

Agribusiness Scenario and Scope in India

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Abstract

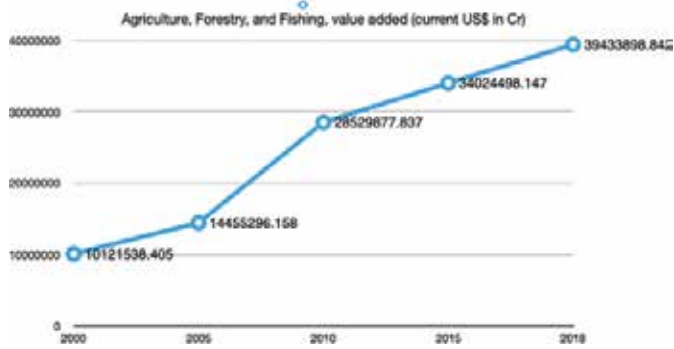
India's agricultural culture and region specific climate contribute significantly to global food baskets. India has diverse food culture and history, it consists of wide variety of cuisines full of spices, flavor and intoxicating aromas. Indian curry, pickles, snacks and spices are known around the world for their excellent quality for fairly long time. Agriculture is a major source of livelihood for about 58% of the country's population. Total value added collectively by agriculture, forestry and fisheries is estimated at Indian Depository Receipts (IDR) 1853 trillion (US \$27.100 billion) in 18 fiscal years, especially in the food processing industry.

This paper attempts to study the goals set and efforts being made by the Indian government to boost agriculture based industry and allied activities. It also evaluates the efforts of the Government made previously, their effectiveness, achievement and the bottlenecks identified and resolved. This is an analysis of the key aspects of the Indian economy and the impact of various existing and new policies on key industries and sectors linked to Agriculture. The insights of the paper might be useful to reassess and analyze the commitment of the Government of the day to double the farmer's income by 2022.

Keywords: Agribusiness, Sustainability, Fork-to-farm, Agricultural Growth.

Introduction

Agriculture is the most important sector of the Indian economy. India's agriculture sector accounts for 18% of India's Gross Domestic Product (GDP) and provides "employment" to 50% of the country's workforce. India is the world's largest producer of legumes, rice, wheat, spices and spice products. India has many areas to choose from for business, such as dairy, meat, poultry, fisheries and cereals. India has emerged as the second largest producer of fruits and vegetables in the world. According to data provided by the Bureau of Economic Statistics (DES), the country produced 283.73 million tons of edible grains in 2018-19, riding record rice and wheat production for the year. Despite the noteworthy yield, Indian agribusiness is still facing challenges. For example, reliable and useful information that farmers need on a variety of agricultural issues with low levels of coordination and integration of business units is not easily accessible to them.



Source: World Bank

Purpose of Research

- To outline the agricultural development in India
- To explore the policy initiatives taken by the Indian government to grow agribusiness.
- To identify key bottlenecks in the implementation of the Agribusiness Growth Plan
- To evaluate the significant achievements of previous campaigns and their contribution to the Indian economy

Methodological Framework

As mentioned in the previous section, the paper aims to explore the agribusiness opportunities and challenges in India and its contribution to the Indian economy. The research design used in this study is Exploratory-cum-Descriptive Research Design, which involves exploring the insight of the general research problem and describing the data and the characteristics of what is being studied. We primarily relied on secondary data which have been taken from World Bank, official website of the Ministry of Agriculture, and several other websites and newsgroups. The authors critically analyzed various government reports, schedules, and research papers to assess the initiative and its impact.

Indian Government Initiatives

Some of the recent major government initiatives in this area are:

- Indian Prime Minister launched Pradhan Mantri Kisan Samman Nidhi Yojana (PM-Kisan) and transferred Rs 2,021 crore (US \$ 284.48 million) to bank accounts of more than 10 million beneficiaries.
- The Indian government has announced a transportation and marketing assistance (TMA) scheme that provides financial support for agricultural transportation and marketing to facilitate the export of agricultural products.

- The 2018 agricultural export policy was approved by the Indian government in December 2018. The new policy aims to raise India's agricultural exports to US \$ 60 billion by 2022 and US \$ 100 billion with a stable trade policy regime over the next few years.
- In September 2018, the government of India has sanctioned Rs 15,053 crore for implementation of Pradhan Mantri Annadata Aay Sanrakshan Abhiyan' (PM-AASHA). The new Umbrella Scheme includes the mechanism of ensuring remunerative prices to the farmers and is comprised of:
 - Price Support Scheme (PSS),
 - Price Deficiency Payment Scheme (PDPS)
 - Pilot of Private Procurement & Stockist Scheme (PPPS).
- In September 2018, the Cabinet Committee on Economic Issues (CCEA) approved a support package of 5,500 crore for the Indian sugar industry.
- The Government of India will provide 2,000 crore for computerization of the Primary Agricultural Credit Society (PACS) so that cooperatives can benefit through digital technology.
- With the goal of enhancing agricultural innovation and entrepreneurship, the government is introducing a new AGRI-UDAAN program to guide start-ups and connect with potential investors.
- The government launched Pradhan Mantri Krishi Sinchai Yojana (PMKSY) investing rupees 50,000 crore (US \$ 7.7 billion) to develop an irrigation source to provide a permanent solution from drought. .
- The government plans to triple India's food processing sector capacity from 10% of its current agricultural products, and invest Rs.6000 crore in domestic mega food parks. A part of the development scheme (SAMPADA) for agricultural and fishery processing and agricultural product processing clusters(SAMPADA).
- The Government of India permits 100% FDI in food marketing and food e-commerce under automated routes.

Sector Outcomes

- According to the Indian Sugar Factory Association (ISMA), sugar production in India reached 27.35 million tons (MT) in the 2018-19 sugar season.
- The Electronic National Agricultural Market (eNAM) was established in April 2016 and created a unified national market for agricultural products by networking existing APMCs. By May 2018, 9.87 million farmers and 109,725 traders were registered on the

e-NAM platform. In India, 585 Mandies are linked to e-NAM platform in 2018-19.

- India's agricultural storage capacity increased by 4% in CAGR during 2014-17, reaching 131.8 million tons.
- Coffee exports reached a record 395,000 tons in 2017-18.
- During 2014-18, 10,000 clusters were approved under Paramparagat Krishi Vikas Yojana (PKVY).
- From 2014-15 to 2017-18 (until December 2017), a storage capacity of 2.3 million metric tons was added down, and a steel silo with a capacity of 625,000 was created in the same period.
- About 100 million soil health cards (SHCs) were distributed in the country in 2015-17, and the soil health mobile app to support Indian farmers was launched.

Agribusiness in India: Latest Developments

Agribusiness is the practice of activities with backward and forward relationships related to raw and processed food, feed, fiber production, processing, marketing, trade and distribution, and the supply of inputs and services for these activities. Along with structural changes in the economy, the proportion of agricultural production (agriculture) is decreasing and the proportion of processing, distribution and trade is increasing. The increase in disposable income is reflected in increased purchasing power and increased nuclear families, so the demand for processed foods has increased significantly. These factors further trigger the need for sophistication in various areas of the agricultural business, such as procurement, storage, transportation and distribution. The significant developments that are on ground today in India promoting agribusiness majorly include:

Mega Food Parks

While adding to the 8 mega food parks already functional, the Ministry of Food Processing Industry, Government of India has plans to establish 42 mega food parks nationwide by 2019.

The Indian government has set the goal of raising the level of processed foods from the current 10% to 20%. The goal is to raise the processing level of fresh food from "6%" to "20%" and increase India's share in the global food processing industry from "1.5%" to "3%" (until 2020).

Cold Chain Industry

Cold Chain Industry's Compound Annual Growth Rate (CAGR) during 2014-16 remained 20%. It is going to further grow impressively considering the factors below:

- The Indian government has approved an integrated cold chain project. The value of the cold chain industry has reached Rs. 624 billion by 2017 and is showing further growth phenomenally.
- India has 6,300 refrigerated facilities with a total capacity of 30 million tons (March 2016).
- The Government of India has allocated a budget of Rs 1,87,223 million to rural, agricultural and related sectors (Union Budget 2017-18). The Government of India imposes a 0.5% "Krishi Kalyan Cess" on all taxable services.
- National Agricultural Market (e-NAM) coverage ranges from 250 markets to 585 APMC (Agricultural Produce Marketing Committees).
- All e-NAM will receive up to 750,000 rupees assistance.

Micro Irrigation

- NABARD's dedicated micro-irrigation fund has announced that it will "increase yield per drop" in its original corpus of "Rs. 5,000 crore" (Union Budget 2017-18).
- Small-scale irrigation is expected to reduce overall irrigation water savings by 20-38%, fertilizer by 28.5%, and energy by 30.5%.

Farm Mechanization

- India's agricultural equipment industry size: "US \$ 6.5 billion" (FY15).
- Current mechanization level: 40-45%.
- Government efforts such as the National Rural Employment Guarantee Act (NREGA) will increase the amount of mechanization.

Crop Protection

- Pradhan Mantri Fasal Bima Yojana is being implemented throughout the Country successfully.
- An area of approximately 273.69 million hectares is under pest monitoring and 53,452.68 million biological control agents have been sent to various states for the management of various pests and diseases (March 1994-2017).
- 17,234 * Farmers Field School organized by Ministry of Agriculture, Government of India
- 5,17,260 * Farmers are trained on Integrated Pest Management (IPM) technology

* (Director of PPQ & S under DAC, all data from 1994 to March 2017)

Importance of Indian Agribusiness

Along with structural changes in the Indian economy, the proportion of agricultural production (agriculture) in the economy is decreasing and the proportion of processing, distribution and trade is increasing. In addition, the increase in backward and forward links has made the distinction between agriculture and the agricultural industry vague. Farm production, processing and trade continue to be more integrated. Robust supply chain requirements are gaining momentum. The increase in disposable income is reflected in increased purchasing power and increased nuclear families, so the demand for processed foods has increased significantly. These factors further drive the need for sophistication in various areas of the agricultural business, such as procurement, storage, transportation and distribution.

Composition of AGRI+BUSINESS segment in India

Manufacturing

Manufacturing Production includes the sowing, planting and harvesting of agricultural products that are channelized in the Agribusiness Value Chain. It is important to ensure high-quality crop production while increasing the production per unit of farmland area. Good product technology helps increase productivity and make expensive products cheaper.

Inter-cultivation and Plant Protection

Inter-cultivation and plant protection Proper crop protection is essential for producing high-quality crops optimally using scarce resources such as land and water. This is also economically appropriate. You can deliver food to the market at a low price. If we stop practicing common protection practices on fruit and vegetable crops, there are far fewer food options available for consumption. The global yield will drop by about a third. Some of the foods that are abundant today are only available in certain regions and are in short supply, resulting in higher prices and lower quality.

Agricultural Processing

Agricultural processing This refers to activities carried out for the conversion and handling of raw materials and intermediate products from the agricultural sector.

This component covers all operations from the harvest stage until the finished material reaches the end user. Research shows that in developed countries, up to 14% of the total labor force for agricultural processing is employed directly and indirectly, while in India, only 3% are engaged in agricultural processing. Focusing on this component is important because of the great potential for growth and, in particular, the socio-economic impacts that can have on employment and income generation.

Storage and Distribution

The storage component includes the storage of goods from production to consumption. This sector ensures that there is a continuous flow of goods to the market and that there is no gap between them. It also plays an important role in products with seasonal demand and helps stabilize prices by maintaining supply and demand. Distribution in the agricultural business is one of the main factors because it can be expensive or can reduce the quality of goods due to delays. Therefore, there are usually fewer intermediates in this sector. The choice of channels that provide the optimal level of sales and costs ensures maximum profits while taking into account the freshness of the product.

Retail and Export

Retail and export India is the second largest agricultural producer in the world. It accounts for 7.68%. The country exports several agricultural products such as basmati rice, dried fruits and spices, and 10% of its export revenue is derived from agricultural products. Total agricultural exports from India increased from US \$ 24.7 billion in FY12 to US \$ 33.3 billion in FY2015.

Agricultural Growth and Future Potential Agribusiness

Although more than 52% of India's land can be cultivated, the global average is 11%. India is one of the highest ranked countries for the production of various products such as rice, cotton and dairy products. Meanwhile, ongoing efforts to improve productivity through measures such as simplifying the regulatory process, increasing the efficiency of food distribution systems, increasing awareness of modern agricultural practices, and tackling unpredictable weather patterns is required.

To this end, the government has set up a mega food park, started easier access to farmer's credit, created a long-term irrigation fund, introduced a Krishi Kalyan Cess and national cold chain development scheme, etc. Took the initiative. Over the years, India has become the 15th largest exporter of agricultural, fishery and forestry products in the world, enhancing the competitiveness of export of certain specialty products. In 2015, India recorded a trade surplus of US\$9.4 billion for agricultural, fishery and forest products. Major exports consisted of basmati rice, beef / meat, frozen and shrimp, cotton, and refined sugar. Sub-segments and their growth

Farm mechanization India needs to continually support and develop the agricultural sector to feed a growing population of about 1.3 billion people (today). Increasing agricultural production is more challenging due to many factors. Slow growth of the entire domestic arable land.

India will soon be a major service and manufacturing base. This is evident from the increased service and manufacturing sector contributions to GDP. • Further urbanization has led to further movement of farm workers.

The best way to overcome these challenges is through the evolution of farm mechanization. This increases agricultural productivity and significantly reduces manual labor. India's agricultural equipment industry is valued at around US \$ 6.5 billion and has shown strong growth in recent years. The Indian agricultural machinery market is estimated to grow at a CAGR of over 10% over the period 2013-18. India is currently at a level of 40-45% from a mechanization perspective. Tractors make up the bulk of Indian farm mechanization, which is also the world's largest market for tractors. Other major segments include threshing machines, rotating machines and tillers.

In India's agricultural sector, the use of animal and human power has decreased significantly. This has led to a shift from traditional agricultural practices to more mechanized processes. Although the level of mechanization in India is low compared to other developed countries, it certainly shows an upward trend.

The table below shows the scope of mechanization at various levels in the value chain:

Soil Working and Seedbed Preparation	40%
Seeding and Planting	29%
Plant Protection	34%
Irrigation	37%
Harvesting and Threshing	60-70%
Overall	40-45%

Source: Department of Agriculture and Cooperation, Ministry of Agriculture

Micro Irrigation

As the population increases and the landholding scale rapidly declines, the issue of feeding the masses has emerged as a major issue. Here, irrigation plays an important and important role. Considering that Indian agriculture depends on natural water resources and monsoon, the efficient use of available water resources becomes more important. Therefore, in 2015, the concept of micro-irrigation under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was reintroduced. The advantages of micro irrigation are:

- 20-38% overall savings on irrigation water
- 28.5% overall fertilizer savings
- 30.5% energy savings overall

- Easy to implement (within several months)The total potential of micro irrigation in India is estimated to be about 69 million hectares, but the coverage of micro irrigation was 7.73 million hectares from 2015 to 2016 (the application range of drip irrigation is 3.37 million hectares, sprinkler irrigation is applicable to 4.36 million hectares). Therefore, there are still many undeveloped possibilities for microirrigation. Using a micro-irrigation system minimizes transportation losses. Evaporation, runoff and deep penetration are also reduced by using micro-irrigation methods. Another water-saving advantage is that water sources with limited flow, such as small wells, can be used. Micro irrigation provides very high water use efficiency due to proximity and intensive applications. Micro-irrigation in India from 2009-10 to 2015-16

Distribution and Storage

India is a major producer of many agricultural products such as fruits, vegetables, spices, milk and other marine products. Nevertheless, the proportion of Indian exports in these segments is relatively low. The same reason is the lack of appropriate cold chain infrastructure facilities, including both storage and transport facilities. However, the progress of urbanization and the growth of the organized retail, food service, and food processing sectors are driving the growth of the cold chain industry. The Indian cold chain sector is a combination of surface storage and refrigerated storage. The industry has grown at a CAGR of 20% over the last three years (2014-16). The Indian cold chain market is expected to reach Rs.624 billion by the end of 2017. The largest source of revenue in the Indian cold chain industry is the cold store. There are approximately 6,300 refrigerated facilities in India, with an installed capacity of 301.11 million tons (March 2016). Major players in this market include ColdEx, Bhramanand Himghar, Dev Bhumi Cold Chain, Gati and Snowman Logistics.

The factors that accelerated the growth of the Indian cold chain industry are as follows. Organized retail growth – Over the past few years, the organized retail and restaurant industry has emerged as a new segment of the cold chain, mainly due to changes in consumption patterns. As well as adding capacity for refrigeration equipment for a series of very perishable products, demand for a wide variety of vegetables, fruits and grains is also increasing. End-user segment growth-As the end-user segment grows, the cold chain infrastructure is expected to help boost waste.

Demand from the pharmaceutical sector – Growth in the pharmaceutical industry is creating an accompanying demand for an increase in domestic cold chain facilities.

Food Processing

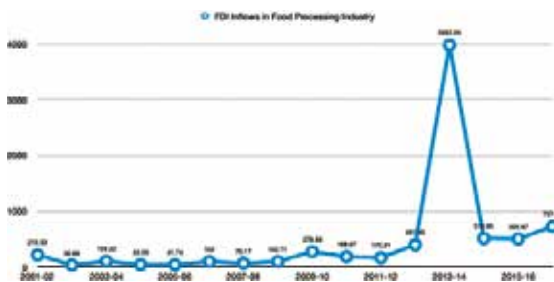
The food processing industry serves as an important link between the agricultural and economic manufacturing sectors. The Indian food industry is valued at US \$ 39.71 billion (as of 2013-14) and is expected to grow at 11% CAGR by the end of 2018 to US \$ 65 billion. India's food processing industry is one of India's largest industries, and the country's total food market ranks fifth in terms of production, consumption, exports and expected growth. Total agricultural exports from India increased to US \$ 3.338 billion in fiscal 2005 compared to US \$ 24.7 billion in fiscal 2012.

Some of the factors that contributed to the growth of the food processing sector are:

- Increase in the number of food processing units-The number of registered food processing units in the country increased significantly from 26,219 units in 2007-08 to 36,871 units in 2015.
- Increased FDI inflows – 100% FDI is allowed for automated routes in the food processing industry. As a result, this sector has witnessed an increase in FDI inflows, directly leading to accelerated growth in this sector

Year	FDI Inflows	Year	FDI Inflows
2001-02	219.39	2009-10	278.99
2002-03	36.88	2010-11	188.67
2003-04	109.22	2011-12	170.21
2004-05	43.98	2012-13	401.46
2005-06	41.74	2013-14	3982.89
2006-07	102.00	2014-15	515.86
2007-08	70.17	2015-16	505.87
2008-09	102.71	2016-17	727.22

Source: Department of Agriculture and Co-operation; World Bank.



Mega Food Park Scheme-As a result of the government-led initiative Mega Food Park Scheme, 42 mega food parks have been established in the country with a total investment of Rs 155 billion. The main purpose of this scheme is to facilitate the establishment of an integrated value chain and the processing at the core is supported

by the necessary forward and backward links. The scheme currently covers 22 states in India.

Recognition as a priority sector-The food processing sector was recognized as a priority sector in 2011. This was done to ensure the flow of entrepreneurial credit for installing food processing units and attracting investment in the sector. Food Processing Fund Creation-Budget 2015-16 set up a 2,000 crore (about US \$ 300 million) corpus to create a special fund called "Food Processing Fund" under the National Agricultural Rural Development Bank (NABARD) provides cheaper credits to the food processing industry. Excise tax on packaging and processing plants and machinery has been reduced from 10% to 6%.

Conclusion

India has a population of 1.3 billion, of which the youth population (age 15-34) is estimated to be 450 million as of 2016 and is expected to reach 464 million by the end of 2021. Some of the other factors, such as increased income levels and wealth, middle class, increased nuclear families and working couples, and increased urbanization, will lead India to become a rapid hub for processed foods. Exports of processed foods in India have steadily increased from US \$1,352 million in 2006 to US \$3,981 million in 2016.

The food industry, which was valued at \$39.71 billion in 2013-14, was expected to grow at 11% CAGR, reaching \$65.4 billion by 2018. The Indian restaurant industry is expected to reach US \$78 billion in 2018. The Indian organic food market is expected to triple by 2020 compared to 2017. In 2012-13, there were 1.6 million people in the registered food processing sector. This number is expected to increase to 9 million by 2024. However, increasing the efficiency of the entire value chain requires a significant investment in infrastructure development. Some of the investor's investment needs and opportunities are:

- Manufacturing
- High yield seed production
- Production of high-quality planting materials, including the use of micro-breeding tissue culture methods
- Nursery including nursery
- Organic farming
- Microbial culture and insect compost production
- Flower cultivation processing
- Processing of fruits and vegetables. Dewatering, canning, aseptic packaging, processing of unused fruits, processing of other products such as gray prawns, osmo-style dried fruits, fruit toffee, bleached dried ginger, spice powder

- Processing of starch and feed corn with improved mini / small mills and dry milling plants
- Millet processing for various purposes. Includes silk millet malt and RTE (ready to eat) products
- Sugar cane processing for various jaggery products such as spice jaggery, powder jaggery, and jaggery cubes
- Treatment of herbs and medicinal plants
- Processing of dairy products
- Processing of chicken products, including chicken dressings
- Processing of livestock products and livestock waste infrastructure.
- Cold chain infrastructure including cold store
- Storage and warehouse
- Professional transport services
- Package infrastructure including pack houses, and
- Agri Clinic and Service Center Trade and other
- Procurement by contract arrangement including contract agriculture
- Retail Supply Chain Management.
- Capacity development including human resource development in agribusiness.

Micro-irrigation is considered one of the most efficient solutions to overcome the water management challenges facing the agricultural sector. With the government's focus on providing rural electrification, the country is expected to see growth at the mechanized level of agricultural production. Mechanized agriculture reduces operational costs and time by improving post-production agricultural activities and promoting water conservation. Government initiatives in several areas, such as promoting farmer production companies, organic farming, improving soil management, and improving farmers-market partnerships (via e-NAM) further drive this sector.

The Mega Food Park Scheme creates a centralized infrastructure for performing processing activities that require state-of-the-art technology and testing facilities in addition to basic infrastructure such as water supply, electricity, environmental protection systems, and communications. Indian food processing industry will further strengthen food market production, consumption and export by linking agriculture and economic manufacturing sector. The food processing industry is expected to grow at a CAGR of 13% between 2015 and 2020.

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