

climate change has become synonymous with anthropogenic global warming.

Global warming refers to surface temperature increases

interfere with the normal return of energy into space, thus warms the earth.

When it was established that the earth was warming due to

increased greenhouse gases, industrialized nations and also those undergoing the process of transition to a market economy. Those nations had legally binding emission limitation and

Under Kyoto Protocol emphasis remains on carbon dioxide (CO₂) as it was accepted that

Continued on page 43

PAGE NO. 01&44

EMPLOYMENT NEWS

DATE- 15-21 OCT. 2016

CAREER IN FOOD PROCESSING

Pratibha Mishra

Food processing is all about processing ingredients and turning them into food that is safe for consumption by humans or animals. It includes enhancing the flavor, using preservation techniques and methods, and marketing food products.

Food processing industry translates to Food & Beverage (F&B) segment, which holds 63 percent of the retail market. In fact, F&B market is worth Rs 14,110 billion in India! Due to low penetration of organised retail in the country, there is a lot of potential for the market to grow. India has emerged as the largest consumer base in the world with a young population (which is more adventurous towards trying out new things), increasing incomes (which means people have more buying power), and time-starved consumers (who are easier targets for packaged food companies). Hence, NSDC (National Skill Development Council) estimated that the food processing sector may witness 15 percent CAGR (Compound Annual Growth Rate) from 2012 to 2017.

There are several other factors that bode well for the food processing industry in India in the near future:

- 100 percent FDI (Foreign Direct Investment) under the automatic route is now permitted. Government is also offering financial assistance to the industry for technological upgrade and setting up of new ventures.
- India has a suitable climate to ensure

year-round supply of raw materials for the industry. We rank number one in the production of milk, bananas, guavas, mangoes, cashew nuts, and buffalo meat; and second in rice, wheat, groundnuts, sugarcane, peas, and onions.

- In India, labour is comparatively cheaper which means that we can set up large production bases at a lower cost.



Career Options in Food Processing

Traditionally, the food processing industry uses unorganised workforce but it does hire experienced professionals for the supervisory and managerial roles. Usually, a fresher is hired as a trainee or an operator and undergoes on-the-job training for up to one year. Such jobs may not require specific qualification but for more specialized jobs, you usually need at least a Certificate or Diploma course.

The skill sets required by the food processing industry are mostly related to Operations (or processing). Other functions for which people are hired are Supply Chain, Quality Checking, and other functions like Procurement and Sales.

Those who have passed out of ITIs or carry Diploma in the related fields join the sector in the processing or maintenance functions – as an operator or trainee. While promotions in the industry are mostly performance-related; in some cases, your seniority or tenure of working in the company may matter too. Most employers encourage the workers to complete their graduation along with their jobs. In the processing and procurement functions, Science graduates from agricultural universities are usually hired.

It is expected that from 2017 to 2022, the food processing industry will generate about 26.5 lakh new jobs!

As the focus on exports is increasing, there is a greater demand for enforcing quality parameters. Hence, Quality is a domain which is likely to witness high demand for manpower. Similarly, due to increasing adoption of technology and automation, technical functions (such as maintenance) will need more manpower too – especially in the Grain & Oilseeds, and Packaged Foods segments. It is a good time to skill up for the industry.

Major Skill Gaps in the Industry

Right now, the food processing sector and the ancillary industries (such as bottling and packaging) are facing severe shortage of skilled manpower at various stages, such as:

- The consumers are more quality conscious now and expect basic hygiene

Continued on page 44

CAREER IN FOOD...

Continued from page 1

and sanitary practices.

- Processing units need to hire specialist personnel who can work on imported machines in some of the sub-segments.
- Front-end employees with good customer relationship management skills are hired by companies to maintain good relations with institutional players like hotels, restaurants and retailers.
- Procurement staff who is proactively involved in crop or production advisory is needed to streamline the supply of raw materials for the industry.

Educational Qualifications Required

A range of courses are available for those who want to enter the field, ranging from short-term courses to Certificate, Diploma, Bachelors, Masters, PhD, and post-doctoral courses. For most UG-level food processing courses, you need to have passed 10+2 with Physics, Chemistry and Biology. The admission is mostly granted on the basis of entrance exams.

Courses like B.Sc in Home Science, or specialization courses in specific segments like sugar, alcohol, bakery, oil, fruits, vegetables, etc may also grant you entry to this field.

For those who want to enter into the research & development functions of food processing in India and abroad, there are two major scholarships: National Academy of Agricultural Research Management, Indian Council of Agricultural Research (NAARM ICAR) Senior Research Fellowship, and Ramalingaswami Fellowship. Agri Biotech Foundation (ABF) also offers PhD Fellowships in Agricultural Biotechnology. Other merit and requirement based scholarships you can avail are S K Patil Loan Scholarships and J N Tata Endowment Scholarships. Low-interest educational loans are also available for deserving candidates who want to make a mark in this field.

Best-known Training Institutes

Some of the major institutes and research institutes in the field are:

of fresh produce

- ❑ Protein chemistry
- ❑ Spice and plantation products
- **National Dairy Research Institute (NDRI), Karnal:** This premier dairy research institution offers high-quality human resources for overall dairy development in India. The Institute offers following programmes in the field of Dairy Science:
 - ❑ Diploma in Dairy Technology
 - ❑ Diploma in Animal Husbandry & Dairying
 - ❑ B. Tech. (Dairy Technology)
 - ❑ Masters Programme in Dairying (13 disciplines)
 - ❑ Doctoral Programme in Dairying (13 disciplines)
- **Indian Agricultural Research Institute (IARI), Pusa:** It has 20 divisions and 5 multi-disciplinary centres in Delhi, 8 regional stations, 2 off-season nurseries, and 10 national centres. Its sanctioned staff strength is 3,540 - which include scientists, technical personnel, administrative staff and supporting personnel. This deemed-to-be-University offers M.Sc, M.Tech and PhD programmes. Some of the courses offered are:
 - ❑ Agricultural Chemicals
 - ❑ Agricultural Economics
 - ❑ Agricultural Engineering
 - ❑ Agricultural Extension
 - ❑ Agricultural Physics
 - ❑ Agricultural Statistics
 - ❑ Agronomy
 - ❑ Biochemistry
 - ❑ Bioinformatics
 - ❑ Computer Application
 - ❑ Entomology
 - ❑ Environmental Sciences
 - ❑ Floriculture & Landscape Architecture
 - ❑ Fruit Sciences and Horticultural Technology
 - ❑ Genetics & Plant Breeding
 - ❑ Microbiology
 - ❑ Molecular Biology & Biotechnology
 - ❑ Nematology
 - ❑ Plant Physiology
 - ❑ Plant Pathology
 - ❑ Plant Genetic Resources
 - ❑ Post Harvest Technology
 - ❑ Soil Science & Agril. Chemistry

CLEANLINESS DRIVE IN AND AROUND HISTORIC MONUMENTS



In a step towards ensuring cleanliness of tourist spots, the Tourism Ministry has declared all ASI-protected monuments and archaeological sites as 'polythene-free zones'. Addressing a press conference in New Delhi, Minister of State Culture and Tourism Shri Mahesh Sharma said advisories have been issued to all the state governments to support the ASI in keeping the monuments clean and polythene-free, up to 300 metres from their protected boundaries.

"We have issued advisory to all state governments/UTs to help in extending the polythene-free initiative beyond the 100 meter radius to 300 meters around the protected monuments," Tourism Minister told a joint press conference on 'Swachh Bharat Mission' along with Union Minister for Drinking water and sanitation Shri Narendra Singh Tomar.

He said his ministry also plans to bring in some laws to impose strict implementation of the polythene-free initiative in the areas which are under the jurisdiction of ASI. An official said the initiative will be reviewed after a month to decide whether there is any need to impose fines on offenders.

Sharma said the ministry has sanctioned Rs 350 crore to construct protected boundaries and disabled-friendly access at all ASI monuments. He added that the ASI has also ranked top 25 Adarsh monuments on the basis of vari-

ous cleanliness parameters with Rani Ki Vav in Gujarat being declared the cleanest monument in India.

Further, 75 other Adarsh monuments have been identified to be included in the 'Swachh Paryatan Mobile App', which enables citizens to take photographs of garbage at the monuments and send an SMS to the ASI's nodal officer, who will confirm the complaint's redressal. The ASI is going to build boundaries along all its monuments across the country.

"We are building boundaries in all these monuments. And in the first phase 350 crore have been sanctioned. WAPCOS and TCIL have been given the duty and within a year, 100 monuments will be completed," said Mr. Sharma.

He said, Apart from the boundaries, the ASI will also make the monuments polythene-free and build ramps to make them disabled-friendly. "Parameters like toilets, green lawns, polythene-free zone, signage for awareness, access for differently abled, drinking water and provision for garbage bins will be made available". The ASI had categorised monuments of priority as adarsh monuments earlier. These include monuments like Red Fort, Taj Mahal, Leh Palace, Hampi, Konark Temple, and Rang Ghar. The ministry then extended the list to 75 more monuments to include them in the list of adarsh monuments. These include Sher Shah's Tomb, Sun Temple, Jal Mahal, etc. -EN

● **research institutes in the field are:**

- **National Agriculture & Food Analysis and Research Institute (NAFARI), Pune:** This autonomous, not-for-profit organisation proves product development, testing, analysis and training facilities to food processing companies.

It also offers 1-year part-time Diploma course in Food Analytics. There is a proposal to start a Vocational Training course in Food Processing in collaboration with KIN, Schleswig Holstein, Germany. The institute sometimes conducts Entrepreneur Development Program too.

- **Central Food Technological Research Institute (CFTRI), Mysore:** It employs about 300 scientists, engineers and technologists; and more than 400 technicians, support staff, and skilled workers. It has 16 R&D departments, including special laboratories for food processing, food safety, sensory science, biotechnology, and microbiology.

It offers PhD programmes, M.Sc in Food Technology, 1-year course on Flour Milling Technology at International School of Milling Technology (ISMT), a joint course with United Nations University (UNU) with headquarters at Tokyo, and short-term courses on:

- ☐ Advanced processing techniques
- ☐ Animal techniques, ethics & welfare
- ☐ Flour milling and baking products
- ☐ Food Engineering
- ☐ Food microbiology & Fermentation technology
- ☐ Food flavors and sensory science
- ☐ Food packaging
- ☐ Food safety & quality control
- ☐ Fumigation, prophylaxis and pest management
- ☐ Grain processing
- ☐ Instrumental analysis
- ☐ Lipid science & traditional food
- ☐ Meat, and meat products
- ☐ Plant cell Biotechnology
- ☐ Post-harvest handling & processing

- ☐ Soil Science & Agril. Chemistry
- ☐ Seed Science & Technology
- ☐ Vegetable Sciences
- ☐ Water Science and Technology

- **Indian Institute of Crop Processing Technology (IICPT), Thanjavur:** It offers B.Tech, M.Tech and PhD programmes in Food Process Engineering, and M.Tech in Food Science and Technology.

- **Punjab Agricultural University (PAU), Ludhiana:** PAU played a key role in the Green Revolution in India, and made important contributions to livestock and poultry production.

It has five colleges:

- ☐ College of Agriculture
- ☐ College of Agricultural Engineering & Technology
- ☐ College of Basic Sciences & Humanities
- ☐ College of Home Science
- ☐ Post Graduate Studies

- **National Sugar Institute:** Located in Kanpur, Chennai and Calcutta, it offers internship programs in Sugar Engineering and Technology, and Diploma programs in Industrial Fermentation and Alcohol Technology.

- Acharya N G Ranga Agricultural University, Bapatla
- Anand Agricultural University, Anand
- Chaudhary Charan Singh Haryana Agricultural University (CCS HAU), Hissar
- Chaudhary Charan Singh University (CCSU), Meerut
- Central Institute of Fisheries Education (CIFE), Mumbai
- Chaudhary Sarwan Kumar Himachal Pradesh Agricultural University (CSH-PAU), Palampur
- Fruit Technology Institute (FTI), Lucknow
- Govind Ballabh Pant University (GBPU), Pantnagar
- Institute of Chemical Technology (ICT), Mumbai
- Indira Gandhi National Open University (IGNOU)

- Indian Veterinary Research Institute (IVRI), Izatnagar
- Mahatma Phule Krishi Vidyapeeth, Rahuri
- Marathwada Krishi Vidyapeeth, Parbhani
- Maharaja Sayajirao (MS) University, Vadodara
- Tamil Nadu Agricultural University (TNAU), Coimbatore

While there are agricultural universities and research institutes to cater to the demand of 'Supply' function, the government is inviting private players to set up training academies close to the employment clusters and train the manpower on apprentice-trainer model.

Major employment clusters in India for this segment are – Andhra Pradesh (with maximum registered food units), Pune and Mumbai (with high urbanisation), Madhya Pradesh and Jharkhand (new emerging clusters), and West Bengal region (especially for marine processing).

The government is encouraging training providers to start courses on milling operations (to process grains), and catching, culling & deboning of animals (for the meat and poultry segment).

Job Prospects and Salary Packages

In a country where there are about 500 million middle-class and upper-class consumers, the food processing industry is bound to have a bright future. The Ministry of Food Processing Industries (MFPI) too is planning to bring about a food revolution in India and generate more jobs by setting up over 500 food parks across the country.

From restaurants and hotels to hospitals to food wholesalers to catering companies to food research laboratories, the value chain of the food processing industry is quite long. Home Science graduates and those who have specialised in Nutrition, Food Technology, or Food Services Management may find ready jobs in the field. Certificate courses in Applied Nutrition, Food Science and Preservation, and Dietetics may help you

to climb up the ladder too.

Other potential employers for food processing experts include companies that manufacture consumer food like pasta, breads, biscuits, soft drinks, beer, alcoholic beverages, mineral and packaged water, cocoa products, cakes, pastries, corn flakes and other ready-to-cook or ready-to-eat products.

The Food Corporation of India (FCI) hires bacteriologists, toxicologists, packaging technology experts, and those who specialise in biochemistry, analytical chemistry, organic chemistry etc.

Modern Food Corporation hires people who can produce and market products like bread, fruit juices and edible oils. North-Eastern Agricultural Market Corporation too looks out for food processing and marketing professionals from time to time.

Attractive employment opportunities exist in the US and Europe for food processing specialists who wish to settle abroad. In India, the salary may vary according to the function in which you are working, your education and skills, your work experience, and location of the food processing unit where you work.

Usually, a fresher earns somewhere between Rs 8,000 to Rs 12,000 per month while those with some work experience easily fetch Rs 15,000 to Rs 25,000 per month. There is no limit to what you can draw at senior management levels in a good company.

It is easy to earn well in this field, if you are a people's person. It means that even if you are a highly trained professional, you need to be ready to work with those who are not very educated or talented. You may also have to work odd hours. On the brighter side, this is one field where new units are coming up every day, especially around metro cities. So, finding a new job or setting up your own venture is relatively easier in this field.

**(The author is a columnist.
Email:pratibhatana@gmail.com)**