
Challenges and Opportunities & the Need of Research & Innovation for Food Processing Industry in India

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Abstract

The agriculture sector in Indian contributes a fourth of the country's GDP and provides employment to approximately two third of the population. However, its potential has not been tapped due to slow development of the food processing sector in India. In view of the existing opportunities and challenges faced by the Indian economy industrialization seems to be the best alternative solution to boost economic growth and rural poverty alleviation. Considering the present level of development Agro based industries will be analyzed in terms of value addition, employment generation, linkage within and outside the economy markets and exports. The value addition contribution of food processing industries is also in line with the level of development of urbanization of the country. The contribution of food processing industries also depends upon the type of agricultural products. World-class institutions for technology, management and entrepreneurship are the critical requirement for the growth of food processing industries, since they would address the gaps in the current Indian scenario by developing world-class managerial talent and entrepreneurship with adequate technical background in food sciences and technology. Increasing importance of food hygiene and safety standards have facilitate new business incubation services that can map the demand and supply trends in the Indian and overseas markets.

Keywords: Food Processing, Opportunities and Challenges, Agro-Based Industries, Research and Innovation, Urbanization.

Introduction: Agricultural sector is a backbone of Indian economy as it covers nearly 50% of available land for agricultural activities. India is basically an agrarian economy and agriculture has continued to play a vital role as a growth engine of the economy. India's food processing sector covers fruit and vegetable, meat and poultry, milk and milk products, grain processing, fisheries, plantation and other consumer products groups i.e. chocolates, confectionery and cocoa products, mineral water, high protein foods, soya based products etc. The most of the sector includes like dairy plants canning, bottling plants, packaging industries, process machinery etc. As well as the other most promising sub-sector includes - soft drink bottling, confectionery, manufacture, fishing, aquaculture, grain - milling and grain based products, meat and poultry processing, alcoholic beverages, milk processing, tomato paste, fast food ready to eat breakfast cereals, food additives, flavors etc. In this way the food processing also depends upon the types of agricultural products. India's food processing sector covers fruit and vegetables; meat and poultry; milk and milk products, alcoholic beverages, fisheries, plantation, grain processing and other consumer product groups like confectionery, chocolates and cocoa products, Soya-based products, mineral water, high protein foods etc.

Objectives of the Study:

- To study the significance of food processing industry in India.
- To know the segments within the food processing industry.
- To analyze the challenges and opportunities of food processing industry.
- To study the catalyst institutes responsible for research & innovation in food processing.

Significance of the Food Processing Industry in India:

India is the world's second largest producer of fruits next to Brazil and next to China in vegetables. The food processing industry is one of the largest industries in India - it is ranked fifth in terms of production, consumption & exports India gets benefited by the food processing industry in terms of increasing exports & also generates employment as well.? Sub - grade fruits and vegetables are also taken care by making proper processing on them. In India the food processing industry is in its initial stage. At present the food processing industry has only 5.2% of the total industrial investment of the country, where as the country provides employment to only 14% of the country's industrial labour. Food processing is a large sector that covers

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activities such as agriculture, horticulture, plantation, animal husbandry and fishery. It also includes other industries that use agriculture inputs for manufacture of edible products. The highest share of processed food is in the dairy sector i.e 37% of the total produce. The sector is expected to attract phenomenal investments of about Rs. 1,400 billion in the next decade. Value addition of food products is expected to increase from the current 8% to 35%.

Segmentations of the Food Processing Industry in India: The segmentation of food processing industry is as follows:

- Dairy - Among the milk products manufactured by organized sector are ghee, butter, cheese, ice-creams, milk powder, malted milk food, condensed milk and infant foods.
- Fruits and Vegetables - The organized sector produces items like juices and pulp and unorganized sectors produced item like pickles, sauces and squashes. The government expects the growth from 10% in 2010 to 25% of the total produce by 2025.
- Grains and Cereals - India produces more than 200 million tones of different food grains every year. All the major grains are like rice, wheat, maize, barley and millets i.e. jowar, bajra and ragi. Our country is self sufficient in grain production and is the second largest rice producer in the world with a 20% of global share.
- Meat and Poultry - In this segments some branded products like Venky's and Godrej Real Chicken are becoming popular in the domestic market. Poultry export from India is mostly to Maldives and Oman. Other markets such as Japan, Malaysia, Indonesia and Singapore are also explored.
- Consumer Foods: This segment comprises bakery products ready to eat like snacks, chips and namkeens. Consumer food industry includes packaged foods aerated soft drinks, packaged drinking water and alcoholic beverages.

Challenges of the Indian Food Processing Industry: Today the Indian food processing industry is facing the following challenges:

- Lack of suitable infrastructure particularly cold chain, packaging centers, value added centers, modernized abattoirs etc.
- Improvement in general infrastructure is also a must requirement for the industry to progress.
- Consumer awareness that processed food can be more nutritious.

- Backward - forward integration from farm to consumers.
- Development of marketing channels.
- Establishment of livestock marketing system.
- Development of co-operative dairy firms.
- Streamlining of food laws.
- Enhancing livestock extension services.
- Development of linkages between industry, government and institutions
- Encouraging private veterinary clinic.
- Promotion of rural backyard poultry in a cooperative marketing set up.
- Taxation in line with other nations.
- Provision of an insurance package to avoid distress.
- The challenges for the food preservation, distribution and processing sectors are diverse and demanding maximum market benefits.

Opportunities of Indian Food Processing Industry: In India agriculture and dairy sector have achieved remarkable successes over the last three and half decades. Besides being one of the world's largest producers of food grains. India ranks second in the world in the production of fruits and vegetables. The following are the opportunities of Indian food processing industry:

- Food processing industry helps increase the ability to export the newly produced fruits and vegetables and the benefits is achieved.
- The Indian food processing industry helps to minimize the losses incurred during food processing.
- Demand for processed / convenience food is constantly on the rise.
- Rapid urbanization, increased literacy and rising per capita income have caused rapid growth and changes in demand leading to tremendous new opportunities for exploiting the large latent market.
- Customers also get enough energy by producing quality fruits and vegetables even in the off season.
- Very good investment opportunities exist in many areas of food processing industries, the important ones being: fruit and vegetable processing, meat, fish and poultry processing, packaged, convenience food, drinks and milk products.

Research and Innovation in Food processing Industry: There are some institutions set up by the Ministry of Food processing Industries (MFPI). This

institutions develops world class managerial talent and entrepreneurship with advance know how in food science and technology. They also work to Increase the importance of food hygiene and safety standards. This institutes collects and disseminates information on national and international market trends for food products and creates environment friendly methods of utilizing the vast biomass in the country and food industrial wastes for increased economic returns of the producers and processors.

Indian Institute of Crop Processing Technology:

IICPT formally known as Paddy processing research center (PPRC) Thanjavur is an autonomous organization under the administrative control of MFPI. It has been in existence for the last decades. It was decided in 2001 to expand the mandate of this institute to include the commodities like pulses & oilseeds also. The mandates of IICPT are:

- Gaining an increased understanding of living organisms with a view to increasing its application in the grain industry.
- Basic, applied and adoptive research and development in post harvest processing, preservation and value addition of cereal grains, pulses, millets and oil seeds, and crops of wet lands and storm prone regions, including plantation, spices and other important crops.
- Research and development for creating environment friendly methods of utilizing the vast biomass in the country and food industrial wastes for increased economic returns of the producers and processors.
- Education and training for creating strong human resource capacities for the food processing industry and academic institutions in the country.
- Training for upgrading the skills of academicians, research students and food processing entrepreneurs and manpower for promoting growth of new food industry and entrepreneurship in the country.
- Consultancy to existing food industries for creation of new food industries for better performance, efficient functioning, and for by-product and waste utilization and effective effluent management.
- Acts as a National Institute for the information generation and flow on post harvest processing, preservation and value addition of foods and to create linkages with related industries, academic and R&D Institutions across the country and around the world.

- Analytical services to food industries and research institutes for testing the food and other organic samples and providing reports on the proximate and ultimate compositions.

National meat and poultry processing board

(NMPPB): The Government of India launched a National Meat and Poultry Processing Board on 19th Feb 2009. The formation of National Meat & Poultry Processing Board has been notified in the Gazette of India Extraordinary vide notification no. 127 dated 20th January, 2009. The mandate of the National Meat & Poultry Processing Board is to oversee the growth and further promotion of Meat and Poultry Processing sector in the country.

National Institute of Food Technology Entrepreneurship and Management:

NIFTEM is the brainchild of the Ministry of Food Processing Industries (MFPI). MFPI in its Vision document-2015, envisaged creation of a world-class institution to cater to the various stakeholders such as entrepreneurs, industry, exporters, policy makers, government and existing institution. NIFTEM would work actively in assisting in setting food standards, businesses incubation and information sharing. It would also be an apex institution in the field of food technology and management, networking and coordinating with other institutions in the same field. NIFTEM have various “theme centers” with the aim of promoting thought leadership and innovation driven practices in the key sector of food processing with strong functional focus. Each theme centre will have world-class manpower and infrastructure for research and training. The theme centers would benefit through long term associations with prominent international institutions, through a faculty exchange programme or joint research initiatives in various food processing areas such as dairy, seafood and wine.

India Grape Processing Board: In faster sustainable development of the Indian wine Industry it is required to focus on research and development, quality standards and to formulate a vision and action plan for the growth of Indian wine sector. To take holistic view and faster sustainable development of Indian wine Industry keeping the above in mind and co-ordinate the efforts of promotion and development of the wine Industry in India. The Board has its headquarters in Pune that in close to the principal grape growing / processing areas in the country.

Vision of India Grape Processing Board

- To focus on Research & Development, Extension, and Quality up gradation, market research and information, domestic and international promotion of Indian wine.
- To foster sustainable development of Indian wine

Industry

- To formulate a vision and action plan for the growth of Indian Wine Sector including research and development for quality up gradation in new technologies/processes.
- To set up facilities for wine analysis, testing for "quality" defining and label standards, certification of wine and promoting Good Manufacturing Practices (GMP)/Hazard Analysis and Critical Control Points (HACCP)/ISO 22000; 2005 etc.
- To provide a platform for the advocacy of Indian wine sector.
- To promote cooperative efforts, backward and forward linkages between growers and wine industry in general.
- Coordinate with premier Research and Development Institutes to identify and develop appropriate root-stock and wine varieties of grapes suited for different geo-climatic regions of India.
- To facilitate capacity building programmes to develop trained and skilled manpower required for the wine industry.
- Collaborate and advise wine-grape growers, wine processing industry, central and state governments on commercial, regulatory and technical issues related to the Indian wine sector, including best practices in viticulture. Also, to gather & make available relevant statistics of the sector including developing effective market intelligence data service for the use of industry and other stakeholders.
- Encourage and foster development of wine making from other fruits etc.

Central Food Technological Research Institute:
Central Food Technological Research Institute (CFTRI),
Mysore (A constituent laboratory of Council of Scientific

and Industrial research, New Delhi) came into existence during 1950 with the great vision of its founders, and a network of inspiring as well as dedicated scientists who had a fascination to pursue in-depth research and development in the areas of food science and technology.

- A model organization for scientific industrial research and a path setter in the new paradigm of Self-financed R&D in the country.
- A global platform providing competitive R&D and high-quality science-based technical services across the world
- A vital source of science and technology for national societal missions which provide a human face to the organization's endeavors.

Conclusion:

It can be suggested that every processing company should take interest and commitment to the creation of farming system that is environmentally friendly. In this way food processing industry can bring fruitful consequences not only in the Indian economy but also in the global economic. The governmental institutes also encourage collaborative research with other National laboratories and agricultural Universities and public private partnership researches and contract researches. Our country has the network of scientific institutions who address problem related to agriculture production and value addition to raw agriculture produce.

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