

# 1

## Food Processing Equipment Sector

### Introduction

The Indian food processing industry is a high priority sector and is poised for excellent growth in the coming years. The Government of India has adopted a major policy decision for commercializing agriculture and developing the food processing, preservation and packaging sectors. India is among the leading producers of sugar, tea, milk, fruits and vegetables. Agricultural production and food processing account for **30 percent** of India's GDP and employs more than 70 percent of its workforce. India's total food market is estimated at USD 51 billion, of which USD 16.3 billion is the share of the value added food products.

The food-processing sector is rapidly being transformed into a high-volume industry. A distinct shift is seen among consumers for packaged food items. Over 40 percent of all packaged goods consumed in urban areas are foods and beverages. According to a recent study, nearly 200 million people will move from subsistence foods like cereals and pulses to basic products that demand more processing like packaged dough and packaged homogenized milk. This will offer new opportunities in the high-growth, mass-based and high-volume markets such as the USD 10 billion processed milk industry, the USD 7.5 billion poultry industry, the USD 4 billion packaged dough, and the USD 3 billion bakery products sector.

*With the food processing sector being identified as a high priority industry in India, the equipment sector is also gaining importance.*

India is the world's second largest producer of food but the processed food industry in the country is still relatively small and its business potential remains untapped. The growth potential for the food business in India is however substantial due to factors like changing food consumption patterns, and increased spending on value-added food products, spurred by increases in income levels, rapid urbanization, increasing number of women joining the workforce, and, changing lifestyles.

The technology available in India in the agro-food processing equipment sector is not much advanced when compared to the developed countries. In India, the major thrust in research and development in the agri-food sector has been on the processing of food rather on developing equipments in this sector. Most of the technologies available in the equipment sector which could be considered as globally competitive fall in the category of pre-harvest technologies. But now, with the food processing sector being identified as a high priority industry in India, the equipment sector is also gaining importance. Major research and developments are taking place in the equipment sector as a consequence of the thrust is the food processing sector as a whole.

# 2

## Food Processing Equipment:

### World Scenario

The complexity of the food processing and packaging equipment industry should be seen in relation to the vast, multi-dimensional food industry. The number of food products available across the world (including processed) is very high. New food products with an estimated figure of 50,000 have been introduced in the US itself since 1983. Such is the complexity of the food processing industry. Hence, it is very difficult to give a comprehensive definition to the food processing equipment sector. It is however understood that in today's scenario, where food processing has become very important, it is imminent to understand, classify and promote the food processing equipment sector, worldwide.

The food processing equipment industry is even now very much predominant in the developed countries. Most of the equipment manufacturers cater to the domestic markets. Major equipment manufacturing countries in the world are Germany, Italy, Netherlands, Denmark, US, Japan and Australia. These countries are also the major exporters of food processing equipment. The reason for this dominance is due to the technology development in these countries. The contribution of the developing countries to the world trade is negligible, the prominent reason being the non-availability of technology and dependence on the developed world for these technologies. In fact, the equipment manufactured in these countries is being used by India's food processing Industry.

*The food processing equipment industry may be grouped as*

- *Processing machinery and equipment*
- *Packaging machinery and equipment, and*
- *Utilities*

The food processing equipment industry may be grouped as follows:

- Processing machinery and equipment
- Packaging machinery and equipment, and
- Utilities (include all other machinery and equipment used to clean/ purify air, water etc)

The equipment industry is also dependent on the nature and degree of processing and also the stage of processing of food. The above grouping of the sector gives a broad outline about the sector. Most of the technologically advanced countries have categorised this sector depending on the industries existing in these countries. Given below are two examples of categorisation of equipment:

### **Germany**

- Packaging machines for foods
- Packaging machines for beverages
- Bakery machines
- Machinery for large kitchens, restaurants and hotels
- Coffee, tea and tobacco processing machines
- Slaughter house and butcher's machines and equipment
- Beverage processing machines
- Confectionery machines
- Preserving machines
- Mills and grinding plants
- Machines for sugar industry

- Universal sieving and mixing machines
- Sheet metal box manufacturing machines
- Food processing machines
- Dryers
- Other machines
- Components and parts

## United States of America

### **Meat, Poultry and Egg Processing Equipment**

- Tenderisers
- Compactors
- Disintegrators
- Moulding machines/ presses
- Poultry equipments
- Frozen meat flakers/ sheers/ cubers
- Bone saws, choppers and machines
- Power cleavers
- Sausage stuffing machine
- Slaughtering equipment

### **Dairy products manufacturing equipment**

- Butter making machine
- Cream extractors
- Homogenisers
- Pasteurisers
- Sterilisers

- Dryers for powdered milk
- Condensed / evaporated milk equipment
- Milk clarifiers
- Cheese making machines
- Ice cream equipment

**Fruit and Vegetable processing equipment**

- Trimmers
- Stemmers
- Snippers
- Huskers
- Juice extractors
- Peelers
- Shelling machines
- Pulpers
- Separators
- Graders
- Continuous blanchers/ cooker
- Coolers/ steriliser system
- Dehydrating equipment
- Pit removing equipment
- Destoners
- Washing machines
- Shredding / grinding / chopping machines
- Strip / cutters/ slicers

### **Grain mill products manufacturing equipment**

- Flour mill disintegrates
- Graders
- Husking / hulling machines
- Hoppers
- Cereal rolling machine
- Flour/ bran blending equipment
- Creaming machine
- Flake machine
- Grinders
- Rice polishing machines

### **Bakery products**

- Bread making machines
- Biscuit filling machine
- Dough mixing / kneading/ dividing/ rounding / proofing machine
- Enrobing machine
- Biscuit / wafer/ cracker machine
- Cake depositing, icing machines
- Continuous process ovens
- Conventional ovens
- Sugar and confectionery products

### **Sugar and Confectionery products**

- Crystallizing apparatus
- Cane defibrators

- Juice extractors
- Sawing and breaking machines
- Roller mills
- Dipping machines
- Cocoa bean husking machine
- Form presses
- Tableting machines
- Pulverisers
- Filter presses
- Enrobing machines
- Pulling machines
- Chewing gum equipment

**Fish and sea foods**

- Filtering machine
- Scaling machine
- Shelling machine
- Grounding machine
- Opening machine

**Miscellaneous**

- Pasta extruders/ dryers
- Coffee mills/ grinders/ binders/ toasters
- Snack food extruders



### **Forming, filling and sealing equipment**

- Thermoformers
- Moulders
- Heat sealers
- Can making equipment
- Can closers/ sealers
- Seam testers
- Fillers of all type
- Cutting / slitting / trimming equipment
- Typing / sieving/ stappling equip
- Closing / sealing equip
- Form / fill/ seal equip
- Cappers/ crumpers/ hooders

### **Wrapping and packaging equipment**

- Wrappers
- Cartoners
- Multipackers
- Bundlers
- Shrink wrappers and tunnels

### **Marking and inspecting equipments**

- Labellers
- Coding equipments
- Check weighers
- Metal detection equipmenr

- Level checking equip
- Code/ lable inspecting equip
- Printing equipment

**Containers/ package preparation and handling equip**

- Unscrambers
- Palletisers
- Bottle spotters
- Aligners
- Container cleaning/ washing/ drying systems
- Accumulator/ collectors
- Feeding/ orienting equipment
- Unloaders, stackers

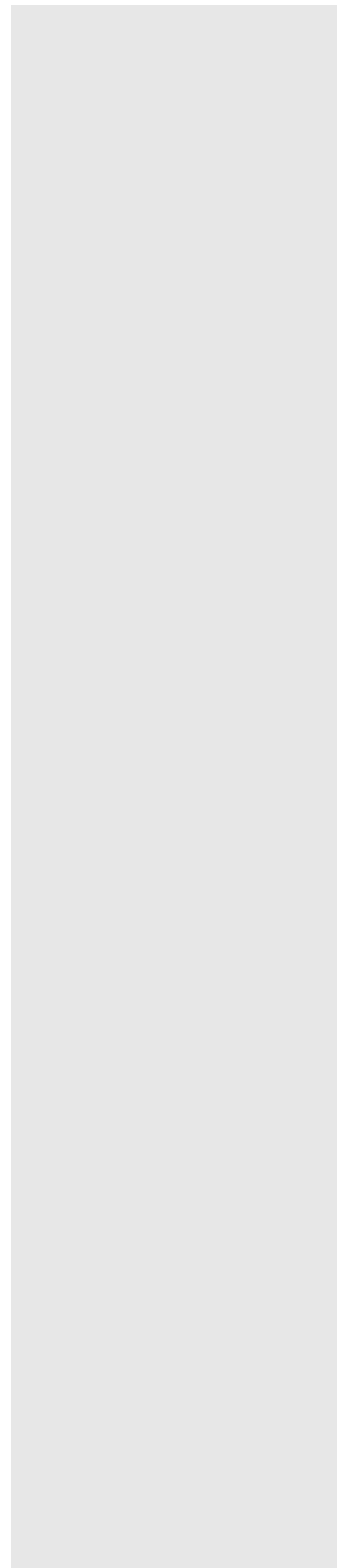
**Refrigeration/ quick freeze equipment**

- Liquid nitrogen tunnel freezers
- Blast freezers
- IQF systems
- Compressors, condensers/ evaporators
- Refrigerator milk cooling tanks

**Food preparation, processing and control equipment**

- Heat exchange process system
- Cookers
- Microwave ovens

- Continuous mixtures
- Continuous blending/ whipping/ chilling units
- Aseptic systems
- Sterilising systems
- Aerators and de-aerators
- Blenders
- Essence recovery stem
- Continuous online color control system
- Magnetic separators
- Recording thermometer for time/ temperature/ cook cycles
- Texture testers
- Pumps
- Valves
- Tanks
- Conveyers
- Automatic feeders/ flow controllers
- Can control equipments





# 3

## Technology Status in India

The technologies available in India in the agro-food processing equipment sector is still in the learning curve when compared to the developed countries. There has been a net inflow of equipments from Europe, especially from Sweden, Denmark, Germany, and Czechoslovakia and also from Australia. The presence of companies like Alfa Laval is a proof enough which further strengthens this hypothesis that India has been a net importer of technology in the equipment sector. In India, the major thrust in research and development in the agri-food sector has been on the primary processing of food rather on developing equipments in this sector. There has been pioneering efforts put forward by the CFTRI, IARI, DRDL, Post-Harvest Technology Centre (PHTC, IIT Kharagpur) and DFRL. These laboratories have been fairly successful in developing innovative equipment in the agro-food processing sector. Most of the technologies available in the equipment sector which could be considered as globally competitive fall in the category of pre-harvest technologies. Since this sector is quite large, the scope of this report does not allow us to cover the entire gamut of technologies available in India, and hence a comparison of technologies available worldwide would be difficult.

### Food Processing Equipment Sector in India

The total market size of food processing equipment sector in India is estimated at USD 1571 million. The estimate is considering only the organised sector. There has been a steady increase in two size of market and the overall growth of Indian market averaged 25%, considering the four years, few year 1997 to 2000.

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*The packaging industry in India is a heterogeneous mix of both organized and unorganized sectors. The industry comprises of a large number of manufacturers of basic materials, converted packages, machinery and ancillary materials.*

*the market is expected to grow at an average annual growth rate of 10 percent over the next five years.*

In the year 2000, India exported 5.56% of food processing equipments out of total domestic production, while 25.4% of total equipment in the Agro-food processing equipment sector was imported. USA is the largest equipment exporter to India with USD 120 million worth of exports of equipment to India.

Annexure 1 gives the growth of food processing equipment sector in India.

The following are the broad categories in the agro-food processing equipment sector : food packaging equipments, food preservation machinery and fruits & vegetable processing equipment.

### Packaging Equipment Sector

The packaging industry in India is a heterogeneous mix of both organized and unorganized sectors. The industry comprises of a large number of manufacturers of basic materials, converted packages, machinery and ancillary materials. Domestic demand for packaging has been anticipated to grow by over 100 percent within the next 5 years. Recognizing this trend, the industry is gearing itself to adopt scientific and functional packaging.

During 1998, the total Indian market for packaging equipment amounted to USD 77 million. It increased to USD 86 million in 1999 and the market is expected to grow at an average annual growth rate of 10 percent over the next five years.

In India, packaging machinery manufacturers find most of the demand for their products in the food processing sector.

Approximately 50 percent of the packaging machinery and materials produced is absorbed by the food processing sector, personal products (10 percent), the tea and coffee industry (10 percent), and industrial products account for the remaining portion of the demand.

Another factor, which has provided substantial stimulus to the packaging machinery industry, is the emphasis on the rapid growth of exports. The export policy has been placing emphasis on value-addition. With this, the need for adopting better packaging methods, materials and machinery to ensure quality, has become very urgent for Indian food products in the international market, which demands high quality standards.

The packaging machinery manufacturers, packaging material producers and processed food manufacturers are integrating their efforts to meet the future needs of the rapidly developing domestic and export markets.

Imports of packaging machinery to India is currently estimated at USD 75 Million (2000 estimates). Indian imports of packaging equipment for food processing consists mainly of highly automated advanced machines and systems. The major equipment suppliers to the Indian market include Germany (with a 42 percent share), Italy (20 percent Share), the U.S. (10 percent), Switzerland (8 percent), and others including Taiwan (the remaining 20 percent).

The unorganized sector represents the larger opportunity, given the increasing quality-consciousness of end customers. The cost of equipment, smooth upgradation and

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lower processing costs hold the key to success in this segment. Large companies, primarily the Multinational Corporations (MNCs), which comprise another segment would be guided for the choice of such equipment by the global policies and standardization of their parent company. The organized segment, which caters to the major food processing companies are most conscious about quality and the ability to produce various packaging products, thereby enabling them to address a larger market.

Until recently, fresh produce or processed food was not linked to Packaging in India. The level of food processing in India is very low. By and large, Indian consumers prefer to purchase food items in fresh form. Processed food is less popular, unlike the trend in other countries. Many Indians perceive that processed food reduces food value and that processing and packaging increases their cost. It is only recently that the importance of packaging for processed food has gained ground due to growing consumer awareness and the willingness to pay for value-added and hygienic products. An increase in exports and stringent export market requirements has also contributed to the trend.

As packaging becomes an important link in the food processing chain, so does the need for proper packaging machinery and systems for food processing. Currently, there are a very few companies in the organized sector that manufacture packaging machinery for processed food. Besides companies in the organized sector, there are also a number of firms in the unorganized or small-scale sector that manufacture a range of packaging machinery.



The food processing industry has contributed in a major way to the growth of the packaging industry. According to the Indian Institute of Packaging (IIP), only 1.5 to 2 percent of India's total processed food is packaged compared with 70 percent in western countries.

Industry experts believe that even if 5 to 10 percent of the processed food were to be packaged, by the year 2005 the size of the food packaging equipment market would be well over USD 90 Million. This could translate into significant growth opportunities for this sector.

Several multinationals have entered the Indian food-processing sector, the oldest being Nestle of Switzerland and Brooke Bond Lipton of the Unilever group. Over the last few years, U.S. Companies such as Coca Cola, Pepsi Foods, Kellogg's, Pillsbury, Sara Lee Bakery, Heinz, and Del Monte, have established a presence in India through their manufacturing ventures. Other major foreign food companies that have entered India include Mc Cann Foods of Canada, and Whyte & Mackay of the U.K.

Increasingly, new forms of packaging for processed food are being produced in India. Shrink and stretch films and laminates, thermoformed containers, PVC shrink labels, leak proof composite containers, bag-in-box, laminated cartons, tetra packs, PET bottles, multi-layer film containers, poly-packs, and retortable pouches are some of the packaging materials and forms that are available.

Other developments in the packaging of processed food include high barrier plastics, aseptic processing and packaging, gas flush vacuum packaging, map-cap edible films and coatings, thermoform packs, 2-piece tinfoil cans,

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light weight glass containers, stretch blow and co-extruded bottles.

Packaging machines such as automatic form-filling and sealing machines, Tetra Pak aseptic packaging machines for sterilized filling and packing of liquids, testing instruments, and can making machinery offer considerable business opportunities. The Indian packaging machinery manufacturers in the unorganized sector mostly fabricate general-purpose equipment to serve the basic needs of the industry.

In collaboration with the Indian Institute of Packaging (IIP) in Mumbai and The Central Food and Technological Research institute (CFTRI) in Mysore, the Government of India's (GOI's) Ministry of Food Processing, has taken up various projects for developing the packaging of processed foods. One of the prominent projects is the production of aluminum cans for packaging food products.

CFTRI and IIP are developing standards for packaging fruits, vegetables, meat and dairy products in cans.

Various packaging equipment is currently being imported by the Indian food packaging industry. These imports include: metallized multi-layered films of PET/BOPP/Nylon, aseptic packaging equipment for manufacturing packaging products for liquids, and equipment for recycling and re-using packaging products.

No canning lines are manufactured in India. All cans presently used by a few beer manufacturers and soft drink companies are imported.

Technology, price, credit, delivery, and performance standards are critical factors that determine whether packaging equipment can be sold in the Indian market. Due to intense competition in the end-user market, the cost of equipment and low running cost remain one of the primary factors that influence the sale of the packaging equipment.

Upgrading would be another extremely important factor in the buying decision of the end-users. The Indian exporter would need to have a clear plan regarding the provision of upgrades and add-ons to their products, especially those required for capacity expansion. After-sales service is also a key concern of buyers.

## Classification of the Market

The captive packaging units owned by large companies, primarily MNCs, is one such segment. It is characterized by the need for turnkey project implementation of packaging equipment to cater to their specific needs. The choice of the product of the parent company and the product category largely defines the choice of the type and brand of equipment.

The unorganized segment probably represents the largest segment in terms of volume. As processed food end-users become more quality conscious, it will become imperative for this segment to upgrade its equipment. The key factors, which affect sales to this segment, would be cost of the equipment, lower processing cost, assistance of financing agencies and smooth upgradation of their facilities. As in all cases, the presence of after sales support would be treated as a prerequisite. This segment is likely to be extremely price sensitive.

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*Exports were mainly to Bangladesh, Bahrain, Brazil, Belgium, South Africa, Malaysia, Nepal, Russia, and the UAE.*

*Packaging machinery sector manufactures machinery related to package conversion/processing and package handling/testing.*

The organized segment, catering to the major food processing companies, is most conscious about quality, and its ability to produce various packaging products, to enable it to address a bigger market.

Total Indian exports of packaging machinery for food processing in 1998 amounted to USD 11.51 million. By the end of 2002, exports are expected to be worth around USD 28 million (estimates) Exports were mainly to Bangladesh, Bahrain, Brazil, Belgium, South Africa, Malaysia, Nepal, Russia, and the UAE. The major domestic equipment manufacturers supplying the market are Flex Engineering Ltd., (Noida), ITW Signode India Ltd. (Hyderabad), Print Pack Machinery Ltd. (Faridabad), Eagle Manufacturing Co. (Mumbai), Larsen & Toubro for various type of Packaging machinery; Acrofil India ( New Delhi), S.P.M. Engineering (Bangalore), E.C. Packaging (Faridabad), Automatic Devices (Mumbai), specifically for filling and sealing machines; S.P Ultraflex Systems (Mumbai) for flexible packaging machines; and Multi Pack Machines Pvt Ltd. (Hyderabad), and Primo Pack (Ahmedabad) for pouch packing machines.

The Indian packaging machinery sector manufactures machinery related to package conversion/processing and package handling/testing. Many domestic firms have established joint ventures with foreign companies to produce a variety of packaging machinery for the food-processing sector to meet the increasing demand.

### Third World-Country Imports

Total Indian imports of food processing packaging machinery in 1998 amounted to USD 67.14 million, with a

major part of the imports coming from Germany. Germany and Italy are the leading suppliers of packaging equipment to India representing 42 percent and 20 percent market share, respectively. The estimated value of imports in 1999 is USD 77.30 million. Imported food processing packaging equipment accounts for more than 70 percent of the total market. Some of the imported equipment is also sourced from manufacturers in Taiwan, the major ones being HCI Converting Equipment Co. Ltd., Pro Doing Industrial Co., Jung Chang Machinery Co. Ltd., Jung Chang Machinery Co. Ltd., Taiwan Hon Chuan Enterprise Ltd., and Dah Bah Machinery Industrial Inc. SIDEL Singapore PTE Ltd., is a major supplier of PET bottle machines to India. Windmoller & Holscher of Germany delivers complete production facilities for the processed food packaging industry. The company specializes in extrusion, printing, finishing, and converting machines.

The trend of establishing increasing number of fully captive packaging units by the food processing companies is very likely to boost imports.

German companies are the lead suppliers of machinery for filling, closing, sealing and labeling bottles, cans and boxes, and wrapping and aseptic packaging machinery. U.S. firms mainly export filtering/purifying, wrapping, aseptic packaging and form-fill-sealing machines and extruders. Japan supplies injection molding machinery.

## End-User Analysis

The end-users may be classified into two sections. The first is the primary section, which may be further sub-divided

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*The food processing sector is the largest user of flexible packaging, accounting for more than 50 percent of the total demand. The flexible packaging segment is growing at a rate of 30 percent annually.*

into manufacturers of rigid and flexible packaging products. The second section is comprised of converters of packaging materials or manufacturers that print polyester or BOPP films. The conversion sector is primarily small-scale and is dominated by companies in the unorganized sector. This industry converts materials such as plastics, paper, and aluminum into packaging materials. Economies of scale and the quality level of the converted final packages represent entry barriers to the conversion sector. Because entry requirements are not very high as far as technology and capital costs are concerned, it has been estimated that there are approximately 16,000 players in the unorganized sector, accounting for about 50 percent market share.

Plastics dominate the Indian packaging industry, especially in the form of flexible packaging. The flexible packaging segment consists of packaging films, aluminum foils, and cellophane. Flexible packages are in wide use because they are aesthetically attractive, cost-effective and sturdy. Consumer buying preferences, which favour the use of convenient packaging and packaged products in affordable quantities in laminates, has also contributed to the growth of flexible packaging. The food processing sector is the largest user of flexible packaging, accounting for more than 50 percent of the total demand. The flexible packaging segment is growing at a rate of 30 percent annually. The major players in the flexible packaging sector are Paper Products Ltd., Flex Industries, and Akar Laminators.

Beverage companies in India are increasingly using packaging as a key lever to boost the use of their products. The beverage business in India is still maturing and PET bottles are predicted to command a sizeable portion of the

trade. Typically, float glass consisting of 300 ml returnable bottles is the most popular segment with a share of nearly 80 percent. The remaining 20 percent is split between PET bottles and cans and 1 litre returnable glass bottles- unlike in the U.S. where PET bottles and cans account for nearly 85 percent of the business. The buying and consumption patterns of beverages, suggest an increasing trend in household consumption. One primary factor contributing to this trend is the availability of convenient forms of packaging like the aluminum beverage cans and PET bottles.

Yet another form of packaging for processed food which has become popular in recent times is tetra packs. The primary reasons for the increasing popularity of tetra packs is convenience, and longer shelf-life. Also, tetra packs address distribution hurdles in India; distributors face transportation difficulties, and they also face extreme climatic conditions.

Most of the products sold in tetra packs are produced and sold by reputed food companies. These companies are likely to prefer reliable, branded and tested packaging machinery and equipment.

According to prominent Indian packaging companies such as Tetra Pak India, the total market for aseptic packages will reach the one billion packages mark by the year 2002. Milk is a thrust area for this form of packaging, considering that only 9 billion liters of the 570 billion liters of milk produced in India is packaged.

In the Indian fish-processing sector, the largest challenge facing the industry is value addition and diversification in

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concepts and contents to satisfy changing and diverse demand from importing countries as well as from domestic urban consumers.

Value addition has been emphasized because high unit value products can increase realization of foreign exchange.

One of the popular value-added fish products developed recently is fish curry in a ready-to-eat form packed in flexible pouches or metal cans. However, the packaging used for this product has imposed several restrictions on the viability of this process. Metal cans impart an undesirable taste to the product when it is stored. Secondly, tin plate for making cans is imported by India and hence it is economically disadvantageous for many producers. Aluminum cans that are available in India were found unsuitable for the product because of poor mechanical strength and high incidence of leakage through the seams. Most flexible pouches available within the country are not heat-stable and also suffer from other limitations such as poor seal and barrier properties. Consequently, innovative packaging for ready-to-serve fish curry and other processed fish products offer substantial opportunities.



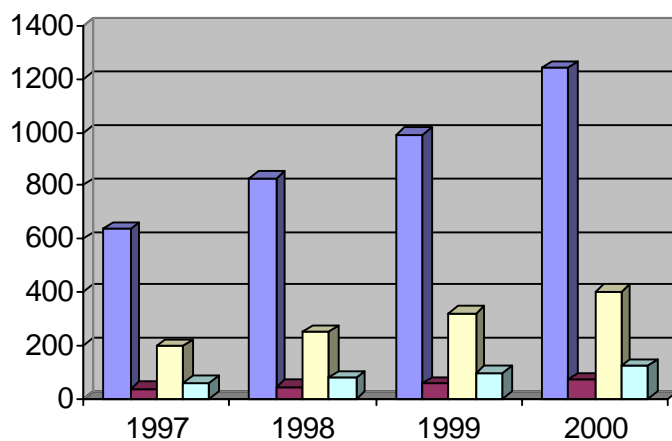
## Annexure 1

### Food Processing Equipment Sector in India

(Estimates in USD Millions)

	1997	1998	1999	2000
Total Market Size*	797	1,032	1,257	1,571
Total Local Production	635	828	992	1,240
Total Exports	35	44	55	69
Total Imports	197	248	320	400
Imports from U.S.	59	75	96	120

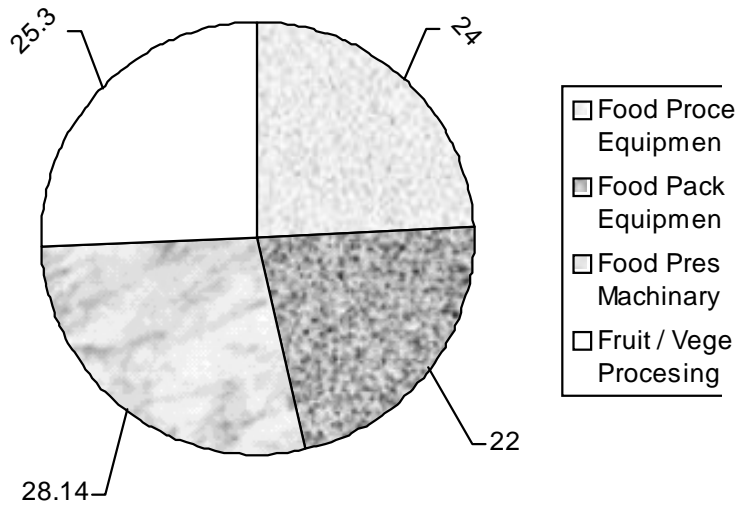
Ref: CII Research



\* Includes primary processing equipments and farm implements.

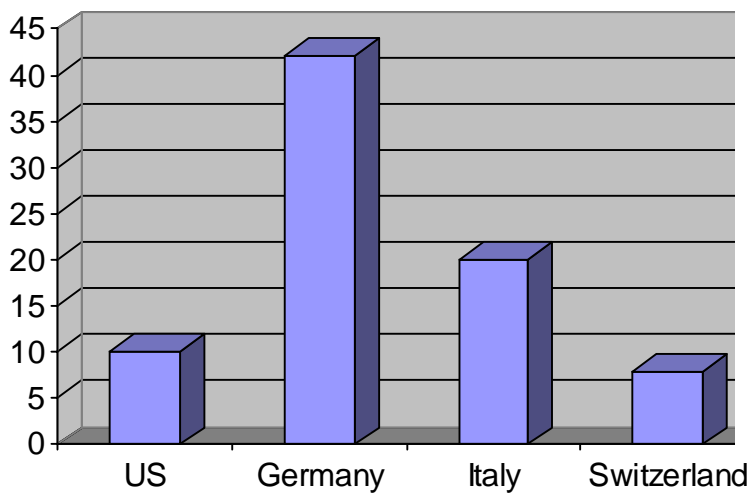
## Annexure 2

Market Segments : Agro Food Processing Equipment



## Annexure 3

Food Processing Equipment : Import Market Share (in percentage)



Reference: Center for Monitoring the Indian Economy (CMIE) and Directorate General of Commercial Intelligence & Statistics, Ministry of Commerce, GOI.

## Annexure 4

### Food Processing Related Organisations in India

- 1 Ministry of Food Processing  
Government of India  
Panchsheel Bhawan  
Khel Gaon, Near Siri Fort  
New Delhi-110 049  
Tel: 91-11-649 3227/649 2216  
Fax: 91-11-649 3228  
Email: mofpi@hub.nic.in  
Website: <http://www.nic.in/mofpi>
  
- 2 Marine Products Export Development Authority  
101, Nirmal Tower  
Barakhamba Road  
New Delhi-110 001  
Tel: 91-11-371 9126  
Fax: 91-11-331 0582  
Email: mpeda.delhi@mx.sprintrpg.vsnl.net.in
  
- 3 The Central Food and Technological Research Institute  
Cheluvamba Mansion, Mysore-570 013  
Tel: 91-821-514 534  
Fax: 91-821-515 453
  
- 4 The Punjab State Co-op. Supply & Marketing Federation Ltd.  
4, Sector 35-B, Markfed House  
Chandigarh  
Tel: 91-172-660 161  
Fax: 91-172-660 161
  
- 5 The National Agriculture Co-op. Marketing Federation (NAFED)  
Ashram Chowk, Ring Road  
New Delhi-110 014  
Tel: 91-11-684 0019/684 5106  
Fax: 91-11-684 0261

## ASSOCIATIONS

- 1 Indian Institute of Packaging  
E-2, MIDC Area, Post Box No. 9432  
Chakala, Andheri (East)  
Mumbai-400 093  
Tel: 91-22-8219803  
Fax: 91-22-8375302
  
- 2 Indian Printing Packaging and  
Allied Machinery Manufacturers Association  
B-51, Sector 7, Noida-201 301  
Tel: 91-11-91-546 598  
Fax: 91-11-535 191
  
- 3 All India Food Preservers' Association  
206 Aurobindo Place  
Hauz Khas  
New Delhi-110 016  
Tel: 91-11-527724
  
- 4 Confederation of Indian Food Trade and Industry  
Federation House  
Tansen Marg  
New Delhi-110 001  
Tel: 91-11-373 6305/373 8760  
Fax: 91-11-332 0714/372 1504  
Email: <mailto:cifti@de.vsnl.net.in>  
Website: <http://www.agroindia.org/CIFTI>

## Annexure 5

### Food Processing and Packaging Machinery Manufacturers:

A.R. Packaging Systems Ltd.

Suryodaya 1 10 60/3

Begumpet, Hyderabad-500 016

Andhra Pradesh

Tel: 91-40-845 530/845 572

Fax: 91-40-811159

Alfa-Laval (India) Limited

Dapodi, Pune-411 012

Maharashtra

Tel: 91-212-776321

Fax: 91-212-774412

Shrink Packaging Systems Pvt. Ltd.

Raj Industrial Complex

B-21, Ground Floor, Military Road

Marol Andheri (E)

Mumbai-400 059

Tel: 91-22-850 6855

Fax: 91-22-850 6706

Bry Air India Private Ltd.

20 Rajpur Road

Delhi-110 054

Tel: 91-22-2912800

Flex Industries Ltd.

A-107 sector IV

Noida (UP)-201 301

Tel: 91-1189-522 558

HMT Limited

Industrial Machinery Group

59 Bellary Road

Bangalore-560 032

Tel: 91-80-3330333

Fax: 91-80-3338546

TTC Ltd.

Packing and Printing Division

90, Chamiers Road

Chennai-600 018

Tel: 91-44-4343585/4345298

Fax: 91-44-4340294

EEL India Ltd.

E-364, Greater Kailash Part-I

New Delhi-110 048

Tel: 91-11-622 4569/623 1773

Fax: 91-11-646 7275/623 1773

Email: eel@eelindia.com

Rado Packaging Machines Pvt. Ltd.

A-41, Sector 10

Noida-201 301

Tel: 91-11-855 5190/853 3341

Fax: 852 5699

Acrofil India

C-34, Rajauri Garden

New Delhi-110 027

Tel: 91-11-510 5167

Imaje Coding Technology Pvt Ltd

SB-163; III Cross

Peenya Industrial Estate; Ist Stage

Bangalore-560 058

Tel: 91-80-8395878

Fax: 91-80-8396999

Klockner Windsor India Limited

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Fax: 91-22-2614632

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Tel: 91-11-6465170

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Fax: 91-22-5320033

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Fax: 91-22-493 1505

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Fax: 91-44-8261653

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Fax: 91-22-852 2426

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Dist: Pune-412 106  
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## Annexure 6

### Hazard Analysis & Critical Control Point

#### Seven Principles of HACCP

- Conduct a hazard analysis
- Identify critical control points
- Establish critical limits for each critical control point
- Establish critical control point monitoring requirements
- Establish corrective actions
- Establish record keeping procedures
- Establish procedures for verifying that HACCP system is working as intended

#### WHY HACCP ?

As a member of WTO, India is Signatory to the Sanitary and Phytosanitary (SPS) agreement and hence has to adopt for international trade, the standards, guidelines and recommendations issued by the Food Hygiene Committee of the Joint FAO/WHO Codex Alimentarius Commission which advocates the adoption of HACCP. Industries in the countries exporting to WTO member nations would now have to adopt HACCP, from dates specified by each importing country. The Indian Standard on Food Hygiene – Hazard Analysis and Critical Control Point (HACCP) – System and Guidelines for Its Application, IS 15000:1998 is technically equivalent to the above mentioned Codex document. For food industry in India, adoption of HACCP is becoming imperative to reach global standards, demonstrate compliance to Regulations/Customer requirements besides providing safer food to our millions.

#### Highlights

- Mandatory for export from certain sectors of food industry to some countries
- Pro-active system for assuring safe production of foods

- Emphasis prevention rather than inspection
- Addresses all types of Hazards - Microbiological, Physical and Chemical
- Can be integrated into a more general quality assurance plan
- Can be implemented in tiny, small, medium and large scale enterprises

### **Benefits of HACCP**

- Reduces contamination
- Reduces recall/product destruction
- Provides market protection
- provides preferred supplier status
- demonstrates conformance to international standards and regulations, and requirements of overseas markets
- Transforms commodities into branded products
- International acceptance

### **HACCP Certification**

***BIS offers two Certification schemes to the food industry.***

- Food Safety Certification against IS 15000:1998
- HACCP based Quality System Certification provides for two Certification through one audit Certification of Quality System against IS/ISO 9000 and Certification of HACCP against IS 15000:1998

### **How to Obtain Licence ?**

- Establish a documented quality system and/or HACCP implementation plan and ensure its effectiveness
- Submit application on prescribed proforma along with the questionnaire and necessary fees
- Submit the quality manual and/or concerned documents, when asked for

- Arrange auditing by BIS Assessment Team
- Take corrective actions on non-conformities observed by assessment team and get them verified to obtain the Licence!!!
- The licence will enable the company to compete effectively in national and international markets
- BIS Quality System Certification Scheme is accredited by Road Voor Accreditatie (RvA)

**Other Services Offered by BIS**

- Awareness Programmes for food industry
- In-house training
  - a) Implementation of HACCP as per IS 15000:1998, and
  - b) Operation of Quality System as per ISO 9000 and HACCP as per IS 15000:1998
- Custom-made training programmes for the industry
- Technical Information Services on Standards and Certification matters
- Pre-certification services

**Potential for Trade in  
(C)**

Country	Dried / Preserved Veg.	Pickles / Ethnic foods	Processed Food and Vegetal
<b>European Union</b>			
Belgium	✓	✓	
France	✓		
Germany	✓		
Netherlands	✓	✓	✓
Poland			
Spain	✓	✓	
Switzerland	✓		
<b>Africa</b>			
Congo			
Ethiopia	✓		
Kenya	✓		
South Africa	✓		✓
Tanzania	✓		
Uganda			✓
<b>Middle East</b>			
Bahrain			
Oman			
Saudi Arabia	✓		✓
UAE			✓

Yam en	✓		
<b>A sia</b>			
Bangladesh			
China			
Philippines			✓
SriLanka	✓		✓
Singapore	✓		✓
Thailand			
<b>LAC</b>			
A rgentina	✓		
Brazil	✓		
M exico			
<b>Russia</b>			✓
Canada	✓	✓	
M aurtius			

\*C IIStudy

\*\*O ther than D ried and Preserved Fruit and Vegetables

\*\*\* Includes Buffalo M eat only

### India's Exports :A growth

Values in Rs. lakhs

Country	Dried / Preserved Veg.	Pickles / Ethnic foods	Processed Fruit and Vegetable
Argentina	210.82	10.53	—
Austria	61.75	13.88	6.44
Bahrain	384.23	58.60	13.71
Bangladesh	<b>8395.82</b>	6.18	148.8
Belgium	<b>1131.07</b>	<b>1177.3</b>	19.31
Brazil	143.76	7.61	—
Canada	<b>1843.43</b>	726.62	224.29
Chile	15.4	18.9	—
China	62.3	10.85	4.1
Colombia	—	—	5.4
Congo	—	—	—
Denmark	72.4	117.65	—
Finland	116.25	10	94.6
France	<b>1212</b>	831.3	53.93
Germany	<b>2304.3</b>	855.6	670.5
Mauritius	122.3	1.83	89.3
Mexico	—	—	—
Netherlands	<b>1322.82</b>	<b>111.9</b>	<b>1528.6</b>
Oman	61.65	112.9	96.63
Pakistan	343.79	1.4	17.8

Poland	293.9	36.7	85.5
Philippines	75.5	46.4	<b>1348.3</b>
Russia	314	25.9	<b>379.53</b>
Saudi Arabia	<b>1432.5</b>	589.5	<b>1142</b>
Singapore	754.46	104.57	431.4
South Africa	343	52.63	87.4
Spain	960	661	—
Sri Lanka	12310.5	27.3	598
Switzerland	1336.8	44.35	155.32
Tanzania	4.7	6.13	0.13
Thailand	34.3	128.8	54.3
UAE	—	—	2192.5
Yemen	780	—	83.5

\* Only prominent product categories included

\*\* Other than Dried and Preserved Fruit and Vegetables

\*\*\* Includes Buffalo Meat only