

A STUDY ON FOOD PROCESSING INDUSTRIES FOR IMPROVEMENT OF RURAL INCOME IN INDIA

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ABSTRACT

A well developed food processing industry is expected to increase farm gate prices, reduce wastages, ensure value addition, promote crop diversification, generate employment opportunities as well as export earnings. Growth of food processing industries would provide expanding demand for farm produce, vegetables, fruits and other greens that would help improve agricultural incomes. The food processing industry has strong backward linkages with rural economy, as all the raw material is produced by rural people. Hence, any growth in food processing industry, positive or negative will have a direct impact on economy of rural India. Food processing industry would help in reducing rural urban disparity and ensuring household food and nutritional security for all at an affordable cost. The development of agro-based industries are easy to established and have the potential of providing steady and additional income to the rural people without making large initial investment. Thus, development of agro-based industries plays a significant role in the process of economic development in the country as a whole. made an attempt to review the relevant literature pertaining to the study of food processing Industry in India as well as in other country. For the healthy development of the food processing industry various government committees, experts, researchers, agricultural colleges, universities, research institutions has contributed by publishing their reports, findings, recommendations, after studying the problems and various aspects of food processing industry.

Keynotes: *food, processing, industry, opportunities, development*

INTRODUCTIONS

Food Processing Industry has emerged as an important option to overcome the increasing challenges of creating employment opportunities in India. Food Processing Industry helps in increasing labour force and sustaining the livelihood of households in rural areas. Most important point in this kind of Industry is that a sizeable portion of raw materials are being processed which are usually rural based produce. It has a very high employment potential with significantly lower investment.

Food processing dates back to the prehistoric ages when crude processing incorporated slaughtering, fermenting, sun drying, preserving with salt, and various types of cooking (such as roasting, smoking, steaming, and oven baking). Salt preservation was especially common for foods that constituted warrior and sailors' diets, until the introduction of canning methods. Evidence for the existence of these methods can be found in the writings of the ancient Greek, Chaldean, Egyptian and Roman civilizations as well as archaeological evidence from Europe, North and South America and Asia. These tried and tested processing techniques remained essentially the same until the advent of the industrial revolution. Examples of ready-meals also exist from preindustrial revolution times such as the Cornish pasty and Haggis. During ancient times and today these are considered processing foods. Food processing has also helped create quick, nutritious meals to give to busy families. Modern food processing technology in the 19th and 20th century was largely developed to serve military needs. In 1809 Nicolas Appert invented a vacuum bottling technique that would supply food for French troops, and this contributed to the development of tinning and then canning by Peter Durand in 1810. Although initially expensive and somewhat hazardous due to the lead used in cans, canned goods would later become a staple around the world. Pasteurization, discovered by Louis Pasteur in 1862, was a significant advance in ensuring the micro-biological safety of food.

In the 20th century, World War II, the space race and the rising consumer society in developed countries (including the United States) contributed to the growth of food processing with such advances as spray drying, juice concentrates, freeze drying and the introduction of artificial sweeteners, colouring agents, and preservatives such as sodium benzoate. In the late 20th century products such as dried instant soups, reconstituted fruits and juices, and self cooking meals such as MRE food ration were developed. In Western Europe and North America, the second half of the 20th century witnessed a rise in the pursuit of convenience. Food processing companies marketed their products especially towards middle-class working wives and mothers. Frozen foods (often credited to Clarence Birdseye) found their success in sales of juice concentrates and "TV dinners". Processors utilised the perceived

¹ Nicolas Appert, born on November 17, 1749 in Chalons-sur-Marne, France, was a chef who is best remembered for the invention of airtight food preservation. This was the time of the French Revolution and many wars would frequently break out. Appert worked as a distiller, confectioner and chef at that time. The French armies at that time were spread all over Europe, and the problem of carrying food with them was one that had the government stumped, as it would spoil over long distances and over time.

² Peter Durand (21 October 1766- 23 July 1822) was an English merchant who is widely credited with receiving the first patent for the idea of preserving food using tin cans

value of time to appeal to the postwar population, and this same appeal contributes to the success of convenience foods today.

Food industry plays an important role in order to satisfy community needs with respect to availability, distribution and quality of food. To meet the needs of different consumers, manufacturers need to adapt products and services to fit their needs. Food processing industry has the typical characteristics, due to the nature of the food products that are relatively perishable, bulky and seasonal; therefore these characteristics have to be handled properly. ³

MEANING OF FOOD PROCESSING INDUSTRIES

The term 'food processing' is mainly defined as a process of value addition to the agricultural or horticultural produce by various methods like grading, sorting and packaging. In other words, it is a technique of manufacturing and preserving food substances in an effective manner with a view to enhance their shelf life; improve quality as well as make them functionally more useful. It covers spectrum of products from sub-sectors comprising agriculture, horticulture, plantation, animal husbandry and fisheries.

According to United Nations Industrial Development Organisation (UNIDO), the term agro-industry signifies those industries which use raw materials from agriculture as main material from that manufactured goods are produced on commercial scale. The agriculture including agriculture produce. Thus, agro-based industries can be broadly defined as those industries that are dependent upon agriculture for their raw material and other basic inputs.

Agro-processing industries refer to those activities that transform agricultural commodities into different forms that add value to the product. "Agro-based industries are those industries which have either direct or indirect links with agriculture (Bhattacharya 1980). Agro-processing industries, especially food manufacturing, tobacco and textile processing dominate the commercial industrial sector.

Agro-food is a subset of agribusiness that refers to industries involved in the production, processing and inspection of solely food products made from agricultural commodities. It cuts across various industries and constitutes the aggregation of many commodity sub-sectors such as grain, dairy, coffee, fruit, vegetables, cotton, etc (Jaffee et al., 2003).

Food processing is a series of operations by which unprocessed foods are converted into foodstuffs to prolong their duration, i.e. shelf life, enable storage, and reduce time or effort spent in culinary procedures required for it Carlos A. Monteiro (2012) .

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<https://www.researchgate.net/publication/324006313> Production System in Food Industry A Literature Study

Food processing is any method used to turn fresh foods into food products. ⁴This can involve one or a combination of various processes including washing, chopping, pasteurising, freezing, fermenting, packaging, cooking and many more.

According to FAO (1997), “Agro-processing industry is a subset of manufacturing that processes raw materials and intermediate products derived from the agricultural sector. Agro-processing thus means transforming products that originate from agriculture, forestry and fisheries.” The Standard Industrial Classification also categorises the following eleven divisions under the agro-processing industry: food, beverages, paper and paper products, wood and wood products, textiles, wearing apparel, furniture, tobacco, rubber products, footwear and leather and leather products.

SIGNIFICANCE OF THE STUDY

The agro-processing industry in India plays a vital role in the national economic development and has potential to meet the local needs and export requirements. The supporting infrastructure for this industry in terms of electricity supply, through the government funded rural electrification programme, and road and telecommunication network, is well established. There are also well established skills training programmes in manufacturing (tool making, welding), for rural artisans and users. However, the sector currently faces many challenges emanating from the poor performance of the national economy, uncertainties that exist over access to both local and foreign finances, limited research, limited technical advice, limited marketing information and lack of reliable markets.

The development of agro-based industries are easy to established and have the potential of providing steady and additional income to the rural people without making large initial investment. Thus, development of agro-based industries plays a significant role in the process of economic development in the country as a whole.

CLASSIFICATION OF INDUSTRIAL AGRICULTURE

Industrial agriculture generally can be classified into four categories, they are:

- (1) agro-industries of agricultural processing,
- (2) agro-industries that manufacture agricultural machinery and equipment,
- (3) agro-industries of agricultural inputs (fertilizers, pesticides, herbicides and other) and
- (4) agricultural sector services agro-industry (support services).

⁴ Monteiro C, Levy R, Claro R, et al. (2010). A new classification of foods based on the extent and purpose of their processing. *Cad Saude Publica* 26(11), pp. 2039-2049.

Agro-industry of agricultural processing is part of agro-industries, which process the raw materials are sourced from plants, animals and fish. The processing in question includes the processing of the process of transformation and preservation through a physical or chemical change, storage, packaging, and distribution. Processing can be either simple processing such as cleaning, selection (grading), packing or may be a more sophisticated processing such as milling, powdering, extraction and refining, the frying process (roasting), spinning, canning and other fabrication process. Food industry is part of the agro-industries of agricultural processing.

OBJECTIVES OF THE STUDY

The main objectives of the present Study are as follows:

1. To explore the possibilities of Food processing Industries in India
2. To study the impact of food processing industries in removing the rural poverty and create employment opportunity
3. To Find the various opportunities and challenges of food processing industries
4. To find appropriate solutions, suggestions and conclusion of this industries.

RESEARCH METHODOLOGY

The study is descriptive in nature and based on the secondary source of informations which are collection from various sources like national and international Journals, Magazines, books, websites, government report, NSSO survey and newspaper, annual reports of government organizations like APEDA, NIN, MFPI, MPEDA, bulletins, food journals, management books, etc.

LITERATURE REVIEW

The researcher has made an attempt to review the relevant literature pertaining to the study of food processing Industry in India as well as in other country. For the healthy development of the food processing industry various government committees, experts, researchers, agricultural colleges, universities, research institutions has contributed by publishing their reports, findings, recommendations, after studying the problems and various aspects of food processing industry, which are reviewed as follows:

Alastair Hicks (2001):⁵ The rural economy cannot be developed by improving the productivity of the agriculture only, but by means of rural industries and particularly food processing industry having the significant for the rapid transformation of the rural 4 economy. Rural food processing industries are important to establish the linkage between agriculture and industry, creating employment opportunities and improve the economic well-being of the rural India. The rural food processing industry can play a vital role in rural poverty alleviation and sustainable development in many Asia-Pacific countries. It can enhance farm incomes by offering a ready market for farm products, generate off-farm employment, and reduce rural–urban migration. Rural-based food processing industries are mostly small- and medium-sized enterprises (SMEs) and face such constraints as poor infrastructure, shortage of entrepreneurial talent and skilled manpower, limited access to appropriate technologies, volatile demand, and small profit margins.

Allan N. Rae (1999):⁶ The patterns of food consumption are undergone with significant change in several countries with economic development of the nation. The most influential factors withdrawn from the study is the household expenditure and the educational level of women. The data for the study collected form household survey to quantify importance of several socio-economic variables.

Bishnu Bhattacharyya (2013)⁷- Food processing is the methods and techniques used to transform raw ingredients into food or food into other forms for consumption based on local raw material and indigenous knowledge and skill of the people. One of the important sub-sectors of food processing is fruits and vegetable processing.

FAO (2011)⁸ presented a report on Global Food Losses and Food Waste, which highlights on the losses occurring along with entire food chain and recognizes food losses reasons and probable ways to prevent them. In the study Swedish Institute for Food and Biotechnology (SIK) has uses bulk flow of food from production to consumption using existing data to measure food losses and wastes.

FICCI Survey (2010)⁹ - Food processing industry in India is increasingly seen as a potential source for driving the rural economy as it brings about synergy between the consumer, industry and agriculture. A well developed food processing industry is expected to increase farm gate prices, reduce wastages, ensure value addition, promote crop diversification, generate employment opportunities as well as export earnings.

⁵ Alastair Hicks (2001), Rural-Based Food Processing Industry in Asia ©APO 2004, ISBN: 92-833-7026-0 Report of the APO Multi-Country Study Mission on Rural-Based Food Processing Industry (SME-OS1-00)

⁶ Allan N. Rae (1999), Food consumption patterns and nutrition in urban Java households: the discriminatory power of some socioeconomic variables, *Australian Journal of Agricultural and Resource Economics*, 1999, vol. 43, issue 3, 25

⁷ Bishnu Bhattacharyya (2013) - Problems and Prospects of Fruits and Vegetables Processing Industry: A Study in Kamrup District of Assam - Asian Resonance, Vol.-li, Issuelv, October-2013.

⁸ FAO (2010-11), “The State of Food and Agriculture (2010-11)”, ISSN: 0081- 4539, pp: 81.

⁹ FICCI Survey (2010) - Bottlenecks In Indian Food Processing Industry - FICCI survey on challenges in food processing sector.

James Seale, Jr., Anita Regmi and et al., (2003):¹⁰ The most promising factor for shift in the food trade is the income growth in both developing and developed countries. Due to increased calorie intake and population rise in developing countries there is an increasing demand for grains and oilseeds. Globalization, transportation facility and increased purchasing power result into increased demand for higher value food products like fruits, vegetables, meats and processed food products. It uses demand analysis, comparison project data for the study.

Josef Schmidhuber, PrakashShetty (2005):¹¹ Agricultural productivity, rising incomes and better nutrition are equally important for overall economic development. Now the present era known for Urbanization which means more female participation in the work force of the country so the changing preferences occurs from traditional time consuming food preparations to precooked food, convenience food, fast food or snacks and other processed food products.

Kachru R. P. (2009)¹² Agro processing is defined as set of techno-economic activities, applied to all the produces, originating from agricultural farm, livestock, aquaculture sources and forests for their conservation, handling and 65 value-addition to make them usable as food, feed, fiber, fuel or industrial raw materials. Agro processing sector has experienced expansion during last 5 decades, starting with a handful of facilities which were mainly operating at domestic/cottage level.

Manjari Desai (2014)¹³ -The Food Processing Industry plays an important role in establishing the farm sector's formal linkages that result in high income and employment generation while minimizing the wastages.

Mehta G. S.(2012)¹⁴ Over the years, the agricultural transformation through creation of forward and backward linkages with Agro-industry has been emerging as an important option to overcome from the increasing challenges of creating employment opportunities for increasing labour force and sustaining the livelihood of households in rural areas. Most important point in the agro-processing is that a sizeable portion of raw material processed in them being rural based it has a very high employment potential with significantly lower investment. Agro-industry generates new demand on the farm sector for more and different agricultural outputs, which are more suitable for processing.

Nisha Harchekar (2008)¹⁵- Indian food-processing industry is poised for explosive growth driven by changing demographics, growing population and rapid urbanization along with increased government support. These factors will increase

¹⁰ James Seale, Jr., Anita Regmi and et al., (Oct. 2003), "International Evidence on Food Consumption Patterns", Technical Bulletin number 1904, USDA, pp: 1-70.

¹¹ Josef Schmidhuber, PrakashShetty (2005), "The Nutrition Transition to 2030 why developing countries are likely to bear the major burden", pp: 1-26.

¹² Kachru R. P. (2009) - Agro-Processing Industries in India— Growth, Status and Prospects - Indian Council of Agricultural Research, New Delhi

¹³ Manjari Desai (2014) - Facets Of Food Processing Industry - An Empirical Study Of Pune - <http://www.mcciapune.com>

¹⁴ G. S. Mehta (2012) - Agro-Processing Industry In Uttar Pradesh - Emerging Structure and Development Potentials - Giri Institute of Development Studies, Lucknow.

¹⁵ Nisha Harchekar (2008) - Indian Processed Food Industry - <http://way2wealth.com/reports>.

the demand for value added products and thus improve the prospects of food-processing industry in India. The government's focus towards food processing industry as a priority sector will ensure policies to support investment in this sector and attract more FDI. India with its vast pool of natural resources and growing technical knowledge base has strong comparative advantages over other nations.

Nupur Chakraborty, ZainabMorbiwala (2008)¹⁶, states that the Indian consumers demand is still dominated by consumption of 'fresh' products. Packaged and processed food products are readily not accepted in some periphery of the country by the consumers due to different reasons.

Pankaj Gupta (2009)¹⁷, states that growth rate of Indian processed food industry is tremendous. Rapid increase in disposable income with changing attitude towards health and hygiene is a driving force for processed food in India. At the same time India should tackle with demand supply balance, food process during inflation. Despite it, industry has good future because consumers are willingly to pay for various needs originating from modern life style. However, probable state of affairs is that, the future growth would be primarily driven by the domestic market with India doubtful to achieve its target in world trade market for food commodities.

Sudershan R. V., Partita Rao and et al., (2009):¹⁸ States that food safety has emerged as an important global issue with international trade and public health implications for the sector. Numerous food safety programs have become ever more important due to technological progress in food and agricultural sectors and also due to social changes introducing new food patterns and demands of the customer. The methodology applied for the study includes data published in referred journals, websites and published data from universities appeared in the variety of doctoral theses and dissertations at the post graduate level. The data mainly collected from the duration of 1995-2005 from the different literature and reviewed for analysis.

Conclusions on Literature review

Referring to the food processing industry many scholars have considered the field of organizational practice as of having greater significance. The food processing industry in India over the 50 years of planned development has made dynamic progress, both in terms of number of units and combination to the total food production. With the development of the food processing industry, a number of problems arose from time to time, which were mainly concerned with the management and government policies, labour and by-products, et.al. Even though there has been lot of work on management practices to increase the efficiency and utilize it in food processing industry. While everyone seems to accept this fact, there is equality in studies of these practices and policies.

¹⁶ NupurChakraborty, ZainabMorbiwala (2008), "Opportunity Calling", Progressive Grocer, pp: 54-57.

¹⁷ Pankaj Gupta (2009), "Processed Food Industry in India: A Mega Growth Opportunity", Food and Beverage News Magazine, pp: 1-3. 34.

¹⁸ R. V. Sudershan, Pratima Rao and et al., (2009), Food Safety Research in India: A Review, Asian Journal of Food and Agro Industry, 2 (03), ISSN: 1906-3040, pp: 412-433.

OBJECTIVES OF THE STUDY

The major objectives of the present study are:

1. To have an understanding about the present scenario of Food Processing Sector in India.
2. To assess the role of Processed Foods Sector in creating employment opportunities, increasing output, income and raising standard of living.
3. To find the Opportunities and Challenges of food processing industries in India.
4. To review the Government Policy Initiated for the development of Food Processing Industries in India.

To find appropriate Suggestions and Conclusion.

RESEARCH METHODOLOGY

The proposed study is based on descriptive research design. The relevant issues have been examined on the basis of information gathered through secondary sources. For the betterment of food processing industry researcher talk to various persons and groups who engaged in such sectors. Various issues have been analysed by applying statistical or analytical tools and techniques wherever required.

METHODS OF FOOD PROCESSING¹⁹

Food processing includes traditional (heat treatment, fermentation, pickling, smoking, drying, curing) and modern methods (pasteurisation, ultra-heat treatment, high pressure processing, or modified atmosphere packaging). Some of the common methods are described below:

Canning

The food is heated to a high temperature. This process is called pasteurisation. Then, the food is packaged and stored in an air-tight can.

Fermentation

The breakdown of sugars by bacteria, yeasts or other microorganisms under anaerobic conditions. This means, no oxygen is needed for the process to take place (apart from oxygen present in sugar). Fermentation is notably used in the production of alcoholic beverages such as wine, beer, and cider, and in the preservation of foods such as sauerkraut, dry sausages, and yoghurt, but also for raising dough in bread production.

¹⁹ <https://www.eufic.org/en/food-production/article/processed-food-qa>

Freezing

Food temperatures are reduced to below 0°C to decrease the activity of harmful bacteria. The process can be used to preserve the majority of foods including fruits, vegetables, meat, fish, and ready meals.

Modified atmosphere packaging

Air inside a package is substituted by a protective gas mix, often including oxygen, carbon dioxide and nitrogen – gases that are also present in the air we breathe. They help to extend the shelf life of fresh food products - usually of fruits, vegetables, meat and meat products, and seafood.

Pasteurisation

Food is heated and then quickly cooled down to kill microorganisms. For example, raw milk may contain harmful bacteria that cause foodborne illnesses. Boiling it (at home) or pasteurising (on a large scale) is crucial to ensure it is safe to consume. Apart from dairy products, pasteurisation is widely used in preservation of canned foods, juices and alcoholic beverages.

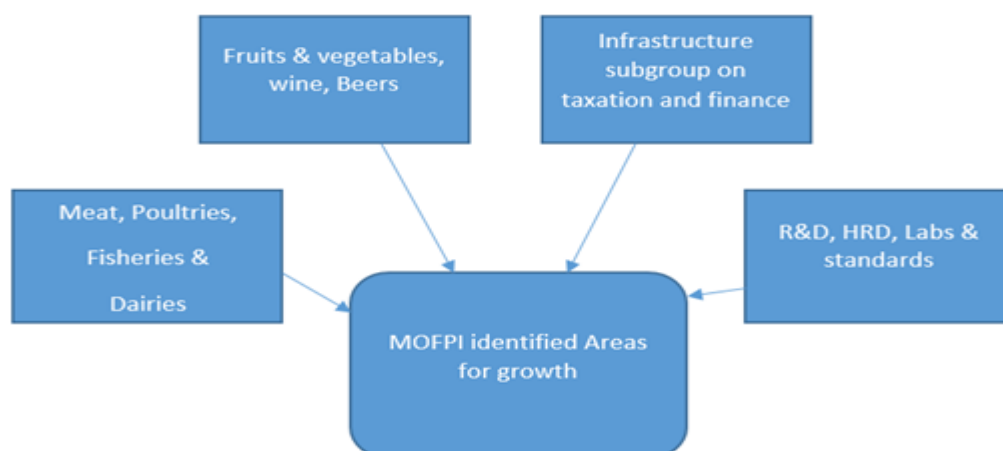
Smoking

A process of heat and chemical treatment of food to help preserve it by exposing it to smoke from burning material such as wood. Smoked foods usually include types of meat, sausages, fish or cheese.

Additives

Food additives play an important role in preserving the freshness, safety, taste, appearance and texture of processed foods. Food additives are added for particular purposes, whether to ensure food safety, or to maintain food quality during the shelf-life of a product. For example, antioxidants prevent fats and oils from becoming rancid, while preservatives prevent or reduce the growth of microbes (e.g. mould on bread). Emulsifiers are used for instance in improving the texture of mayonnaise, or stopping salad dressings from separating into oil and water.

IDENTIFY GROWTH AREA OF FOOD PROCESSING INDUSTRIES



Food Processing Industries in India		
Segment	Components	Level of Processing
Dairy	Whole milk powder, skimmed milk powder, condensed milk, ice cream, butter and ghee, cheese.	35%
Meat and Poultry	Frozen and packed(mainly in fresh form), egg powder.	20% buffalo meat, 6% poultry
Fisheries	Frozen and canned products mainly in fresh form.	8%
Fruits and Vegetables Processing	Beverage, juice, concentrates, pulps, slices, frozen and dehydrated products, potato wafers/chips and similar products.	2%
Consumer Foods	Packaged food, aerated soft drinks, package drinking water and alcoholic beverages.	NA
Grains and Cereal	Flour, bakeries, starch glucose, cornflakes, beers, etc	NA

Source: MoFPI

OPPORTUNITIES/BENEFITS AND CHALLENGES OF FOOD PROCESSING INDUSTRIES

Scope of food processing industry in India²⁰

As per an estimate, India's current food processing industry is estimated at USD 130 Billion and expected to attract huge domestic and foreign investment. Some of the key factors which are likely to increase the demand for processed food and consequently the food processing industry in the coming years are -

- India is a country of over 1.25 billion population. With rising middle class having a considerable disposable income, the domestic market offers 1.25 billion opportunities for the sector.
- India ranks no 1 in the world in the production of milk, ghee, ginger, bananas, guavas, papayas and mangoes. Further, India ranks no 2 in the world in the production of rice, wheat and several other vegetables & fruits. If the surplus production of cereals, fruits, vegetables, milk, fish, meat and poultry, etc are processed and marketed both inside and outside the country, there will be greater opportunities for the growth of the sector.
- Due to rapid urbanization, food habits are changing rapidly towards value-added foods. The change is accentuated by the fact that over 65% of India's population is 35 or under, who are inclined to have processed food.
- Next to China, India is among the fastest growing economies in the world. The recent quantum jump in the ease of doing business ranking of the World Bank (from 130 to 100) indicates the conducive business climate in the country and expected to attract foreign investment into this sector.
- As per an estimate, around 40 percent of total food production is wasted due to the inadequate facilities for transportation, storage, processing and marketing. If these deficiencies are addressed, there is a huge scope for the development of the sector.

The establishment of the new Ministry of Food Processing Industries (MFPI) at the Centre is an indication of the Government's thinking. For the purpose of achieving growth of agro-processing industry in the country the Ministry of food processing was set up in July 1988 to give an impetus to development of food processing sector in the country. The ministry is concerned with formulation and implementation of the policies and plans for the food processing industries within the overall national priorities and objectives. The ministry acts as a catalyst for bringing in greater investment into this sector, guiding and helping the industry, and creating a conducive environment for healthy growth of the food processing industry. The ministry continue to perform its assigned task and act as a prime force for creating strong and effective food processing sector with a view to create increased job opportunities in rural areas, enabling the farmers to reap benefit from modern technology, create surplus for exports and stimulating demand for processed food. In the post liberalization era the role of the ministry has undergone substantial change.

²⁰ <https://www.jagranjosh.com/current-affairs/food-processing-industry-scope-schemes-challenges-1510058722-1>

The significant benefits for different stakeholders involved in food processing are²¹:

Farmer – the farmers gets different benefit from the processing sector. Consumer – the consumer can consume variety of product, new products at lower prices

Companies – the companies are able to get new business opportunities, demand growth.

Government – the processing sector generates both direct and indirect employment and reduces the tendencies of rural migration.

Government Initiatives

To take advantage of the above mentioned factors, the government has initiated the following measures for the development of the food processing sector.

Fiscal federalism in India: Recent measures & Impact

To take advantage of the above mentioned factors, the government has initiated the following measures for the development of the food processing sector.

- Pradhan Mantri Kisan Sampada Yojana (PMKSY): In August 2017, the CCEA gave its nod for the PMKSY. It is an umbrella scheme that incorporates various ongoing schemes like Mega Food Parks, Integrated Cold Chain, Value Addition Infrastructure, Food Safety and Quality Assurance Infrastructure, Infrastructure for Agro-processing Clusters, Creation of Backward and Forward Linkages and Creation and Expansion of Food Processing and Preservation Capacities.

- Mega Food Parks Scheme: It aims at providing a mechanism to link agricultural production to the market by bringing together farmers, processors and retailers to maximize value addition, minimizing wastage, increasing farmers' income and creating employment opportunities particularly in the rural sector. A Mega Food Park entails an area of a minimum of 50 acres and works in a cluster based approach based on a hub and spokes model.

- Scheme of Cold Chain, Value Addition and Preservation Infrastructure: The objective of the scheme is to provide integrated cold chain and preservation infrastructure facilities, without any break, from the farm gate to the consumer. It covers pre-cooling facilities at production sites, reefer vans, mobile cooling units as well as value addition centres.

- Modernisation of Abattoirs scheme: The main objective of the Scheme is a creation of processing and preservation capacities and modernization and expansion of existing food processing units with a view to increasing the level of processing, value addition leading to reduction of wastage.

- Make In India: As part of the Make In India campaign, food processing sector was identified as one of the 25 focus areas. Accordingly, the policy ecosystem has been revamped to attract financial, technological and human resources into the sector.

²¹ https://shodhganga.inflibnet.ac.in/bitstream/10603/74740/9/09_chapter%20no.%2002.pdf

Allowing 100% FDI through automatic route into this sector is also a significant step in this direction.

- **Food Processing Fund:** A special fund in the NABARD worth INR 2,000 crore, designated as the Food Processing Fund, was set up in the FY 2014-15 for providing affordable credit to food processing units in Mega & Designated Food Parks.

The Indian government has formulated an extensive promotion policy and taken a number of initiatives to increase production productivity in food processing machinery manufacturing in India.

Following are the reforms:

- Allowed 100 per cent FDI in food processing comprising sub-sectors like warehousing, storage and transportation for cold chains, trading comprising e-commerce, with respect to food products manufactured and / or produced in India.
- Food processing is recognised as a priority sector in the new manufacturing policy in 2011.
- Set up a special fund called "Food Processing Fund" of approximately US\$300 million in National Bank for Agriculture and Rural Development (NABARD) for extending affordable credit to designated food parks and the individual food processing units in the designated food parks. As on May 31, 2016, about a quarter of the fund as term loan has been sanctioned to 12 Mega Food Parks projects.
- Approved a new Central Sector Scheme - SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) for the period 2016 to 2020. It is expected to facilitate handling of 334 lakh MT agro-produce by the year 2019-20.
- Subsidies in cold storage, dairy business, MSME on procurement of plant and machineries.
- Income tax deduction in the specified businesses.

Challenges

Despite the above mentioned schemes and measures, the food processing sector has been facing the following challenges.

- **Lack of adequate infrastructure:** Though the government has initiated various measures for the development of the food processing industry related infrastructure, they are not sufficient to meet the growing needs of the sector. Lack of cold storages facilities and road and rail connectivity to hinterlands is still a major concern.

- **Credit facilities:** Despite the creation of the Food Processing Fund over a couple of years ago, the sector has been facing a resource crunch. Though the foreign investment has picked up now, it is still doesn't match the requirements of the industry.

- Lack of comprehensive policy: The food processing industry is a sunrise sector. Lack of a comprehensive policy addressing the various needs of the food processing industry is obstructing its growth. The MoFPI should announce the National Food Processing Policy at the earliest to fill the policy vacuum.

High level of wastage of agricultural produces is primarily on account of the inherent disadvantages faced by the sector. This sector is characterized by preponderance of small farmers, small scale & tiny processors, outdated technology, poor infrastructure and a maze of middle men. Therefore, this sector needs support in terms of creation and strengthening of infrastructure which individual farmers and processors will not be in a position to create and sustain. Further, there is also a need for strengthening R&D activities in food processing sector for innovation of technology which suits local needs, popularization of appropriate technology, skill development and creation of an institutional framework supportive of the industry. The major challenges facing the sector are illustrated below:

Conclusion

As per an estimate, India's food consumption is currently valued at USD 370 Billion and is expected to reach USD 1 trillion by 2025. The development of food processing industry is necessary due to the rise in the disposable income in the hands of middle class, changing food habits and rapid urbanization, the changing dietary preferences towards the processed and packaged food. Besides, a well-developed food processing sector with higher level of processing helps in the reduction of wastage, improves value addition, promotes crop diversification, ensures a better return to the farmers, promotes employment as well as increase export earnings. This sector is also capable of addressing critical issues of food security, food inflation and providing wholesome, nutritious food to the masses.

In context with Food Processing Industry, a Food Processing Unit needs to have strong backward linkages with the farmers, farmer producer organizations, self help groups, farmer's groups etc. Further, to be able to sell its processed food, it needs to develop strong forward linkages with wholesalers, retailers, exporters etc.

FINDINGS, SUGGESTIONS AND CONCLUSIONS

Food-processing industry is facing constraints like non availability of adequate infrastructural facilities, lack of adequate quality control and testing infrastructure, inefficient supply chain, seasonality of raw material, high inventory carrying cost, high taxation, high packaging cost, affordability and cultural preference of fresh food.

A well developed food processing industry is expected to increase farm gate prices, reduce wastages, ensure value addition, promote crop diversification, generate employment opportunities as well as export earnings.

Growth of food processing industries would provide expanding demand for farm produce, vegetables, fruits and other greens that would help improve agricultural incomes.

The food processing industry has strong backward linkages with rural economy, as all the raw material is produced by rural people. Hence, any growth in food processing industry, positive or negative will have a direct impact on economy of rural India.

Food processing industry would help in reducing rural urban disparity and ensuring household food and nutritional security for all at an affordable cost.

SUGGESTIONS

Timely supply of raw materials in require quantity should be ensured through establishing raw material banks in specific to particular product group of industries in areas where they are largely concentrated.

Processed foods need to be offered to the consumer in hygienic and attractive packaging, and at low incremental costs

Establishment of modern plants with sophisticated technology would help reduce crop wastage due to seasonal gluts and the perishable nature of farm products.

Integrated cold chain and preservation infrastructure can be set up by individuals or groups of entrepreneurs with 281 business interest in cold chain solutions and also by those who manage supply chain.

Encourage R&D in food processing for product and process development and improved packaging.

The challenges for the food preservation, distribution and processing sectors are diverse and demanding, and need to be addressed on several fronts to derive maximum market benefits. The government and the industry should focus on market needs and try to meet the demand, rather than putting our own production in the market with low realisation.

The State Government should introduced policies for providing subsidised financial incentives in the form of capital subsidy cum loan at starting of the units especially in industrially backward districts.

CONCLUSIONS

The food-processing sector is crucial for the India's development in the era of globalisation, to not only do well on the international front but also to achieve self adequacy on the domestic front. It establishes a vital link between agriculture and the consumer, hence ensuring the manifold growth of the economy. India is the world's second largest producer of food next to China and holds the potential to acquire the numero uno status with sustained efforts.

In recent times the government has rightly recognised that it is essential to promote investment in the food processing sector so as to ensure that it leads to increase in India's share in the global trade of agricultural products, generates employment for large number of people, increases the income of the farmers and contributes to the overall economy of the country. The government on its part has initiated certain reforms to remove legislative barriers and introduce facilitative measures to catalyse private sector activity in food and agri-business sector.

Food processing industries are beneficial to relieve pressure on land, establish linkages between agriculture and industry, increase employment opportunities, improve the economic well-being of rural people by increasing their income, and to prevent migration of rural population to cities, which increase slums.

Though there are many promising dynamics which support good growth of this industry, there are still some significant constraints which, if not addressed sooner, can impede the growth prospects of the Food Processing Industry in India. One of the biggest constraints is that this industry is capital intensive. It creates a strong entry barrier and allows limited number of players to enter the market. Players mean competition which reduces efforts to improve quality standards. Major challenges faced by the Indian food processing industry include: educating consumers that processed foods can be more nutritious; dealing with low price elasticity for processed food products; need for distribution network; development of marketing channels; streamlining of food laws; improving food quality standards and strengthening food testing network; strengthening institutional framework to develop manpower for improving R&D capabilities to address global challenges. These challenges must be addressed to achieve full potential of the Indian food processing industry.

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