



# Role and Relevance of Food Processing Industry in Bihar with Special reference to Litchi: A Case Study of Muzaffarpur District

• Roma • Sufra • Tanvi Sinha  
• Saroj Sinha

Received : November 2012  
Accepted : March 2013  
Corresponding Author : Saroj Sinha

**Abstract :** *In this day and age, it has become imperative to process and preserve the food being produced in one particular area in order to make it available to people in other areas. This has given rise to the industry of food processing. This paper focuses not only on the role of this industry in the economic development of the country but also tries to explain its various aspects like: problems, prospects, contribution to the economy, government's vision and specifically the contribution of 'litchi' in the food processing industry. In India*

*only 2% of the food is processed compared to other nations, which is an insignificant figure. The industry is the fifth largest sector in the country in terms of production, consumption, export and growth. In Bihar the levels of processing are negligible. Bihar accounts for 75% production of litchi in the country. Hardly 1% litchi is processed in the country. The Shahi variety of Muzaffarpur is famous in the international market. The litchi industry is fuelling the process of growth in the state. It provides both on-farm and off-farm employment. The government has opened up schools for the farmers and is helping the entrepreneurs establish themselves. The government has allocated an outlay of USD 20 billion for the food processing sector. Other strategic initiatives include establishment of mega food parks & cold chain facilities and approval of 51% ownership of foreign retailers in joint ventures. All these positive measures are expected to catapult the food processing sector.*

**Keywords:** Processing, litchi, government, economy.

### Roma

B.A. III year, Economics (Hons.), Session: 2010-2013,  
Patna Women's College, Patna University, Patna,  
Bihar, India

### Sufra

B.A. III year, Economics (Hons.), Session: 2010-2013,  
Patna Women's College, Patna University, Patna,  
Bihar, India

### Tanvi Sinha

B.A. III year, Economics (Hons.), Session: 2010-2013,  
Patna Women's College, Patna University, Patna,  
Bihar, India

### Saroj Sinha

Assistant Professor, Department of Economics,  
Patna Women's College, Bailey Road,  
Patna – 800 001, Bihar, India  
E-mail : [drsarojsinha@gmail.com](mailto:drsarojsinha@gmail.com)

## Introduction:

Food processing involves any type of value addition to agricultural or horticulture produce and also includes processes such as grading, sorting, and packing which enhance shelf life of food products. The food processing industry sector in India is one of the largest in terms of priority with a number of fiscal reliefs and incentives to encourage commercialization and value addition to agriculture produce, for minimizing pre/post harvest wastage, generating employment and export growth. India's food processing sector covers a wide range of products, alcoholic beverages, fisheries, plantation, grain processing and other consumer product groups like confectionary, chocolates and cocoa products, soya-based products, mineral water, high protein food etc. India's food processing sector is widely recognized as a sunrise industry having huge potential for uplifting agriculture economy, creation of large scale processed food manufacturing and food chain facilities, and the resultant generation of employment and export earnings. Change in lifestyle and food consumption patterns and increase in the disposable income are some of the key growth drivers for the industry.

The food processing sector in India is of fundamental importance, holding as it does the vital link between agriculture and industry. The sector is poised for enormous growth and already contributes about 12.7% of the country's GDP and provides nearly 60% of all job opportunities. The industry is the 5<sup>th</sup> largest sector in the country in terms of production, consumption, export and growth. The worth of Indian food processing industry was USD 91 billion in 2010 and is growing at the rate of 14% per annum. By 2015, it is expected to touch USD 175.2 billion (Indian Food Processing Industry).

India is the second largest producer of fruits in the world. It is the largest producer of fruits like mangoes, banana, papaya, sapota, pomegranate etc. Mango is the most important commercially

grown fruit crop of the country. It is estimated that 0.22% of mangoes produced in the world is only utilized for processing. Green mangoes are processed into traditional products like pickle and chutney. Ripe mangoes are processed into canned slices, pulp, nectar and juice, dehydrated products like mango, fruit, bar, mango cereal flakes, mango powder etc.

Bihar being the largest producer of litchi in India, its production and processing has a wide scope here. According to the Directorate of Horticulture (DoH) database, Litchi is produced in 27 districts in Bihar. Muzaffarpur is the largest litchi producing district with a production of 56,006 MT followed by Vaishali at 26,498 MT and Sitamarhi at 15,518 MT. West Champaran, East Champaran and Katihar are other three districts having production of more than 10,000 MT (Economic Survey of Bihar, 2012).

## Objectives:

The research project will be undertaken with the following objectives:

- To know the present status of the food processing industry in Bihar.
- To analyse the food processing units and the procedure undertaken by them.
- To know the share of food processing industry in Gross State Domestic Product (GDSP).
- To study the employment opportunities generated due to the food processing industry.
- To identify the constraints in profitability of litchi growers, exports of litchi and litchi processed products.

## Hypotheses :

The following hypotheses were taken :-

- The food processing industry has a major share in the Gross State Domestic Product (GSDP).

- The litchi industry is a major employment generating industry.
- The food processing industry has a prominent role in improving the standard of living of the people engaged in the cultivation of fruits.

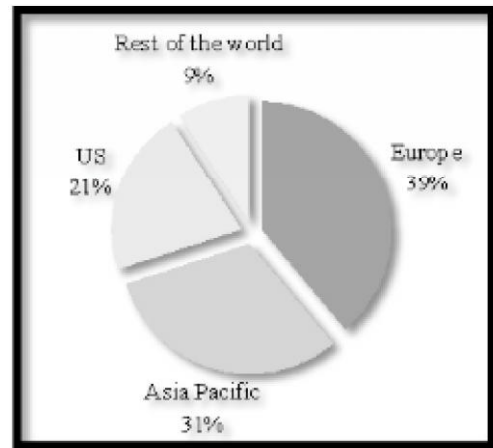
**Methodology :**

The study was basically evaluative where primary and secondary data were used. Data was collected mainly from the relevant processing orchards, past statistics, books, and journals. The study methodology could be discussed under three heads: design of the study, data collection & analysis and reporting.

- Design of study:-Designing the study is the first and one of the most crucial stages of the resource mapping exercise. This involves identification of the survey area, finalizing the blocks to be studied, sample size and sampling methodology.
- Data collection:-Collection of primary and secondary data- personal survey with the help of questionnaires.
- Sampling
- Method of data analysis:-
  - Bar diagrams
  - Tables
  - Pie charts

**Structure of food processing industry :**

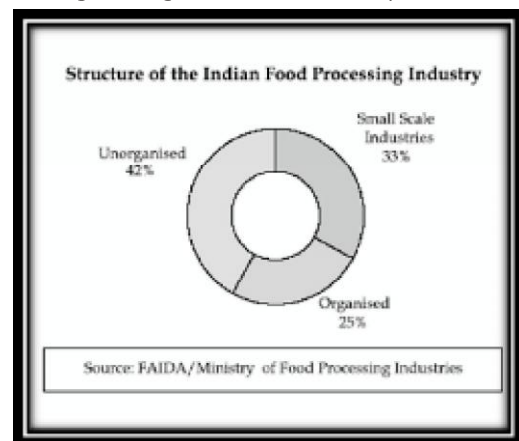
The global processed food industry is estimated to be valued around EURO 2.5 trillion and accounts for three-fourth of the global food sales. The global food industry is ever changing and evolving. However, health, convenience and value continue to be the key value propositions in this industry.



**Share in Global Food Industry**

Europe accounts for 39% of the global food industry, the Asia Pacific region for 31%, US for 21% and the rest of the world accounts for 9% of it.

The food processing sector in India is highly fragmented industry, it widely comprises of the following sub-segments: fruits and vegetables, milk and milk products, beer and alcoholic beverages, meat and poultry, marine products, grain processing, packaged or convenience food and packaged drinks. A huge number of entrepreneurs in this industry are small in terms of their production and operations, and are largely concentrated in the unorganized segment. This segment accounts for more than 70% of the output in terms of volume and 50% in terms of value. Though the organized sector seems comparatively small, it is growing at a much faster pace.



**Why food processing in India?**

In this day and age it has become imperative to process and preserve the food being produced in

one particular area in order to make it available to people in other areas. This has given rise to a very important industry of food processing which is being done both on a large scale as well as on a small scale. India is the highest producer of milk in the world at 90 million tones per annum. With an arable landmass of 184 million hectares, it is the second largest producer of fruits and vegetables (150 million tones per annum) and the third largest producer of food grains and fish. 35 % of milk is being processed while the level of fruits and vegetables processing is as low as 2% which in comparison to other countries is an insignificant figure. Only 2% food is processed in India and only 2% of processed food is being exported. India currently ranks at the bottom for processed food sector. The Indian food processing sector has a huge potential which is still to be tapped (Business World).

#### **Ways of food processing:**

There are various ways of food processing and preservation such as drying, smoking, freezing, vacuum packs, salting, sugaring, pickling etc. Benefits of food processing include toxin removal, preservation, easing marketing and distribution tasks, and increasing food consistency. In addition, it increases seasonal availability of many foods, enables transportation of delicate perishable foods across long distances and makes many kinds of food safe to eat by de-activating spoilage and pathogenic micro-organisms. On the whole it alleviates the taste of the food.

#### **Food processing industry of Bihar:**

Bihar's diverse agro-climatic conditions translate into diverse crops suited to different agro-economic conditions. Coupled with the fact of ever growing population with an increasing purchasing power and changing life style, the state thus offers an immense opportunity to establish wide range and big number of food processing units. More importantly, it can avail of the benefits of increasing

stress on the food processing sector at the national level. This can give the state at least a level playing field, if not a head start, in food processing provided certain critical interventions are undertaken.

In Bihar, the level of processing is negligible barring the dairy industry where the level of processing is between 9–10 per cent. The low levels of processing are a combination of complex issues including Bihar's Investment Climate (IC), traditional demand for fresh produce, infrastructure constraints, weakness of local factor markets and institutional support. The major food processing activities in the state are milling and milk processing. Currently, there are 58 roller flour mills (about half of them closed), 4,872 (3.5 per cent of total rice mills in India) rice mills (comprising 4,749 hullers, 63 shellers, nine huller cum shellers and only 51 modern cum modernised mills). There are 45 licensed fruit and vegetable processing units (0.7 per cent of the all India units). The food processing in Bihar today is mainly in the unorganised sector with over 1,000 bakeries and confectioneries and even small-scale grain processing continuing in the unorganised sector. The estimated growth rate of food processing sector in Bihar during the last two to three years has been 3.46 per cent as compared to an all-India figure of about seven per cent. The potential processing opportunities in Bihar are for cereals (rice, maize, pulses and oilseeds), fruits and vegetables (mango, litchi, guava, banana, makhana, amla, tomato, potato, chilly, peas) (Food Processing in Bihar).

#### **Problems of food processing industry:**

While the food processing sector offers several opportunities, it faces constraints as well:

- Low income and the high share of basic food in the household consumption.
- Socio-cultural factors such as preference in India for freshly plucked / cooked food, variation in food habits across the country,

easy availability of raw materials for cooking, preference for consumption of food at home, etc.

- Low productivity, high wastage.
- Inadequate infrastructure for sorting, grading, packing, etc., in addition to the high cost of raw material (at processor's level).
- Lack of trained manpower for processing, storage, marketing and branding.
- Lack of access to modern technology.
- Low share of sale of food products through organised retail, which are the usual drivers of quality, scale and integration.
- Access to credit for farmers as well as small and medium food processors is a key issue. Over 75 per cent rely on informal credit at very high interest rates leading to increase in cost of production affecting competitiveness.
- Inability to attract investment by large corporate houses who complain of unreliable sources of supply of raw material.
- Inability to induce investor confidence.
- Low inflow of Foreign Direct Investment (FDI) despite permission for 100 per cent FDI in the food processing sector (except in food retailing, alcoholic beverages and plantations)
- Inability of government schemes to have the desired impact on productivity, technology and market arrivals.

#### **Vision 2015:**

##### **Central Government**

The government of India is lavish on the growth of processed food sector. Under the 2015 outlook and opportunities the government's

#### **specific targets are to increase:**

- The level of processing of perishables from 6 per cent to 20 per cent
- Value addition from 20 per cent to 35 per cent
- Share in global food trade from 1.5 per cent to 3 per cent by 2015

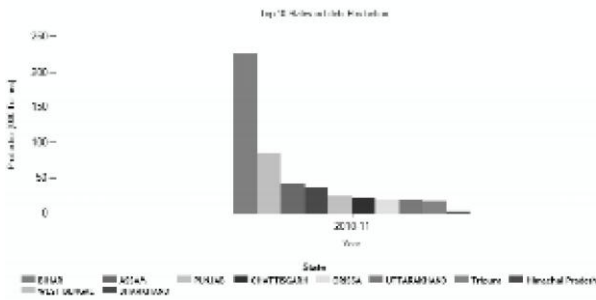
Vision 2015 for the promotion of Food Processing Sector in the State brought 2 schemes:

1. Scheme for integrated development of food processing sector.
2. Scheme for Food Parks (Times of India).

**The litchi industry:** The litchi plant is believed to have originated in China and it was introduced in India through Burma. India and China account for 91% of the world litchi production but it is marketed locally. Major litchi producing countries are India, China, Taiwan, Thailand, South Africa, Madagascar, and Australia and Florida (USA). Authentic data on production of litchi is not available. However, total production is estimated around 6 to 6.5 lakh tones.

The litchi is an evergreen sub-tropical fruit. Its harvesting season in India starts from mid April and continues up to end of June. Almost 14 varieties of litchi are cultivated. Of which China and Shahi are the best.

Litchi is cultivated in various states of India which are Bihar, West Bengal, Assam Punjab, Chattisgarh, Uttarakhand, Himachal Pradesh, Tripura and Jharkhand, Haryana, Orissa, Sikkim, Nagaland. The graph in Fig 1.1 shows the top 10 states in terms of litchi production in the year 2010-11. As evident from the graph Bihar is the highest producer of litchi in the country. In the year 2010-11 Bihar produced 226.98 thousand tones of litchi which accounted for 45% of the country's production.



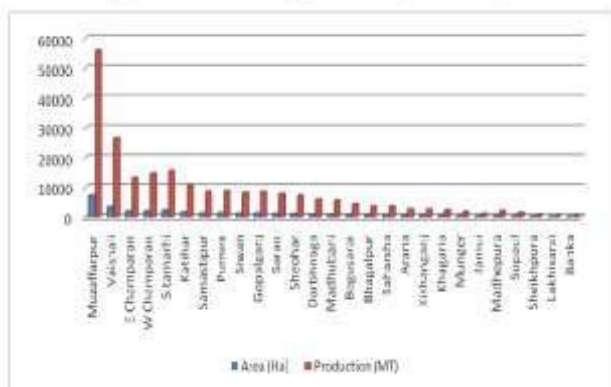
Source: Agiexchange APEDA

Fig. 1.1

The quality of litchi produced in Bihar has found acceptability in international market. However, Bihar has been unable to tap the vast potential of both domestic and export market due to various constraints. In the global market India accounts for hardly 1% litchi trade.

Bihar has a geographical climate suitable for the cultivation of litchi. The fig 1.2 below shows the various districts where litchi is produced it is evident from the graph that Muzaffarpur is the highest producer of litchi in Bihar.

Figure 1.1: Districts Producing Litchi in Bihar (Year: 2007-08)



Source: Directorate of Horticulture, Bihar

Fig. 1.2

National Horticulture Board database shows a declining trend over a decade in volume of production and almost constant trend in area of cultivation for litchi in Bihar. While the area under litchi cultivation slightly increased from 23.5 thousand hectare in 1996-97 to 29.8 thousand hectare in 2007-08, production fell by almost 20% from 282 thousand MT to 223 thousand MT during

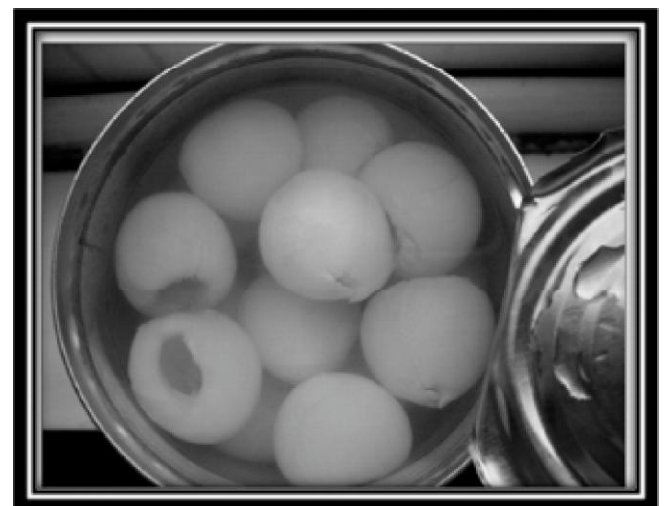
this period due to decrease in productivity from 12 MT per Ha to 7.2 MT per Ha.

According to the survey estimates, about 80% of litchi produced in the state is marketed out of the state. Major markets are Delhi, Lucknow, Kanpur, Varanasi, Mumbai, Chandigarh, Kolkata and Bangalore.

Muzaffarpur is suitable for the cultivation for both China and Shahi and the Shahi variety is internationally famous as 'Muzaffarpur Litchi'.

**Litchi processing:**

Litchi has a short storage life hence it has huge potential for processing. Processing of litchi would increase its shelf life and its optimization value. Various litchi products are litchi pulp, canned litchi, litchi piece, litchi juice, litchi squash, litchi wine, litchi jam, litchi jelly, litchi nut etc.



**Canned Litchi**

Bihar being a major producer and exporter of litchi, its processing has much scope in Bihar and therefore an important topic to be studied. There are five litchi processing units in Bihar. They are Litchika International, Shyama agro- industry, Premier Food Products, Thakur Litchi Industry, Radha Krishna Impex Pvt. Ltd.

### **Case study:**

Litchi is one of the major produce of Bihar. We chose 'litchi' for our case study as the litchi industry is a booming industry with huge potential. It can be made to help channelise growth in Bihar.

### **Profile of the organisation:**

For our case study we chose the two subsidiaries of the Kedia group i.e Radha Krishna Impex and Unique Foods both of which are situated in Muzaffarpur. The Kedia group ventured into the litchi industry in 1995. Starting with a miniscule capital of 1 lakh, they today have a turnover of about 100 crores. During the initial period they only engaged in the trade of fresh litchis but later on diversifying themselves they entered the litchi processing industry. Their different litchi products are litchi pulp, canned litchi (destined litchi dipped in sugar syrup), litchi pieces (to be used in ice-cream) and litchi confectionary. The Radha Krishna Impex caters to the demand in the international market while Unique Foods take care of the domestic demand. Some of the clients of Unique Foods are Dabur, Pepsico, Parle Agro., Hindustan Unilever etc.

Initially the production was labour-intensive, employing 400 workers mainly women under four supervisors. After mechanization they today employ about 30 permanent and 200-250 casual workers seasonally. They provide the grassroots level farmer assistance in farming. They provide the farmers with technical know how for better productivity, better quality seeds, physical capital such as tractors, pumpsets etc. although they deduct the cost of fertilizers/ pesticides from the remuneration. They thus make a positive impact on the socio-economic framework of the area uplifting the marginalized farmers. The various problems and limitations encountered by the litchi processing unit are:-

- High perishability and short harvesting season.
- Infrastructural loopholes: roads and railways and absence of cold chains.
- Dearth of skilled labour.
- Paucity of funds.
- Lack of post-harvest research in this field.
- Risk of bad plantation.
- Decline in certain products sales in off-season.
- Delays in stock disposal due to potential hazards.

### **Government measures:**

Lately the government engagement has been encouraging of displayed by both central and state government. They have come up with innovative reforms and measures to help promote the litchi processing unit. Under the vision 2015 scheme for food park, the State Government has provided them with a 5 crores waiver and 35% capital subsidy. It has also helped them with the setting up of the plant. They are also in close correspondence with the national litchi research centre at Rahua, Muzaffarpur though it has not been of any significant aid. The company has acquired the export license through APEDA and has even got significant aid from the same.

### **Findings:**

- The litchi processing industry has a huge potential to grow and can be brought forth as brand Bihar.
- At the micro-level, the litchi processing unit help farmers to get a better produce y educating them of the better techniques of production to enhance productivity.
- The export market has a huge potential to grow. India accounts for only 1% of the global litchi trade which is an insignificant figure.

Muzaffarpur litchi enjoys a special status in the international market but the export market remains untapped.

- The research work done for litchi processing is very insignificant. In the year 2001 the national research centre for litchi was established at Muzaffarpur. Till now no research paper has been published and their main focus is research on pre harvest management and not on post-harvest management and processing.

### Conclusions:

Bihar has plenty of natural resources that provide it a competitive advantage in the food processing industries. Due to its climate conditions it has a wide ranging and large raw materials base appropriate for food processing industries. Bihar is not a land of fewer opportunities, but we can say that it is a land consisting of people with less will power. Bihar has much fertile land and there are lots of opportunities for food processing. Hence we come to the following conclusion:-

- Food processing sector is an employment generating sector : the food processing industry is basically a labour intensive industry. Therefore, rate of employment generation is higher than any other industry. Secondly, food processing industry also serves as an alternative for employment generation as other sectors have failed to do so.
- Increase in standard of living : from our analysis we conclude that the standard of living of people engaged in processing and production of fruits and vegetable have increased. As seen under the case study the processing unit helps the farmers in uplifting their socio-economic framework.
- The food processing sector can contribute a significant share in the

growth process if channelized in the right direction : the food processing sector is a sunrise industry and if given proper inputs it would yield great results which will not only enhance the industry itself but will also help in the growth process.

The problems of the food processing industry should be taken up seriously and remedied accordingly such as development of cold chains, betterment of infrastructure and law and order, involvement of banks to ensure availability of funds, refinement of the traditional equipments etc.

### References :

- Economic Survey of Bihar 2012*, Government of Bihar.
- Food Processing in Bihar, the Road Ahead* prepared by IL&FS for the Government of Bihar.
- Litchi Resource Mapping 2010* submitted to State Horticulture Mission, Bihar.
- Indian Food Processing Industry- Opportunities and Outlook 2012* Gyan Research and Analytics Pvt. Ltd.
- Business World (magazine)-August 27<sup>th</sup> issue.
- Biharprabha- 22<sup>nd</sup> Dec, 2011.
- The Tribune- 14<sup>th</sup> June, 2009.
- The Times of India- 20<sup>th</sup> Feb, 2012
- Business wire (Dublin) - 28<sup>th</sup> Sep, 2012.
- [www.apeda.gov.in](http://www.apeda.gov.in)
- [www.mofpi.nic.in](http://www.mofpi.nic.in) (ministry of food processing industries)
- [www.agriexchange.apeda.gov.in](http://www.agriexchange.apeda.gov.in)
- [www.indianbusiness.nic.in](http://www.indianbusiness.nic.in)
- [www.agricoop.nic.in](http://www.agricoop.nic.in)
- [www.wikipedia.org](http://www.wikipedia.org)
- [www.gyananalytics.com](http://www.gyananalytics.com)