

# Need Of Food Processing And Technology Management In India

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## INTRODUCTION

Since the time when man first skilled animals and harvested plants, he has been faced with problems of preserving his produce from season to season and from periods of glut to those of famine. Drying is the probably the earliest form of preservation he used and salting is another ancient process. In recent times, processed food products have increased not only because of rise of population but, increasing of production of food grains, fruits, vegetables, dairy, poultry and animal and marine products.

The industries for the agriculture and from the agriculture are referred to as "agro-industries". The industries, which are involved in converting the agricultural produces into foods and feeds through processing, are called 'agro-processing industries'. Since India being an agrarian society, the major portions of processed foods are based on agricultural crops (Shukla, 2001). Selling is a commercial transaction and is nothing but a change of ownership of the farm products. It also determines farm income. In spite of the fact, this importance is overlooked by scientists, engineers and officers concerning farm operations, simply because it is not a technical process. In real sense, the mode of such commercial transaction and post harvest are closely related to each other. The production of agricultural crops is bound to increase in future to feed the ever-growing population of the country. Excess production is required to be converted into edible foods through processing. It will provide life to produce and also improve income of cultivators (farmers) as well as processors. Several produces, like poultry, dairy, fisheries, meat animals, etc., are related to agriculture. Hence, agriculture alone is a big source of food processing industry. Thus, the future of foods processing industry is bright and secure in India.

## PRESENT SCENARIO OF PROCESSED FOODS AND PROCESSING TECHNOLOGIES IN INDIA

The largest crops in terms of area under cultivation are rice, wheat and pulses, although soybeans are the fastest growing crops in terms of new area. The biggest agricultural export items are marine products, oil meals, rice, coffee and spices. Because of the scarcity of land and widely held taboos against eating meat, specially beef and pork, little livestock is raised for slaughter. Mutton from sheep and goats is widely consumed, however, as are poultry and eggs (Shukla, 2002). The Indian agro-based industries are producing and marketing a number of products of international quality like :

- ✿ **Basic Foods** : Packaged Wheat flour, Spices, Edible oil, Sugar, Salt, Eggs, Poultry Meat and Milk;
- ✿ **Bakery Products** : Biscuits, Cakes, and Spreads;
- ✿ **Indian Dairy Foods** : Ghee - butter Oil and Indian Milk Sweets;
- ✿ **Western Dairy Foods** : Ice-Creams, Butter, Cheese, Dairy Whitener, Milk Powder and malted food drinks;
- ✿ **Processed Fruits And Vegetables Products** : Pickles, Fruit Beverages, Fruit Spreads, Ketchup, Sauces;
- ✿ **Convenience Foods** (Chocolates, Sugar Boiled Confectionery, Chewing/Bubble Gum);
- ✿ **Snack Foods** : Traditional Indian Snacks and Western snacks.

Conventional food processing industry is highly decentralized, with most of the units in cottage or small-scale sector.

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In 1989, only 3000 units processed fruits with 30 to 40% installed capacity. Similarly, the oil processing plants (expression type presses) were scattered and a few selected oilseeds were processed. The solvent extraction plants were installed in the country, but due to several reasons, they were also not running on full capacity. Rice milling industries have shown improvements after modernizing of the plants. The recovery of head rice with use of modern rice milling plants has increased. Still, there are several huller types of mills and the losses of head rice are high. Some special type of rice like Basmati requires special attention and needs machines for processing. There are several *Dhal* (split pulses) mills in the country. They are placed in hazardous position and improvement in machinery and environmental condition of the operation place is in very bad shape (Shukla and Devnani, 1994).

The media is playing a big role in the popularization of new products. For example, the demand of soft drinks has increased due to very big publicity and several international players like Coca-Cola and Pepsi have established their plants. They have a very big share in the market. Besides, several indigenous industries have come up with several types of products. Even there has been a demand for the processed food products in the market, but still, indigenous processed food products have to find its place in the Indian as well as the international market. Over the years, the profile of the food processing sector has undergone a sea change. The product such as ready to eat (RTE), snack foods, breakfast cereals, extruded snack food and textural vegetable protein foods have shown tremendous growth during the last two decades. The food processing industries is a big earner of foreign exchange in India. There has been increase in process food industries in organized sector in recent time. In general, there has been an increase in demand and production of all the foods products including traditional convenience foods and snacks mixes. There are 40 units presently registered as manufactures of convenience snack mixed foods and 54 registered units manufacturing ready to eat, fry snack foods including fry potato wafers, French fries.

## **PERSPECTIVES OF FOOD PROCESSING INDUSTRY IN THE COUNTRY**

According to USDA data, the size of the Indian foods market totaled approximately US \$ 138 billion in the fiscal year 1998. Value added and processed food accounted for US \$ 42 billion. In contrast, approximately 90% of the food retail market in the United States is value added processed food. However, this comparison looks a bit odd, as the food habit in India and United States is quite different. The production of processed food in India is also increasing and its market is going up. The average Indian also spends much larger percentage of total income on food. In general, an Indian spends approximately 73% their income on food as compared to only 11% by an American in the United States. The food-processing sector as a whole is expected to grow by approximately 20% per year over the next five years. The demand and supply of the product governs the economy of establishing a new industry. India, with a population of over one billion people, is a country of enormous diversity and diversity translates into a wide range of food preferences, income of individuals, cast-based society, literacy of people, diversity in religions, urbanization of people, environmental zones or living climate of people etc. have direct relation with diversification in food requirements. One of the traits of the Indian produce, which can affect the eating habits, is age. According to a report of economic survey, about 40% of the Indian population is under the age of 15. Increasing life expectancy rates are also contributing to a larger senior population (about 80% over the age of 55). Generation differences can often be translated into eating differences. Older generations prefer traditional Indian foods prepared in a traditional manner. Younger generations, on the other hand, are more likely to experiment with food, particularly western foods, and younger generations are also more likely to consume packaged and processed foods.

Income can also affect the eating habits. A major portion of Indian population consists of people with low individual incomes. India, therefore, is a large, but relatively poor market. Going by the sheer size of the Indian market, it appears to offer promise to food and agriculture companies, but when potential customers by income are considered, the market shrinks significantly. Each segment of the Indian population offers a distinct growth and marketing opportunity for food companies/industries. According to *National Council of Applied Economic Research (NCAER)* finding in 2007, the top four segment of population constitute a market of over 200 million people (about 20% of the population), and should be the target market for branded food and beverage industries. The important factor, which affects the eating pattern in India, is urbanization. The urban population is growing faster than the rural population (27% versus 1.7%), and these expansions of urban population are expected to increase to 4% per year in the next decade. In general, the city residences have more options for eating and thus, have better option of adding economic value to agro-industries. Literacy rate in India is increasing. All the efforts are made in each State to educate the people

providing maximum available facilities. The current literacy rate is 64%, up from approximately 43%. However, in the four largest cities (Delhi, Mumbai, Kolkata and Chennai), the literacy rate is over 80%. Literacy is closely related to income and this can be relating to food habit and requirement.

India is a country having diversified religions and cultures. Food habits are also related with religions. People belonging to different religions have different food habits. There is diversification in food liking state-wise also. All these show that there is big potential of establishing a variety of agro-based food industries, which may be economical in return assets. It has also potential of generating huge employment, and thus helping in raising the standards of living of people. Economy of setting up new industry, especially agro- based industry, is thus, governed by the above-described factors. These factors are an aid to encourage people to invest in such enterprises, which will directly or indirectly have a relation with the economics of the country.

## **FRUIT PROCESSING PLANT FOR CANDIES**

Technology for pilot plant level production of candies / papad from mangoes and papaya has been developed at Central Institute of Agricultural Engineering, Bhopal; Matured mangoes from the local market were purchased. After cleaning and washing, the mangoes were converted into pulp in a pulping machine. The biological loads of mangoes as well as pulp were determined. The pulp was adjusted for required acidity and Brix. Heat treatment for 15 minutes was given to pulp in a baby boiler. Then, the pulp was loaded into a tray dryer, which was already adjusted at the required temperature. Thus, the pulp with initial moisture content of over 75% on wb was dried to 10-12% moisture content (of leather). At the end of drying operation, the leather was taken out from the dryer and was cut into sizes of candy. Then, it was packed into packages. The candies are thus ready for marketing. The packaged candies can be kept safely at room temperature in a dry place for 6 months. Thus, prepared candies have a maximum load of 4.5 N and cutting of 35 on texture analyzer. Sugar content of the candies is about 75%. Protein, fat and ash contents are 2.61%, 0.1% and 2.6%, respectively. The approximate cost of setting such a plant for fruit candies production is worked out to be ₹ 5,50,000/-. The cost of production of mango candies with this plant would be approximately ₹ 80/- per kilogram. The market price of such candies varies between ₹ 120 to ₹ 300/- per kilogram. Thus, the production of fruit candies on a commercial level is a profitable venture.

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