian agricultural products market grew by 12.6% year-on-year in 2016. The agri-product market has generated revenues of USD 276.7 billion in 2016 compared to USD 192.2 billion in 2012, representing a CAGR of 9.5% for 2012-16, indicating a bigger role for Indian agriculture products in the global markets in the future.

Figure 1: Indian agricultural products market value (2012-16)

Cereals constituted the largest segment of the agricultural products market in India in 2016, with total revenues of USD 126.9 billion and a market share of 45.9% followed by oil crops, vegetables and fruits which generated revenues of USD40.9 billion, USD 38.8 billion and USD 28.1 billion respectively.

In the Asia Pacific region, India was the second largest regional agricultural products market, generating about 18% of Asia Pacific products market value in 2016, after China that has generated more than 3 times that of India.

Figure 2: Asia Pacific geographic segmentation of agriculture products by value, 2016

Source: Marketline


Although the sector has been growing at a strong rate in recent years, crop production is still highly dependent on the monsoon, as about 53% of the sown agricultural area in the country is dependent on rain-fed irrigation. This is evident from the fact that the higher growth rate in the sector registered during 2016-17 than the previous two years was due to normal monsoon (the growth rates of agriculture and allied sectors have increased from 1.5% in 2012-13 to 4.9% in 2016-17). Additionally, prices of agriculture commodities in India are not driven by the free market, as countless conditions prevent traders from dealing outside of their local areas and certain crops are massively subsidized meaning that prices can often be rather separate in India as compared to what might be expected globally.

Several crucial interventions in the form of institutional, technological and policy factors have anchored the position of Indian agriculture from being a net importer to self-reliant one. Some of the key drivers impacting the value chain include: population and income growth, India’s geographical location, growing area under irrigation, use of new and improved varieties of seeds, government support through introduction of new schemes such as Pradhanmantri Gram Sinchai Yojana, Paramparagat Krishi Vikas Yojana, Sub-Mission on Agricultural Mechanization (SMAM), AGRI-UDAAN program and increased minimum support prices for key agricultural commodities. These developments have brought about a positive change in the relationship between the producer and the end consumer. The production of agricultural commodities is more globally extensive today than ever before, starting from suppliers of inputs to agricultural production or through the processing, distribution and sale of agri-food products.

---

Figure 3: Indian market segmentation by value (USD 276.7 billion), 2016

Source: Marketline

Although the sector has been growing at a strong rate in recent years, crop production is still highly dependent on the monsoon, as about 53% of the sown agricultural area in the country is dependent on rain-fed irrigation. This is evident from the fact that the higher growth rate in the sector registered during 2016-17 than the previous two years was due to normal monsoon (the growth rates of agriculture and allied sectors have increased from 1.5% in 2012-13 to 4.9% in 2016-17). Additionally, prices of agriculture commodities in India are not driven by the free market, as countless conditions prevent traders from dealing outside of their local areas and certain crops are massively subsidized meaning that prices can often be rather separate in India as compared to what might be expected globally.

Several crucial interventions in the form of institutional, technological and policy factors have anchored the position of Indian agriculture from being a net importer to self-reliant one. Some of the key drivers impacting the value chain include: population and income growth, India’s geographical location, growing area under irrigation, use of new and improved varieties of seeds, government support through introduction of new schemes such as Pradhanmantri Gram Sinchai Yojana, Paramparagat Krishi Vikas Yojana, Sub-Mission on Agricultural Mechanization (SMAM), AGRI-UDAAN program and increased minimum support prices for key agricultural commodities. These developments have brought about a positive change in the relationship between the producer and the end consumer. The production of agricultural commodities is more globally extensive today than ever before, starting from suppliers of inputs to agricultural production or through the processing, distribution and sale of agri-food products.

---

6 Economic Survey of India 2017-18, Volume II.
3.1 Current scenario

The shape of the global food industry is constantly changing and evolving, thereby laying more emphasis on the key themes of health, convenience and value. The major driving force behind the global food industry is increasing consumer demand for a variety of high value foods and convenient or ready to eat/cook processed foods. Also, as consumers are actively trying to live healthier lifestyles, food retailers are being forced to tailor their products and services to the present day consumer. Developed markets are characterized by high demand for processed food. Although there has been continued innovation in global, regional and local supply chains and delivery capabilities, the online-only grocery business model remains challenging. Also, the demand for natural and organic products has led to increased competition within the retail space at the global front.

Figure 4: Evolution of global food demand

Source: MOFPI and EY Analysis
These emerging trends have created immense opportunities for both manufacturers and retailers. There is a definitive need to acknowledge and address the consumer’s requirement for healthy and convenient food products. In developed countries, growing health concerns are significantly impacting all sectors of the food industry, as obesity levels continue to rise to alarming proportions in the U.S., Mexico, Asia and elsewhere. Various branches of the U.S. government are getting strict with food producers over nutrition and the responsibilities and ethical issues inherent in the production and marketing of food. Many chain restaurants are likewise seeing excellent sales from lower-calorie foods. McDonald’s’ soaring success with salads is an excellent example. Snack food makers are likewise offering more and more reduced fat items. Different legislative measures are being taken by governments of various countries to ensure food safety and to promote the food processing industries owing to its huge growth potential.

Figure 5: Trends in Indian food retail market

The Indian agriculture and food industry are closely connected industries

India is one of the key food producers in the world, with the second largest arable land area (156.43 million hectares)

India is the largest producer of spices, pulses, milk, tea, cashew and jute; and the second largest producer of wheat, rice, fruits and vegetables, sugarcane, cotton and oilseeds

The strategic geographic location and proximity to food importing nations favour India in terms of exporting processed foods

Source: MOFPI, Directorate of Statistics, Indian Council of Agricultural Research (ICAR), Business Standard
Although the consumption of processed foods in developed countries is very high, the growth rate observed for processed foods is not as significant. Also, due to the essential nature of food processing industries, the impact of recent global recession on it was minimal. The global giants in food processing industries, who dominated world consumption in value terms, are facing competition from policies to encourage the home grown food processing sector. While developing countries like India and China are seeing expansion in retail markets due to urbanization, higher disposable income and lifestyle changes are stimulating the demand for convenience foods. Developed countries on the other hand have seen more demand for health oriented foods (organic foods, fat free foods, trend to fresh juices) and hygiene driven packaging. This also traceability and contamination free foods. In developing countries on the other hand have seen more demand for health oriented foods (organic foods, fat free foods, trend away from fizzy beverages, which have empty calories, to fresh juices) and hygiene driven packaging. This also has necessitated insistence on certifications that ensure traceability and contamination free foods. In developing countries, emphasis is not so much on such stringent certifications and regulations but more on convenience and lifestyle which has resulted in expanding markets for fast foods and beverages.

The food processing industry is characterized by intense competition, with the most reliable firms performing well by focusing on efficiency in terms of fast processing and distribution. The global economic recession had less effect on the food processing industry than other industries due to rising demand for pre-packaged food. The industry is becoming increasingly automated, and is therefore seeing a decline in labour costs.

As the food processing industry is undergoing rapid expansion, specialized knowledge and targeted research are necessary to move forward. Constantly evolving technological approaches must be integrated in a time-efficient and cost-effective manner, while keeping a close eye on consumer perception and acceptance of processing equipment and practices. Collaboration with high-tech partners will allow the food processing industry to capitalize on technical savvy, and share research and development costs to maximize profit.

3.2 Role and significance of food processing in India

India is one of the largest producers as well as consumers of several food grains, fruits and vegetables, dairy products, marine products, meat and poultry. It holds the second largest arable land in the world and has 127 agro climatic zones, as well as 46 out of the 60 types of soil. It is the largest producer of milk, tea, pulses, cashews and mangoes, the second largest producer of fruits and vegetables, wheat, sugarcane and rice and the third largest producer of fish. With presence of a large agriculture sector, abundant livestock and cost competitiveness, India has the potential to become a major sourcing hub of processed foods. However, despite being one of the largest producers of various food grains, fruits and vegetables, processed foods account a for small proportion of the total food production.

Historically, developed countries such as the United States...
have been the largest producers of food products. However, there has been a slight shift in recent times, with China, Russia and India increasing their production capacities. The food processing industry in India assumes significance in India’s economic development mainly because of the vital linkages and synergies that it promotes between the agriculture sector and industry/manufacturing sector. Growth in food processing sector and the development along the value chain is crucial for the agriculture sector to achieve favorable terms of trade, both in the domestic as well as international markets. An efficient food processing industry can provide several benefits such as:

- Reduction in wastages and post-harvest losses
- Increment in farm gate prices
- Increment in income level of farmers
- Value addition to food products
- Improvement in food security

Therefore, there is an urgent need to boost the food processing industry considering its vast potential to be the driver of economic growth of the country in the near future. The government of India has launched several infrastructure development schemes to spur investments in the industry. The domestic investment in infrastructure for food processing coupled with FDI is expected to further strengthen the industry. Over the past few years, the food processing industry has emerged as a sunrise sector due to its increasing contribution to the GDP, employment and investment.

### 3.3 Production and export of major agricultural commodities in India

Apart from clean water, access to adequate food is the primary concern, which makes agriculture one of the largest and most significant industries in the world; agricultural productivity is important not only for a country’s balance of trade, but also for the security and health of its population. It is not surprising that countries like China and India feature prominently on the lists of top agricultural producers. These countries have large populations and internal food security is the major priority, that is, producing enough to feed a nation’s population. A great deal of this production is used internally, though, and the list of the top exporting countries looks much different. The figures below provide information on the quantity of agricultural production and major commodities exported.

There are two major agricultural seasons in India: Kharif and Rabi. Kharif season lasts from April to September (summer), rice (paddy) is the season’s main crop. Rabi season lasts from October to March (winter), wheat is the season’s main crop. Total food grain production in the country was 275.68 million tonnes in FY17. As of September 2017\(^\text{10}\), the country has produced 134.67 million tonnes of food grains.

India ranks second in global production of fruits and vegetables and is a leading exporter of mangoes and bananas. The country also exports grapes in a large quantity across the world. During FY 05-17, horticulture production in India grew at a CAGR of 5%. Production of horticulture crops like vegetables and fruits is likely to touch a record 305.4 million tonnes (mt) in 2017-18.

### Role
- Agriculture plays an important role in the rural development of the country
- It is an essential link in the supply chain of the manufacturing sector
- Nearly half of India’s workforce is still dependent on agriculture for its livelihood
- High proportion of agricultural land (157 million ha). Diverse agro-climatic conditions encourage cultivation of different crops

### Significance
- An average Indian household spends almost half of their total expenditure on food
- Being both a source of livelihood and food security for a vast majority of low income, poor and vulnerable sections of society, its performance assumes greater significance in today’s economy
- India’s low level of processing is expected to change significantly in the future fuelled by sustained economic growth and steady urbanisation

### Current trend
- The green revolution promised much, but its impact on land degradation, vanishing biodiversity and health is the subject of much discussion
- Organic farming is gaining much vogue today because it is practised with the use of natural resources and without affecting the environment
- There is a growing need for institutional intervention and support for small and marginal farmers
- Investment opportunities to increase in agriculture, food infrastructure and contract farming

### Bottlenecks
- It is estimated that around 30% of the produce is lost due to inadequate infrastructure for post-harvest treatment, packing, storage and transportation
- The demand for processed fruits and vegetables is lower in India mainly on account of higher costs that can be attributed to higher duties and taxes, inefficient supply chain with lot of intermediaries, absence of cost-effective latest technologies for processing, infrastructural bottlenecks and high cost of finance

\(^{10}\) As per 4th advance estimates, Ministry of Agriculture
India’s exports of processed foods is driven by underlying factors such as level of chemical contamination in fruits and vegetables, quality of fruits (especially in terms of their taste, texture and wholesomeness). However, at the same time, factors such as lack of quality packaging adhering to health and hygiene regulations of developed countries, lower quality of processed foods due to lack of access to expensive high technology and high cost of raw material due to lack of physical and marketing infrastructure severely impede the potential of Indian exports of processed foods.

India is one of the top 15 leading exporters of agricultural products in the world. Total agricultural exports from India grew at a CAGR of 8.25% over FY10-17 to reach USD 15.64 billion in FY16-17. Agricultural exports from India were valued at USD 11.33 billion during 2017-18 (April-November). The contribution of agriculture to total export was 12.26% in FY17.

India exported Basmati rice worth USD3.25 billion during FY17 and USD 2.61 billion in April-November 2017. Marine products and buffalo meat are the next largest export items in terms of value, they accounted for 26.8% and 5.76%, respectively of total agricultural exports in 2016-17. Buffalo meat exports reached USD2.76 billion during April-November 2017. Guargum meat emerged as major export commodity, the value of exports rose at a CAGR of 6.88% over FY10-16. Total agricultural exports from India increased to USD33.78 billion in FY17.

In India, the marketable surplus of agricultural commodities has shown a healthy and growing trend. This has progressively moved Indian agriculture from being a subsistence enterprise in the pre-green revolution period to a market-oriented, commercial production, with increased market surplus. The need for an efficient marketing system is needed to enable fast and effective movement of goods.
from producers to consumers. Further, there has been a substantial increase in output coming from high-value agriculture, encompassing horticulture, dairy, fisheries and animal products, bringing about a sea of change in the basket of agricultural production in India. Hence there is a need to ensure that the farmers and present day consumer segments have adequate access to marketplaces, facilities for storage, transportation, market information, financing and risk mitigation.

3.4 Food processing sector in India

The food processing sector has seen substantial growth in developing economies with increase in GDP, per capita income and the resultant changes in lifestyle. However, growth drivers of the food industry in developed countries are different from those in the developing countries. While growing population, favorable demographics and rising income levels are expected to be key drivers in developing countries, rising health consciousness and increasing need for convenience foods are expected to drive growth in developed countries. The advantages of food processing include greater food consistency, longer shelf life, reduction of wastage, removal of toxins, reduction of food borne diseases and cheaper food.

With the increasing health concerns and consciousness, consumers nowadays are opting for healthy ingredients with no additives or preservatives. Pre-processed food requires very little preparation efforts and therefore have gained more demand in developed markets globally. Another important aspect is to improve hygiene in food processing, for which different measures are being taken by governments of various countries to ensure food safety. Thus, packaging of processed food products has become an important step to ensure safety and hygiene of food products.

The retail industry is also expected to benefit from the rising demand for convenience foods, mainly in emerging economies. Consumption of convenience foods is increasing due to consumer preference for cheaper, ready-to-eat foods amid the slowdown and an increasing urbanization rate. For example, retail sales of ready meals in India and China grew 26.9% and 11.8% respectively from 2003 to 2008 compared to a meagre 2.8% in the US and 2.0% in the UK. This disparity in growth figures, coupled with low growth in mature markets, reflects the reason behind retailers increasingly adopting a globalized sales model to tap into emerging markets. The food processing sector of India ranks first in terms of employment and number of factories in operation and third in terms of output. The industry has witnessed a growth of 7.1% during 2013-14, much higher than the growth in agriculture sector and at par with the manufacturing sector. Strategic geographic location and proximity to food-importing nations makes India favourable for the export of processed foods. However, processing of various sub segments of food in the country is very low as compared to other developed nations. The overall processing level of perishable products - India (approx 10%), USA (80%), Malaysia (80%), France (70%), Thailand (30%), Australia (25%)16.

Figure 9: Average annual growth rate of ready-to-eat meals in major countries (2003-08)

![Figure 9: Average annual growth rate of ready-to-eat meals in major countries (2003-08)](image)

Source: USDA Economics Research Services, IMAP

---

14 USDA economic research Services, IMAP
15 Ministry of agriculture and Annual survey of industries 2014-15
16 Opportunities in Food Processing Sector in India
The food processing industry is characterized by the presence of several small and unorganized manufacturing units. These small units often use obsolete equipment and machinery and face production and hygiene related issues. Overall, only few manufacturing units set up by large corporate or MNCs which produce high quality and premium processed foods use state of the art machinery and implement the requisite safety and quality standards.

India witnesses nearly 4.6-15.9% wastage in fruits and vegetables annually, due to lack of modern harvesting technologies and cold chain infrastructure. Moreover, the processing levels in fruits and vegetables currently stands at close to 2%. The wastage levels in other perishables are also significantly high: 5.2% in inland fish, 10.5% in marine fish, 2.7% in meat and 6.7% in poultry. To reduce this wastage level and fulfill the increasing demand for processed food, India needs adequate infrastructure, processing facilities, research and development and skill development.

According to Annual Survey of Industries\(^{17}\) (ASI), the total number of registered food processing factories in the country is 37,175, with fixed capital of nearly USD24 billion and aggregate output of around USD 1114 billion. Andhra accounts for 25% of the total registered food processing units followed by Tamil Nadu (14%), Telangana (10%), Maharashtra (8%) and Punjab (7.5%). Major industries constituting food processing sector are grains, sugar, edible oils, beverages and dairy products.

Figure 10: Registered no. of food processing industries in India\(^{18}\)

As per MOFPI, the statewise allocation of funds (GOI share for implementation of NMFP is indicated below). Under this, the state governments have been empowered to receive, sanction and release funds for all the new applications as per the 12th plan guidelines of Technology Upgradation Scheme of Mission. The eligible sectors for setting up of food processing units are consumers, bakery, dairy, fish, wine and beer, fruits and vegetables, meat, oil, pulse, rice and flour milling under the Scheme.

Figure 11: State-wise allocation of funds (GOI Share) for implementation of National Mission on Food Processing under 12th FYP

---

\(^{17}\) Annual survey of industries 2014-15

\(^{18}\) Annual survey of industries, 2014-15
FDI in food processing: The amount of FDI inflows in the agriculture sector of India during the last four years, i.e., 2013-14 to 2016-17 (till September 2016) was USD250.48 million. The FDI inflow during 2013-14 was USD91.01 million, compared to FDI inflow of USD84.65 million received during 2015-16. According to the data provided by the Department of Industrial Policies and Promotion (DIPP), the food processing sector in India has received around USD7.54 billion worth of FDI during the period April 2000-March 2017.

Some of the major investments in this sector in the recent past are:

- Global e-commerce giant, Amazon is planning to enter the Indian food retailing sector by investing USD515 million in food processing industries, Government of India.
- Parle Agro Pvt Ltd is launching Frooti Fizz, a succession of the original Mango Frooti, which will be retailed across 1.2 million outlets in the country as it targets increasing its annual revenue from INR2800 crore (USD0.42 billion) to INR5000 crore (USD 0.75 billion) by 2018.
- US-based food company Cargill Inc., aims to double its branded consumer business in India by 2020, by doubling its retail reach to about 800,000 outlets and increase market share to become national leader in the sunflower oil category which will help the company be among the top three leading brands in India.
- Mad Over Donuts (MoD), outlined plans of expanding its operations in India by opening nine new MoD stores by March 2017.
- Danone SA plans to focus on the nutrition business in India, its fastest growing market in South Asia, by launching 10 new products in 2017, and aiming to double its revenue in India by 2020.
- Uber Technologies Inc. has launched UberEATS, a food delivery service in India, with investments made across multiple cities and regions.

The Confederation of Indian Industry (CII) estimates that the true FDI inflow potential in agriculture and food processing sector is still to be realised and has the potential to attract as much as USD33 billion of investment over the next 10 years and also to generate employment of nine million person-days. There is a strong need to promote FDI inflow in agriculture sector in Indian economy to improve agriculture productivity and streamline it with manufacturing and services sector, there is a strong need to promote FDI inflow in agriculture sector in Indian economy. The aim of FDI needs to be towards attracting investments in technology, machinery, equipments, seeds/ planting material, warehousing and cold storage and other infrastructure logistics. It complements public and private investments necessary to bring knowledge, value chain technologies and services to farmers.

3.5 Key drivers

With a population of over 1.21 billion as per Census 2011, India is the second most populous country in the world. It has an estimated 250 million middle class households and a large proportion of population in the active age group. The agriculture and food processing industry development is relatively closely linked with the development of upstream industries such as farming that supply the raw material / ingredients. In view of such characteristics of industrial structure, promoting a mutual / converged linkage is a sound direction for development.

Rising disposable income, increasing urbanization and higher consumer spending are major factors driving the demand for processed foods in the country. Consumers increasingly prefer non-traditional or processed foods as hectic lifestyles, rising number of nuclear families and population of working women is leading to increased demand for convenience. The spread of modern organized/convergent retail chains coupled with a improvement in back-end infrastructure and establishment of cold storage facilities is expected to give a boost to the agriculture and food processing industry thereby significantly reducing wastages and spoilage.

Figure 12: Key drivers

20 DIPP report, Ministry of agriculture, GOI and IBEF
21 Agriculture and allied activities, IBEF - January 2018
4.1 Agriculture value chain in India: An overview

For India, strategic advantages including diverse agro-climatic zones, varied soil types and a vast irrigated area, have contributed towards making it one of the world’s largest agri-producer\textsuperscript{22}. Further, exponential increase in domestic demand for healthier, safer and convenient processed food has resulted in 20 to 30% growth across categories such as value-added dairy products, ready-to-eat/ready-to-cook segment, breakfast cereals, confectionery items and fruit beverages amongst others. The food industry’s development is relatively closely linked with development of several upstream industries such as farming that supply raw material / ingredients. This has led to the food processing industry in India, emerging as an attractive investment opportunity for domestic as well as foreign investors mainly due to the gamut of opportunities that it offers, the huge potential that it has for further growth, availability of strong government support through provision of various fiscal/non fiscal incentives and the implementation of various central and/or state government plans and schemes.

At present, a large part of the agriculture value chain comprises primary processing of commodities with very limited value addition. Several of these businesses are operating at small margins because of cost plus pricing method of setting prices for goods. In order to strengthen their businesses there needs to be a shift in focus to forward and backward integration to bolster their margins. Additionally, there is also a need toward secondary processing with unique value addition in order to differentiate the product in the market. Different food processing companies are following different business operating models and their choice of value chain segment plays a critical role in determining the success of that value chain. The figure below shows the traditional agriculture value chain which still dominates the agriculture marketing in India.

Recently, the trend has been towards increasing integration and collaboration across players in the value chain, to garner mutual benefits. Such integration is being driven by the manufacturers, who are looking to integrate backwards and establish linkages with both raw material producers (farmers) and aggregators/logistics providers. These links have led to two new models which have been implemented in the sector: contract farming and terminal markets. For example, a large Indian conglomerate has invested with a strong focus on setting up of e-chaupals for direct procurement of raw material for its wheat flour (atta) and spices business. They have developed good presence across value chains for several specific agricultural commodities. Similarly, 2 MNC’s are involved in contract farming for potatoes to procure a particular quantity of raw material for their products. Through contract farming, they are providing the required extension services, seeds, fertilizers and other inputs to farmers so that it sources the desired quality of the produce and the final product. Also, Terminal Markets Complex (TMC) scheme has been conceptualized and introduced as a new item under NHM, which is being implemented in a PPP mode.
Figure 13: Traditional agri-value chain in India

Source: EY Analysis

Key issues and challenges in the agri-value chain of commodity

- **Fragmentation in land holding and continuous availability of raw materials to FPI units**: Subscale farm sizes ~ 1-2 Ha, farmer indebtedness, 70% rainfall dependent and seasonality is affecting the continuous supply of raw materials.

- **Huge levels of wastage due to poor infrastructure across supply chain is impacting productivity**: Limited organized presence and infrastructure gap in the procurement and supply chain leading to wastage, low value add, price build up and poor food quality and safety.

- **Incremental approach, multiple regulations for food safety laws**: Implementation bottlenecks in food safety laws for the food processing sector, as the food sector is been governed by a multiplicity of laws under different ministries.

- **Lack of adequate skilled/ trained manpower**: Competitiveness of food industry impacted due to strong deficiencies in technical knowhow / support, shortage of skilled, semi-skilled and unskilled workers.

- **Poor scaling and integration with stakeholders**: While small-scale activity/MSME’s in food processing (95,792 unregistered FPI units) was promoted with a view to foster employment inclusion, it has constrained growth in output, quality and productivity.

- **Poor demand in potential foreign market due to obsolete technologies in use**: Use of traditional technologies, resulting in low processing efficiency realization, lack of quality accreditation centres, and poor post-harvest management has affected the demand from potential global markets.
**Large burger chain and potato farming success in Gujarat**

Indian farmers have known potato farming from the days of the British Raj, but it is Canada’s large burger chain, a family-owned global supplier, and a seller of own-brand wedges, fries and tikkies, that has taught farmers here to grow them scientifically.

They entered India in 1998 and worked on potatoes in Punjab, Haryana and Uttar Pradesh but found the cold weather inhibiting weight gain and adding sugar (which caramelizes and turns fries dirty brown). West Bengal, like Gujarat, has the ideal climate, but plot sizes are too small for contract farming, so it gave up trials about three years into the process.

They found enormous waste in Gujarat. Flood irrigation was the practice, the water flushed would add up to a 750 mm column by the end of the crop season. But potatoes need moisture, not drenching. Just as much water should be replenished as evaporates from soil and transpires through leaves. Farmers lavished nitrogenous fertilizer to make up for the nutrient leaching through the sandy soil. High humidity brought pest and fungal attacks.

They persuaded farmers to use sprinklers, cutting water and nitrogen use by a third. They are commonplace now, aided by government subsidies, and eight-hour rationed power supply to the farm grid. How long the sprinklers should be on is determined by data provided by the company’s two weather stations, one at a spot on the way to Mt. Abu (in Rajasthan), and the other at Himmatnagar in Sabarkantha district. Through phone calls and text messages, field staff conveys the information to farmers. Other innovations have reduced planting time and energy use in cold storages. They began contract farming in 2006 with four farmers and 16 acres in Badgam village. Today, 900 of them assure it a produce of 4,500 acres. The company’s plant at Mehsana has an appetite of 50,000 tonnes a year, most of which is mopped up from within the vicinity.

In November, at the beginning of the potato season, farmers sign a contract pledging to supply at least 10 times the quantity of seed by the third week of March, after which purchases stop. The quality parameters are specified, a detailed schedule of farming practices, written in Gujarati, is provided for each variety of potato. Agronomic advice is also available on call. Farmers get seed spuds for half the price, the rest is deducted from the sale price. If farmers default, post-dated cheques are encashed.

Farmers start with the large burger chain and move on within a few years, after they get a hang of the art. Often they grow for multiple buyers.

An amalgam of factors—a law that allows farmers to sell directly rather than through mandis, a choice of buyers, a rash of cold storages incentivized by subsidies and regular power supply, a network of good rural roads and access to information on the internet and the mobile phone—has given farmers better control over their lives. MNCs have financial muscle and technical know-how to make long term investments. They can pay APMC cess and yet be profitable but APMC cess in contract farming is major cost component for other investors. Probably this is the reason for not having any other major players entering Gujarat market with similar model, despite this model being easily replicable elsewhere with any crop. Abolition of this cess may spur such investments.

Source: The Potato Farming Success of Gujarat’s Banaskantha District , *Forbes India*, 2013,
India has huge potential for a high and sustained growth in the agriculture and allied sectors, considering that there is huge untapped potential along the value chain. Thus, there is an urgent need for the forward and backward integration to act as a catalyst and key enabler for the industry to succeed.

Source: FICCI

The success of a commodity value chain depends on various factors—business services available, convergence in input supply and product procurement, proximity of food processing industry to raw material and inputs, low cost structure specifically for primary processing activities, differentiability of finished products, assured consumption centers, downstream linkages to wholesale, retail or export markets.

There are supply side advantages too—India has favorable climate for agriculture due to which a wide variety of crops are grown here. Also, presence of large livestock base aids the dairy, meat and poultry sector as do the inland water bodies and long coastline for marine products. India’s proximity to major export markets such as Middle East and South East Asia provides an advantage to the exporters.

---

**Case study: Large organized retailer**

| Structure and functioning | The market was setup to introduce a transparent and efficient platform for sale and purchase of horticultural produce by connecting growers through growers’ associations with farmers and wholesale buyers in various markets across the country.
|                          | Deals with 180 farmer associations, which manages local procurement from its members and procurement. |
| Integration of market linkages | Backward linkage through farmer associations and forward linkage in the form of cash and carry semi-wholesale and retail stores. |
| Benefits                | Efficient supply chain management. |
| Constraints before intervention | Dependence on the commission agents or local merchants for selling remaining produce of farmers. |
|                         | Locational disadvantage to traders, inconvenient auction timings and grading procedures. |
### Success factors

<table>
<thead>
<tr>
<th>Backward integration</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The existing supply for farm produce involves multiple stakeholders resulting in multiple handovers leading to post-harvest loss and increased costs. Hence backward integration through direct procurement and reducing wastage are the key opportunities in which ITC and Reliance have already invested.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integrated supply chain and value chain</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ensuring good quality produce entails investments in technology and ability to sustain a long gestation period for the harvest. Good quality production also results in better quality of processed fruits. Hence there is a need to establish backward linkages with the farmers. There is a need to addressing the current gaps in the value chain as well as leveraging on the various advantages the country provides.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Demand, forecasting stock-out factors, sourcing efficiency, product visibility in value chain are key factors in optimising processes across the value chain of an agriculture commodity. Some of the latest technologies which can be leveraged include RFID, Blockchain, Analytics, SAP, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support infrastructure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Although there has major impetus for investments in providing quality infrastructure for storage, transportation, etc. it is still at a nascent stage in implementation, leading to sizeable losses in value chain, especially in case of perishables like fruits and vegetables. Future group, Walmart, Adani have in-house supply chain operations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Market</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Most of the processing units are export oriented and hence their penetration levels in the domestic market are low. India has a large untapped customer base and even a small footprint in the domestic market would enable the player to gain significant volumes.</td>
</tr>
</tbody>
</table>

### Opportunities

- Provision of 100% FDI in processed food products (except for items reserved for medium and small enterprises)
- Specialised infrastructure such as agro-export zones, mega food parks
- Opportunities for harvest and post-harvest loss reduction especially in fruits and vegetables which is very high at present
- Government support through fiscal incentives and provision of investment linked tax incentives
- Contract farming
- Investments in food processing infrastructure through PPP
- Strong domestic demand

### Challenges

- Lack of primary processing, storage and distribution facilities
- Inadequate or weak linkages between processor and producers
- Lack of processable varieties in agro products, fruits and vegetables- availability of raw materials
- Seasonality and low capacity utilisation
- Lack of implementation/meeting of food quality, safety standards and traceability issue (usage of chemicals and pesticides beyond threshold limits)
- Poor product development and innovation
However, despite having huge potential for growth and presenting various attractive investment opportunities, the food processing industry faces some major challenges at various levels—right from procurement and provision of primary infrastructure facilities at farm level to lack of processed foods and product development and innovation. The linkages between processors and producers are still weak (with the exception of certain products such as wine—where grape farmers have joined hands together to set up their own wine manufacturing units). There is also a lack of proper flow of market information and technology inputs to the farmer due to which the farmer is unable to cater to the needs of the market/processors. Also, certain food crops, fruits and vegetables being seasonal in nature, i.e., their availability is limited to a certain time of the year, raw material availability becomes a major constraint/challenge leading to lower capacity utilization of food processing units.

Furthermore, there is a lack of implementation of the requisite international food quality and safety standards which thereby limits scope of expanding in the export market. Product development and innovation in food processing is also poor thereby limiting the growth of the industry.

### 4.2 Overcoming value chain gaps

The food value chain in India is different from many other markets like the U.S. due to unique consumption pattern in the country and presence of both organized and unorganized players. As a result, consumption at the retail level consists largely of non-processed products or food with very limited processing in key categories like fruits and vegetables, meat and poultry, dairy, grains and pulses. The difference in the Indian market is driven by both demand and supply driven factors:

| **Consumption behavior** | ▶ Indian consumers prefer to procure food in unprocessed and fresh form and then convert it into a consumable form through the food preparation process either in homes or restaurants.  
▶ This is distinct from many other countries where consumers prefer to purchase more ready-to-eat foods. |
| **Wider availability** | ▶ Most food products in India, like fruits and vegetables and milk, have a wide availability across the country, which is very unique to India.  
▶ This leads to lower need for packaging and preserving food. |
| **Limited evolution of food processing in India** | ▶ These differences lead to multiple challenges like higher wastage, limited opportunities for food fortification through nutrients and quality and safety risks.  
▶ The food processing industry thus has a much wider role in Indian context. |
| **Farming and other food production** | ▶ Increasingly, the food processing companies are strengthening their backward and forward integration through initiatives like agriculture extension services, direct procurement, value chain development, etc.  
▶ This will drive higher productivity in the farming sector and improve quality and safety. |
| **Procurement** | ▶ Food processing companies can deploy more scientific methods for sorting and grading of produce.  
▶ Higher involvement in procurement will also help improve price realization for farmers by reducing intermediaries and thus lowering price build-up through elimination of non-value adding stakeholders and activities. |
| **Supply chain** | ▶ The increasing role of the food processing industry can help accelerate investment in storage and transport capabilities, thereby lowering wastage levels, improving nutrient retention during storage and transportation, and enhancing shelf life of products. |

#### Analyse the challenges in the value chain through the 4V Framework

To meet the several challenges along the agriculture value chain, significant insights are required to embrace innovative mechanisms that can benefit sustainable agricultural development, value chain integration and food security. EY’s 4V framework provides a construct in this regard to organize value chain interventions in four thematic areas, wherein the central purpose is unlocking value for the farmer:

- **Thematic Area 1: Reducing Value loss for the farmer through minimizing wastage**
- **Thematic Area 2: Enhancing Value creation by ensuring higher proportion of marketable surplus is processed**
- **Thematic Area 3: Higher Value capture for the farmer through greater share of sale realization on the final produce**
- **Thematic Area 4: Value added services for the farmers for increasing crop productivity and reducing cost of production through better inputs, extension and technology**

EY’s 4V Framework integrates seamlessly with other value chain frameworks in delivering the best value with the maximum efficiency at competitive economic rates. Every identified intervention has been evaluated from the lens of the 4V framework and high impact interventions have been proposed from amongst the choice set to ensure the highest effectiveness translating into best value chain interventions in delivering the desired outcomes.

---

23 EY Proprietary Framework
Strengthening linkages in agri-value chain

The focus on improving competence of agriculture and allied sectors encompasses activities and processes to create a strong brand for agricultural and allied products. Instead of cost-based competing model in agricultural and allied products, the new initiatives will consider the “value driven growth approach” through augmented produce, certifications and value addition for higher sectoral value creation. Enhancing the market linkages and providing information and communication technologies (ICT) enabled agri-marketing systems is a critical step towards adding value in pre and post-harvest phases. Development of terminal market complexes is one such initiative taken by the government of India in strengthening the market infrastructure, to encourage farmer producer companies and farmers’ associations to take an equity stake in these markets and potentially manage the collection centers.

As the agriculture sector has been the cornerstone for food processing industry, strategic importance is required for post-harvest management and marketing of agricultural produce. Building an efficient and effective supply chain using state of the art techniques is one of the strategic priorities to serve the population with value-added food while simultaneously ensuring remunerative prices to the farmers. Exploiting local, regional and international demand for agri and allied produce, food products, and strengthening supply chains will pave the way for a robust agro-industrialization model.

The problems in the value chain and prospective solutions can be understood through the 4V framework developed by EY. This framework deals with the problems at each stage, namely:

- Production
- Harvesting and collection
- Processing and packaging
- Marketing distribution

The solutions are based accordingly on four basic principles, or the 4Vs:

**Figure 14: Agriculture proposition—EY’s 4V Framework**

Source: EY framework
Solution framework for Value chain development and strengthening linkages through the 4V framework

**Minimizing Value Loss**
- Promote production of in-demand varieties and grades
- Improve supply chain and storage infrastructure to cut down wastage
- Crop planning like introducing crop diversification, multi cropping and staggered production techniques

**Maximizing Value Creation**
- Establishing processing and marketing infrastructure for farm produce through private investments leveraging government support
- Attracting big brands, retailers, etailers and promoting local brands/entrepreneurs with the ability to export and market large quantities of available surplus after processing as strategic partners with the farmers to help maximize the “processed to produce ratio”

**Higher Value Capture**
- Sorting, grading and packing know-how for fresh product retailing
- Creating FPOs (like Producer Companies) which have part ownership of supply chain and enabling them to form market linkages with end buyers
- Promotion of out grower model between buyers and FPOs farmer members to minimize market risk for the farmer

**Value Added Services for farmers**
- Sustainable farming techniques together with enhanced use of high quality climate resilient and pest resilient crops for improved productivity
- Enhanced availability of credit and insurance products for farmers
- Ecosystem development for service oriented Agri-preneurs
- State level institution for market development and regulation
- Economic and market information and intelligence services (EMIS) including Price information mechanism for farmers
- Establishment and operations of Project coordination unit (PCU)
- Setting up of monitoring and evaluation (M&E) system

Few successful examples are as follows:

**A successful Farmers’ Producer Company in Odisha**

**The Success Story: Setting the bail rolling**
- They have operations in over 60 villages with 3,600 member farmers with an estimated turnover of INR 4.32 Crore
- They have also launched its own brand and is marketed under a registered brand name
- EY facilitated tie ups with major retail chains, Hotels, Markets, Udyam Fresh outlets (Delhi, Kolkata etc.) resulting in 50% better price realization for produce by members
- EY advised them on the technical structure and financial model for the storage units
- EY coordinated with the Department of Horticulture and agriculture specialists to initiate kharif onion cropping
- Members have also adopted multi-cropping for more income per land parcel
- They offers margin and repayment support (if required) to farmer members to avail agricultural credit
- The FPO not only helps in developing existing watersheds also promotes new watersheds, thus creating employment opportunities to local people
- Shed net houses (4,000 square meter area) for 25 progressive farmer members developed with a 70% subsidy from Horticulture Department at a cost of INR 28 lakhs for climate proofing specific crops
### Creation of a unique brand and e-commerce Platform in MP

Some of the interventions undertaken by EY are:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>The Big Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability and Profitability of two FPO’s in Ratlam</strong></td>
<td><strong>1 Marketing</strong></td>
</tr>
<tr>
<td><strong>Assistance in Incorporation of 8 new FPO and mobilizing approximately 8000 farmers</strong></td>
<td><strong>Creation of a unique brand and e-commerce platform for the FPO</strong></td>
</tr>
<tr>
<td><strong>Facilitated supply to processing units being set up in 50 Hectares of Horticulture Hub in Khargone district with backward linkage.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Capacity Building towards preparatory activities for market linkages such as sorting, grading and packing for all impacted farmers.</strong></td>
<td><strong>2 Infrastructure</strong></td>
</tr>
<tr>
<td><strong>Facilitated in preparation of business plan with annual turnover of INR 20cr in stable state in 4-5 years’ time.</strong></td>
<td><strong>Horticulture Resource Centre at Ratlam</strong></td>
</tr>
<tr>
<td><strong>Market Linkages of potato, onion, green chilli, tomatoes of INR 10cr with corporate buyers</strong></td>
<td>▶ Warehouse and cold storage</td>
</tr>
<tr>
<td></td>
<td>▶ Collection centre and Primary processing units</td>
</tr>
<tr>
<td></td>
<td>▶ Seed infrastructure (for handling, processing, packing, storage), Weighbridge and dispatch section</td>
</tr>
<tr>
<td></td>
<td>▶ Quality control / Analysis lab</td>
</tr>
</tbody>
</table>

### A famous homegrown food conglomerate for Assam

#### Origins
- Humble origins in a tea stall in Mangaldoi in 1931
- Started a confectionery and bakery unit called “Repose” in 1943
- Diversified in flour mills and wholesale food trading

#### Growth
- Evolved into an integrated food sector player with food retail units, processed food manufacturing plants, restaurants and others
- Has emerged as a conglomerate employing about 2500 people
- Contract manufacturing units for Horlicks, Britannia, ITC and others

#### Opportunity for Assam
- Britannia cake manufacturing unit has a capacity of 22 tonnes a day - one of the largest in India
- Sources flour, sugar, fruit cuts and several other ingredients
- Procures 2.1 lakh eggs a day
- Procures approx. INR 1.5 Cr worth of raw material supplies per week (i.e. approx. INR 70 Cr per year) for just cake manufacturing,
- About 95% of supplies from outside of NER
Connecting farm and industry: Through value chain empowerment
5.1 Schemes implemented by GoI

The government of India has been undertaking some effective policy and regulatory measures to ensure effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain management, availability of raw material and linkages with the market.

5.1.1 Scheme for Creation of Backward and Forward Linkages

The scheme is being undertaken by the Ministry of Food Processing Industries to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain, availability of raw material and linkages with the market. This is applicable for all perishable horticulture and non-horticulture products and would enable linking of farmers to processors and the market for ensuring remunerative prices for agricultural products.

This scheme also provides for setting up of primary processing centers/collection centers at farm gate and modern retail outlets, ensuring connectivity through insulated/refrigerated transport. It is being implemented by agencies/organizations like government, PSUs, joint ventures, NGOs, cooperatives, SHGs, FPOs, private sector and individuals.

5.1.2 Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA)

The government of India launched SAMPADA for the period 2016-20 with an allocation of INR6,000 crore to supplement agriculture, modernize processing and decrease agri-waste. The scheme is an umbrella scheme incorporating ongoing schemes like mega food parks, integrated cold chain and value addition infrastructure, food safety and quality assurance infrastructure with new schemes like infrastructure for agro-processing clusters, creation of backward and forward linkages, creation/expansion of food processing and preservation capacities.

The objectives of the scheme include:

- Development of modern infrastructure to encourage entrepreneurs to set up good processing units based on cluster approach
- Efficient supply chain management for effective and seamless backward and forward integration of processed food industry
- Creation of processing and preservation capacities
- Modernization/Expansion of existing food processing units
- Provide employment opportunities in rural areas and result in doubling of farmer incomes by 2022
- Reduce the wastage of agricultural produce
- Increase the processing level and enhancing export of processed foods
- Ensure availability of safe and convenient processed foods at affordable prices to consumers

---

5.1.3 National Horticulture Board (NHB)\textsuperscript{26}

The scheme is expected to leverage investment of INR31,400 crores, handling of 334 lakh MT agri-produce valuing INR1,04,125 crores, benefit two lakh farmers and generate 5,30,500 direct/indirect employment opportunities by 2019-20.

NHB was set up by the government of India in April 1984 under the Societies Registration Act 1860 having its headquarters at Gurugram.

National Horticulture Board implements programs as sub-scheme of Mission for Integrated Development of Horticulture (MIDH). The list of NHB schemes are:

- Development of Commercial Horticulture through Production and Post-Harvest Management of Horticulture Crops
- Capital Investment Subsidy Scheme for construction/ expansion/ modernization of cold storages/storages of horticulture products
- Technology Development and Transfer for Promotion of Horticulture
- Market Information Scheme for Horticulture Crops
- Horticulture Promotion Services / Expert Services

5.1.4. Agriculture Produce Marketing Committee (APMC)

APMC is a statutory market committee constituted by a state government under the APMC Act. The Ministry of Agriculture formulated a model law on agricultural marketing—State Agricultural Produce Marketing (Development and Regulation) Act to promote investment in marketing infrastructure, thereby facilitating a national market. The salient features of the Act include:

- Development of an efficient marketing system, promotion of agri-processing and agricultural exports and to lay down procedures and systems for putting in place an effective infrastructure for the marketing of agricultural produce
- There will be no compulsion on the growers to sell their produce through existing markets administered by APMC. The farmer will not be eligible for election to the APMC in such a case
- Provision made for the establishment of consumers/farmers market to facilitate direct sale of agricultural produce to consumers
- Provision made for the purchase of agricultural produce through private yards or directly from agriculturists in one or more than one market area
- PPP in the management and development of agricultural markets in the country for post-harvest handling, cold storage, pre-cooling facilities, pack houses etc.
- Prohibition of commission agents in any transaction

Ministry of Agriculture & Farmers’ Welfare has released a draft model of the Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017, which provides for progressive agricultural marketing reforms, including setting up markets in private sector, direct marketing, farmer-consumer markets, de-regulation of fruits and vegetables, e-trading, single point levy of market fee, issue of unified single trading license in the state, declaring warehouses/silos/cold storage as market sub-yards and Market Yards of National Importance (MNI).

5.1.5. National Agriculture Market (NAM)

NAM is an electronic trading portal networks the existing APMC mandis to create a unified national market for agricultural commodities. NAM Portal is a single window service for all APMC related information and services that includes commodity arrivals and prices, buy and sell trade offers, provision to respond to trade offers, among other services. While material flow of agriculture products continue to happen through mandis, an online market portal for such produce reduces transaction costs and information asymmetry.

The portal helps in creation of a unified market through an online trading platform, both, at state and national level, streamlining of procedures across the integrated markets, removes information asymmetry, promotes real time price discovery based on actual demand and supply, promotes transparency in auction process, access to a nationwide market for the farmer and online payment and availability of better quality produce at more reasonable prices to the consumer.

In the FY 2017-18, e-NAM has been expanded from 250 to 585 APMCs. They will be provided assistance for creating primary processing to cleaning, grading and packaging. e-NAM market will have primary processing facilities, which will result in easier and direct procurement of raw material by the processing units and retail leaders, thereby increasing the income of farmers.

---

5.2 Other initiatives

Apart from the schemes and policies mentioned above, the GoI has been taking some proactive measures and initiatives to ensure forward and backward integration in the food processing sector.

<table>
<thead>
<tr>
<th>S#</th>
<th>Initiative</th>
<th>Possible Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Creation of special fund of INR200 crores in NABARD</td>
<td>Availability of affordable credit to mega food parks and food processing units</td>
</tr>
<tr>
<td>2</td>
<td>Excise duty on machinery reduced from 10% to 6%</td>
<td>This resulted in reduction of cost of investment and enhancement of viability of the food processing projects</td>
</tr>
<tr>
<td>3</td>
<td>Food and agro-based processing unit and cold chain infrastructure have been classified under agriculture activities for priority sector lending</td>
<td>This resulted in availability of additional credit for food processing activities and infrastructure</td>
</tr>
<tr>
<td>4</td>
<td>Service tax on pre-conditioning, pre-coding, ripening, waxing, retail packaging and labelling of fruits and vegetables exempted in cold chain projects</td>
<td>This enhanced the viability of cold chain projects and thereby increasing investment opportunities</td>
</tr>
<tr>
<td>5</td>
<td>Permitting 100% FDI in retail trade including e-commerce of food products manufactured and/or produced in India</td>
<td>This leads to better investment opportunities in India</td>
</tr>
<tr>
<td>6</td>
<td>Excise duty on refrigerated containers reduced from 12.5% to 6%</td>
<td>This led to reduction in cost and increase in viability of food processing projects</td>
</tr>
<tr>
<td>7</td>
<td>Draft model law on contract farming</td>
<td>The draft model law on contract farming was uploaded on MoFPI website for public consultation on 23rd December 2017. The law on contract farming will result in back ward integration of the food processors with farmers and attract investment in post-harvest management activities</td>
</tr>
<tr>
<td>8</td>
<td>Draft National Policy on Food Processing</td>
<td>This will provide road map for holistic development of food processing sector, growth and management of supply chain to create employment opportunities and well-being of farmers</td>
</tr>
<tr>
<td>9</td>
<td>World Food India Summit, 2017</td>
<td>The World Food India Summit was organised from 3rd to 5th November to showcase India’s prowess in the food processing sector and attract investment in supply chain for inclusive development</td>
</tr>
<tr>
<td>10</td>
<td>Mega food park</td>
<td>It aims at providing a mechanism to link agricultural production to the market by bringing together farmers, processors and retailers so as to ensure maximizing value addition, minimizing wastage, increasing farmers’ income and creating employment opportunities particularly in rural sector</td>
</tr>
<tr>
<td>11</td>
<td>Agro processing cluster</td>
<td>Effective backward and forward linkages are created by linking groups of producers/ farmers to the processors and markets through well-equipped supply chain consisting of modern infrastructure for food processing closer to production areas and provision of integrated/ complete preservation infrastructure facilities from the farm gate to the consumer</td>
</tr>
<tr>
<td>12</td>
<td>Food safety and quality assurance infrastructure</td>
<td>For the interest of consumer safety and public health, there is a need to ensure that the quality food products manufactured and sold in the market meet the stringent parameters prescribed by the food safety regulator</td>
</tr>
</tbody>
</table>

**Budget 2018-19 Announcements**

| 13 | Develop and upgrade existing 22,000 rural haats into Gramin Agricultural Markets (GrAMs) | These GrAMs, electronically linked to e-NAM and exempted from regulations of APMCs, will provide farmers facility to make direct sale to consumers and bulk purchasers |
| 14 | Agri-Market Infrastructure Fund | Agri-Market Infrastructure Fund with a corpus of INR2000 crore will be setup for developing and upgrading agricultural marketing infrastructure in the 22000 GrAMs and 585 APMCs |
| 15 | Organized cultivation of highly specialized medicinal and aromatic plants | Budget allocation of INR200 crore was set aside for organized cultivation of highly specialized medicinal and aromatic plants. Organic farming by Farmer Producer Organizations (FPOs) and Village Producers Organizations (VPOs) in large clusters, preferably of 1000 hectares each will be encouraged. |

---

Indian food processing industry has witnessed significant growth and changes over the past few years, key drivers being the changing trends in markets, consumer segments, policy changes and regulations. These trends, such as changing demographics, growing population and rapid urbanization are expected to continue and will shape the demand for value added products and thus for food processing industry in India. Also, the various successful examples of forward and backward integration impacting the value chain of agriculture commodity in a positive manner has shown that the objectives can be met.

The Government of India has also ideated and implemented a number of initiatives to improve agribusiness conduciveness and strengthen India’s share globally. These reforms, combined with the country’s geographical diversity, are acting as enablers boosting the domestic business environment. The central and state governments need to work together by executing convergent policies to further strengthen the agriculture sector.

However, certain success factors are crucial in reaping the true potential. These include yield/ productivity potential, scale and supply chain efficiency, output improvement, value enhancement, waste minimization, risk mitigation, institutional development, effective marketing, deploying superior technology and product innovation and pricing. An immediate focus on effective implementation on these lines, will strengthen India’s position in the global value chain. A well-integrated/converged supply chain and a successful marketing strategy with investments in the most attractive segments and states is key to competitiveness to success in this sector.
Figure 16: Strategies and interventions

- Integrating value chains
- Organic food traceability
- Synchronise agro-industry linkage
- Improved awareness on pre-processing activities: grading, sorting, packaging and labelling
- Food safety certifications
- Branding of agricultural produce
- Integrated/Mega/Ultra Mega Food Park
- Increasing exports

- Skill upgradation of agri labour
- Increasing female workforce participation
- Increasing water use efficiency in surface irrigation
- Upgradation of MIS and electronic integration of markets
- Formation and strengthening of FPOs

- Ambient temperature storage facilities
- Cold chain network
- Crop-wise post harvest management
- Training to farmers in collaboration with universities
- Availability of desired Infrastructure availability at production centres

- New high yielding varieties, systems (SRI), technologies
- Tissue culture propagation
- Protected cultivation technology
- Enhancing soil carbon content and external application of micronutrients, organic/natural farming practices, etc.
- High density plantation, crop diversification, irrigation tech

- Existing institutions: convergence and new/additional roles
- Cluster based approach in integration of value chains
- Farmer producer organisations (FPO)
- Trade Desks and Incubation centres
- Facilitating institutional credit
- Increasing GVA and GFCF

- Climate resilient agriculture
- Robust agricultural insurance policies
- Credit risk mitigation
- Automated weather stations
- Forecasting of moisture stress, probable pest attack, etc.
- Use of AI, RPA, Block chain technologies
ASSOCHAM's regional and overseas offices

**Southern Regional Office**
Ashirwad Towers, 1st Floor, 75/11, 2nd Main Road, Vyalikaval, Bengaluru – 560 003
Phone: 080-23360021 (Director)
Reception: 080-23360022
Mobile: 9108563359
E-mail: umasnair@assocham.com

**ASSOCHAM Regional Office Ranchi**
503/D, Mandir Marg-C
Ashok Nagar, Ranchi-834 002
Phone: 0651-6555601 /65555801/2242443
Mobile: 9470135367
E-mail: sksingh@assocham.com

**ASSOCHAM Regional Office Chennai**
International Law Centre, 61-63, Dr. Radhakrishnan Salai Mylapore, Chennai 600 004
Phone: 044-28120000
E-mail: vs@lawindia.com
intellect@lawindia.com

**ASSOCHAM Regional Office Chandigarh**
SCO: 55, 56, 57, II Floor, Sector-8, Madhya Marg, Chandigarh-160008
Phone: 0172 4800855
Mobile: 9915776327
E-mail: director.chd@assocham.com

**ASSOCHAM Regional Office Guwahati**
Global Express Group, House No.7 Bye No. 2, Chandan Nagar Survey, Beltola, Guwahati 700 028
Phone: 09957999367
E-mail: ner@assocham.com

**ASSOCHAM Westen Regional Office**
608, 6th Floor, SAKAR III
Opposite Old High Court, Income Tax
Cross Road, Ashram Road Ahmedabad-380014, Gujarat
Phone: 079-2754 1728-29/ 2754 1876
Mobile: 9810825894
E-mail: Vipul.bg@assocham.com

**ASSOCHAM Regional Office Delhi**
503/D, Mandir Marg-C
Ashok Nagar, Ranchi-834 002
Phone: 0651-6555601 /65555801/2242443
Mobile: 9470135367
E-mail: sksingh@assocham.com

**ASSOCHAM Regional Office Lucknow**
Plot No. 152, Nand Nagar Industrial Estate, Phase II, Mahua Khera Ganj, Kashipur 244 713
Dist. Udham Singh Nagar, Uttarakhand
Phone : 05947-226146
E-mail : assocham.uttarakhand@gmail.com

**Follow us on**

[www.assocham.tv](http://www.assocham.tv) [facebook] [twitter] [instagram] [linkedin] [youtube] [wooplr] [myloanassocham.com]
Connecting farm and industry: Through value chain empowerment

Ahmedabad
2nd Öggj$K`anYdacAk`YYf Near C.N. Vidhyalaya Ambawadi Ahmedabad - 380 015 Tel: + 91 79 6608 3800 Fax: + 91 79 6608 3900

Bengaluru
6th, 12th & 13th floor UB City, Canberra Block No.24 Vittal Mallya Road Bengaluru - 560 001 Tel: + 91 80 4027 5000 + 91 80 6727 5000 + 91 80 2224 0696 Fax: + 91 80 2210 6000 Tower C, 3rd Floor, RMZ Infinity, Municipal No. 3, Old Madras Road, Survey No: 1477/2 & 10, Benniganahalli, K.R. Puram, Bengaluru, Karnataka 560016 Tel: +91 80 6727 5000 Fax: +91 80 2222 9914

Chandigarh
1st Floor, SCO: 166-167 Sector 9-C, Madhya Marg Chandigarh - 160 009 Tel: +91 172 331 7800 Fax: +91 172 331 7888

Chennai
Tidel Park, 6th & 7th Floor A Block (Module 601,701-702) No.4, Rajiv Gandhi Salai Taramani, Chennai - 600 113 Tel: +91 44 6654 8100 Fax: +91 44 2254 0120

Delhi NCR
Golf View Corporate Tower B Sector 42, Sector Road Gurgaon - 122 002 Tel: + 91 124 464 4000 Fax: + 91 124 464 4050 3rd & 6th Floor, Worldmark-1 IGI Airport Hospitality District Aerocity, New Delhi - 110 037 Tel: + 91 11 6671 8000 Fax + 91 11 6671 9999 4th & 5th Floor, Plot No 2B Tower 2, Sector 126 NOIDA - 201 304 Gautam Budh Nagar, U.P. Tel: + 91 120 671 7000 Fax: + 91 120 671 7171

Hyderabad
Oval Office, 18, iLabs Centre Hithe City, Madhapur Hyderabad - 500 081 Tel: + 91 40 6736 2000 Fax: + 91 40 6736 2200

Jamshedpur
1st Floor, Shantiniketan Building Holding No. 1, SB Shop Area Bistupur, Jamshedpur - 831 001 Tel: +91 657 663 1000 BSNL: +91 657 223 0441

Kolkata
22 Camac Street 3rd Floor, Block ‘C’ Kolkata - 700 016 Tel: + 91 33 6615 3400 Fax: + 91 33 2281 7750

Mumbai
14th Floor, The Ruby 29 Senapati Bapat Marg Dadar (W), Mumbai - 400 028 Tel: + 91 22 6192 0000 Fax: + 91 22 6192 1000 5th Floor, Block B-2 Nirlon Knowledge Park Off, Western Express Highway Goregaon (E) Mumbai - 400 063 Tel: + 91 22 6192 0000 Fax: + 91 22 6192 3000

Pune
C-401, 4th floor Panchshil Tech Park Yerwada (Near Don Bosco School) Pune - 411 006 Tel: + 91 20 6603 6000 Fax: + 91 20 6601 5900

Kochi
9th Floor, ABAD Nucleus NH-49, Maradu PO Kochi - 682 304 Tel: + 91 484 304 4000 Fax: + 91 484 270 5393

Our offices
Connecting farm and industry: Through value chain empowerment

ASSOCHAM

The Associated Chambers of Commerce and Industry of India (ASSOCHAM), India’s premier apex chamber, initiated its endeavour of value creation for Indian industries in 1920. Having in its fold more than 400 chambers and trade associations, and serving more than 4.5 lakh members from all over India, it has contributed significantly to the economy by playing a catalytic role in shaping up the trade, commerce and industrial environment of the country. It has significantly contributed in the emergence of new-age Indian corporates, characterised by a new mindset and global ambition for dominating the international business.

Known as the fountain-head of knowledge for the Indian industries, ASSOCHAM has emerged as forceful, proactive, forward looking institution that is equipped to meet the aspirations of corporate India in the new world of business.

Ready to redefine the dynamics of growth and development in the technology driven cyber age, it aims empower Indian enterprises by inculcating knowledge that will prove to be the catalyst of growth in the technology driven global market. ASSOCHAM aims to help and guide businesses to upscale, align and emerge as formidable players in their respective business segments. Its mission is to impact the policy and legislative environment so as to foster balanced economic, Industrial and social development.

ASSOCHAM is working towards creating a model business environment in India that is at par with the rest of the world and that of a developed economy. It derives its strength from its promoter chambers and other industry/regional chambers/associations spread all over the country.

ASSOCHAM Offices

The Associated Chambers of Commerce and Industry of India (ASSOCHAM) 5 Sardar Patel Marg, Chankyapuri, New Delhi - 110021
Tel: 46550655 (Hunting Line)
Fax: 011-23017008/9
Website: www.assocham.org

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com.

Ernst & Young LLP is one of the Indian client serving member firms of EYGM Limited. For more information about our organization, please visit www.ey.com/in.

Ernst & Young LLP is a Limited Liability Partnership, registered under the Limited Liability Partnership Act, 2008 in India, having its registered office at 22 Camac Street, 3rd Floor, Block C, Kolkata - 700016

© 2018 Ernst & Young LLP. Published in India. All Rights Reserved.