FICCI

FICCI STUDY

on

Rising Skill Demand

A Major Challenge for Indian Food Industry



Federation of Indian Chamber of Commerce & Industry
New Delhi

FICCI

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Executive Summary

Food is the biggest consumption category in India with a market size of USD 181 billion. Domestically, the spending on food and food products amounts to 21% of India's GDP and constitutes the largest portion of the Indian consumer's spending – more than 31 % share of wallet. With a population of more than one billion individuals and food constituting a major part of the consumer's budget, this sector has a prominence next to no other businesses in the country. Moreover the importance of this sector to India's economy becomes all the more relevant, considering the fact that this sector continued to perform well, despite fall in GDP number and poor performance by many other industries, during recession in 2008-09.

These positive developments however have also resulted in apprehension about the emerging skill shortages due to mismatch between the demand for specific skills and available supply. In fact, of late, shortage of skilled, semi-skilled and unskilled workers has emerged as a critical factor impacting the competitiveness of Indian food industry.

To achieve the desirable growth rate of 40% of the current market size by 2015 (FICCI-EY report, 2009), it is imperative that the necessary support infrastructure is in place, and efficient and trained manpower, is one such critical element which will foster the growth. As the food industry advances and adopts various levels of automation, the demand for skilled manpower in the food processing industry will increase phenomenally. Moreover, if the Indian food processing industry has to achieve the projected growth targets set, and become globally competitive, the need to develop and train the human resource efficiently would be essential.

Considering the criticality of this issue and to analyze the skill shortage and anticipate the future demand of workforce in the food industry, FICCI conducted a pan India survey to gauge the responses of various food Industry players. The survey was circulated to approximately 600 organizations across the entire food value chain and total of 250 responses were received.

The study focused on following aspects:

1. Quantitative and qualitative analysis of workforce demand scenario in the food industry.
2. Current Status of shortage of manpower in the sector.
3. Current status of the course curriculum offered by various institutes and industry expectations.
4. Current duration of training provided to the newly hired employees, which in turn reflects the efforts, put in by the industry for up gradation of basic skills.

Key Findings

I) Expected increase in demand of employees across various functional roles

FICCI survey reveals that irrespective of the firm size there would be huge demand for skilled professionals, both at the higher end technical skills and lower end skills:

- ***Production Managers & Engineers - It is expected that within a period of one year there would be an approx demand of 9,53,876 production managers and engineers in the sector, and would increase to 13,05,304 employees by 2015, which is currently around 65000 (46% increase in demand in 2010 and 100% by 2015)***

- ***Quality Control and R&D specialists: Demand of approx 8,03,264 quality control & R&D specialist is expected by 2010 and around 10,29,182 specialists by 2015(52% increase in demand in 2010 and 95% by 2015)***

- ***Supply chain & logistics : A huge demand of supply chain & logistics professionals is also expected in the sector, which will be around 8,28,366 in 2010 and approx 9,03,672 professionals by 2015(50 % increase in demand in 2010 and 63% by 2015)***

- ***Regulatory & legal experts: Although the number of experts in this area are relatively few currently, but it is expected that over a period of time a huge demand for regulatory & legal experts will arise. Demand is going to increase to approx 1,50,612 experts by 2010 and to 175714 by 2015(50% increase in demand in 2010 and by 75% in 2015)***

Also, at the lower end increase in demand for Shop floor technicians, ***supervisors Refrigeration mechanics and others would be 40% in 2010 and 70% by 2015 (I.e. approx 21,83,874 people by 2010 and 26,85,914 people by 2015)***. Meeting this demand would be challenging, since 80% of the total work force in the food processing sector comprises of people having lower end skill set.

II) Current Status of shortage of skilled manpower in the sector

The survey revealed that maximum skill shortage in the sector is across the following functional roles in the given order (high to low):

- **Quality control and R&D specialists**
- **Regulatory and legal experts**
- **Production managers & engineers**
- **Shop floor technicians**, **marketing/sales professionals and**
- **Supply chain & logistics In charge**

The shortage of Quality and R&D specialists is one of the major bottlenecks hampering new product development and innovation in the food processing industry, unlike the food processing companies in developed nations, which have become competitive, because of inherent strength and strong focus on R&D and quality control. The shortage of quality control specialists and regulatory & legal experts is one of the prime reasons for non compliance of domestic and international regulatory and quality standards. The non compliance to international quality & regulatory standards has resulted in rejections of agri products in the global markets.

Due to lucrative job opportunities in other sectors, there is scarcity of production managers & engineers in the food processing sector, which needs to be addressed, if this sector has to grow and become globally competitive.

Though the demand for shop floor technicians, marketing professional and supply chain & logistics managers isn't the immediate cause of worry, but considering the strong policy measures taken by the Government to promote investments in the entire value chain, demand for logistics & supply chain managers, retail managers will go up significantly and meeting this demand would be challenging for the industry.

III) Training provisions for new employees

The survey analyzed Industry perspective of various courses offered by educational institutions and their views about it being attuned to the need and demand of the job.

- **55% of the respondents were satisfied with the course curriculum of the institutions**
- **35 % showed discontent with the current course structure**
- **9 % unsure about the courses' relevance**

These results show that although majority of respondents are content with the course curriculum at various institutions, but still a sizeable percentage of respondents believe that workers must be trained as per the needs of the industry and not in a theoretical framework. ***35% of the respondents still believe that the courses offered at various institutions' are outdated, not regularly revised and lack industry orientation. There is serious lacuna in the teaching pedagogy and methodology followed in such institutions. There is lack of focus on R&D, applied research, new product development, leading to disconnect between Industry & academia***. The course content has to be developed keeping in mind the industry demand with more focus on research & development, latest cutting edge technology and innovations, cost effective technology and packaging solutions with a futuristic look, considering the developments in the food processing sector.

The survey also observed that to prepare and train the newly hired professionals according to the Industry needs, almost every organization conducts a formal training program for their

employees. The survey results showed **that 79% of the organizations offer formal training to their employees,** though the period of training varied from industry to industry, according to its size. Very few organizations across all sizes, offer training for duration of less than 200 hours**,** before streamlining their employees in core functions. However there is significant percentage of companies irrespective of the size offering training programs of more than 600-1200 hrs duration. **FICCI estimates show that this accounts to the total monetary loss of approx. 1 billion for food processing companies.**

This is a serious wastage of resources, which Industry could have focused on up gradation of the existing skills, on innovations & R&D, and latest cutting edge technology. However for the want of skilled manpower, industry spends most of the time to train and equip the human resource with basic skill set, needed at various functions in the Industry. This is a very alarming situation for the growth of food processing industry and needs to be addressed. The non availability of the skilled resources across functions is one of the prime reasons, why this industry is still battling to grow and become competitive in the global arena.

IV) Employer's satisfaction from modern workforce –

The survey results show that **58% of the companies** are not satisfied with the current level of **technical skills and knowledge needed for the job,** with their employees, **72% of the companies** feel that their **employees lack ability to use appropriate and modern tools, equipment, and technologies** specific to their jobs and **66% feel their workforce lack ability to deliver work on time in accordance with the quality standards** and **68% feel they don't have ability to design a system, component, or process to meet desired needs.**

<u>Recommendations</u>

Short term Action to be taken

1. Since 35% of the respondents still believe that the courses offered by various institutions are outdated and not regularly revised, it becomes imperative to review the course curriculum to match industry expectations. The government should immediately formulate a task force of all the stakeholders comprising of senior experts from industry, academia and the Government to get the course curriculum across all institutions and training institutes reviewed and updated. The review committee should set appropriate deadlines for reviewing the same. The course curriculum needs to be updated regularly (at least once in 3 years, currently it happens once in 5-10 years) so that they are in line with current industry needs.

2. The Government could also establish a nodal body or authorize NIFTEM to act as the central monitoring agency for all institutions across the country offering course in food

processing. The nodal agency would in turn ensure that the course curriculum is regularly updated, as and when needed, to meet the Industry expectations.

3. There is a need for immediate adoption of ITI's by the food processing industry in various clusters across the country to upgrade the lower end skills. The candidates after training could be directly employed by the industry; this model is already prevalent in some parts of the country at a small scale, but now it needs a big push from the industry.

4. Food processing Industry should partner with few food technology/processing institutes on a pilot basis for up gradation of higher end skills, and the same could be replicated for more and more institutions. However, the government needs to address the regulatory/policy issues to facilitate this engagement at a broader scale rather than on piece meal basis.

5. FICCI survey on challenges faced by food processing sector has highlighted that shortage of Quality and R&D specialists is one of the major bottlenecks hampering new product development and innovation in the food processing industry, and therefore the Government should immediately get NIFTEM operational, and at the same time create a road map for setting up similar state of art institutes of excellence across various parts of the country.

6. Government should immediately formulate an empowered committee on skill development for food processing sector, lead by the Ministry of food processing to review the existing state of affairs of manpower requirement in the food processing sector, and also set a vision for skill development in food processing. The committee should also consider the work that is already being done by various ministries and associations in this direction.

Long term Initiatives/action to be taken

1. Each state government should have a skill development cell, either dedicated to the food processing, where ever possible, or focusing on different sectors. The cell should be under the department of industries or food & agriculture. The state skill development cells can get the strategic inputs for running the cell from central government lead by Ministry of food processing.

2. The government should allocate separate budget for human resource development for food processing sector for enhancing and up gradation of the skills and implementation of the various schemes for skill development. All the skills development cells and other

organizations and ministries should work in tandem for effective implementation of the objectives set.

3. Food processing Industries should partner with more and more food technology/processing institutes for up gradation of higher end skills, research and development, product innovation and should also encourage the institutes to take up consultancy work for the industry.

4. Encourage and establish more centers of excellence like NIFTEM (The National Institute of Food Technology Entrepreneurship and Management) to promote cooperation and networking amongst existing institutions both within the country and international bodies, create a complete data base on domestic resources and bring in international best practices for improving the food processing sector.

5. Educational and training institutions should offer core courses in the area of 'Food Science' and 'Food Technology' catering to the needs of various stakeholders such as entrepreneurs, industry, exporters, policy makers, government and existing institutions. Majority of institutes could be located in the states where maximum activity in terms of food processing will happen in next five to ten years.

6. World class academic institutions/training institutions to be set up over a period of time, catering to the educational and training needs of human resource in the Food Processing Industry, can undertake the following:
   - Serve as nodal centers for assessing training requirements and formulating vocational training programs for various semi-skilled and skilled workforce of the food processing industry throughout the country.
   - Structure and offer specialized management programs to meet the techno-managerial manpower requirement of the industry and foster entrepreneurship
   - Offer world class graduate and research programs in all key FPI sub sectors to create a talent pool of international standards, well equipped to meet the aspirations of the food processing industry.
   - Offer continual training to personnel of the industry to keep them abreast of latest technical developments and facilitate the relevance of high level curricula to Industry.
   - Serve as information resource centers for standards, quality, accreditation, certificates etc.
   - Assist to overcome regional and local variations in education by structuring and updating the course curricula.

- Offer more need based short term courses or training programs across sectors. This would also enable existing employees in the FPI sector to get updated with the latest trends /knowledge in their respective fields.

- Adopt some global best practices followed in various developed nations

  - ✓ Introduce a system of double shift training program at training institutions involving vocational institutes, industrial training institutes, community colleges and polytechnics as well as skills development centres. This approach would increase the number of trained manpower phenomenally.

  - ✓ Increasing collaboration between institutions of higher education and industry and for this purpose the Academia- Industry Consultative Council could be established.
  - ✓ Introduce National Dual Training System (NDTS). This system places emphasis on training in the workplace thus promoting greater private sector participation with regard to skills training. This system though already in existence at small scale need to be further pushed.

FICCI survey, by providing a broad picture of demand of human resource in food processing industry, stands testimony to the dire need of specialized and generic skill sets across the entire food value chain. A combined effort by the Industry, Academia and the Government to address the skill problem of the sector is the need of the hour. A focused approach would result in the achievement of the growth targets set for Indian food processing industry and will help the sector, which has high potential, to become globally competitive.

Chapter I - Introduction

Food is the biggest consumption category in India with a market size of USD 181 billion. Domestically, the spending on food and food products amounts to 21% of India's GDP and constitutes the largest portion of the Indian consumer's spending – more than 31 % share of wallet. With a population of more than one billion individuals and food constituting a major part of the consumer's budget, this sector has a prominence next to no other businesses in the country. Moreover the importance of this sector to India's economy becomes all the more relevant, considering the fact that this sector continued to perform well, despite fall in GDP number and poor performance by many other industries, during recession in 2008-09.

From 2004 to 2008, there was high growth recorded in the Indian food industry, from USD 141 billion to USD 181 billion, a compounded annual growth rate (CAGR) of 6.4 %. Going forward, the Indian domestic food market is expected to grow by nearly 40% of the current market size by 2015, to touch USD 258 billion by 2015. These figures indicate that the sector has indeed moved on to a 'new' and 'higher' growth trajectory. (FICCI –Ernst & Young study 2009)

Food Processing also has significant potential for employment generation, not only directly, but across the supply chain in production of raw materials, storage of produce & finished products and distribution of food products, e.g. a grant of INR 66.7 million (total investment of approximately INR 250 to 300 million) to 35 units in UP in 2005-06 has resulted in direct employment of 2,500 and indirect employment of 20,000, with a significant rural component.

These positive developments however have also resulted in apprehension about the emerging skill shortages due to mismatch between the demand for specific skills and available supply. In fact, of late, shortage of skilled, semi-skilled and unskilled workers has emerged as a critical factor impacting the competitiveness of Indian food industry.

To achieve the desirable growth rate of 40% of the current market size by 2015, it is imperative that the necessary support infrastructure is in place, and efficient and trained manpower, is one such critical element which will foster the growth. In fact a step in this direction has already been taken by the Government by launching the National Skill Development Corporation (NSDC) in 2009.Initiated by the Central Government, but set up as a private public partnership; the NSDC is arguably the largest initiative for skill development in the world today. Driven by the obvious gap in demand and supply of skilled labour at every level and in a wide range of industries, the motivation to set up the NSDC was the awareness that it is impossible for India to achieve its growth potential without an up skilling of the workforce.

As the food industry advances and adopts various levels of automation the demand for skilled manpower in the food processing industry will increase phenomenally. Moreover, if the Indian food processing industry has to achieve the projected growth targets set, and become globally competitive, the need to develop and train the human resource would be essential.

Globally it has been experienced that skill shortages generally arise in the situations (a) when employers face difficulties in finding staff with the appropriate skills, experience or qualifications to fill vacancies, (b) when employers finds that there are skill gaps, as the existing employees lack the required skills, qualifications and experiences and (c) when employers are unable to recruit the required staff due to other factors like low remuneration, unsatisfactory working hours, distant location, dearth of sector-specific specialized skills. The food processing industry is also grappling with the similar issues of skill shortages and FICCI feels, if this is not addressed well in time; the food processing industry will lag behind vis-a vis other sectors of the economy.

Considering the criticality of this issue and to analyze the skill shortage and anticipate the future demand of workforce in the food industry, FICCI conducted a pan India survey to gauge the responses of various food Industry players. The findings of the survey indicated that similar situation of skill shortages exists across many segments of the food industry.

The results of the survey, presented ahead, provide important insights into the areas where both the government and the industry need to focus their time and resources to address the issues at hand.

On one hand the industry needs a large number of skilled workers to perform various functions at the shop floor; on the other hand the industry requires world-class professionals of excellent quality.

Chapter II - The Study

To get a macro view of various industries, across the food sector, where the demand -supply gaps are huge and rising, FICCI conducted an industry wide pan India survey across different states.

The survey was circulated to approximately 600 organizations across the entire food value chain and the total responses received were 250, which constitute our sample size.

FICCI skill demand study focused on following aspects:

1. Quantitative and qualitative analysis of workforce demand scenario in the food industry
2. Current Status of shortage of manpower in the sector
3. Current status of the course curriculum offered by various institutes and industry expectations
4. Current duration of training provided to the newly hired employees, which in turn reflects the efforts, put in by the industry for up gradation of basic skills.

For the study, the food processing industry was classified on the basis of various categories:

1) Fruits & vegetables
2) Dairy
3) Meat & poultry
4) Alcoholic beverage
5) Non-alcoholic beverages
6) Bakery & Confectionary
7) Fish & marine
8) Ready to eat
9) Spices, tea & coffee
10) Food safety, testing lab & research
11) Food ingredients
12) Edible oil
13) Others

Further, various functional roles identified within a food organization were:

1) Production Managers & Engineers
2) Quality Control &R&D specialists(includes lab testing, auditing)

3) Supply chain & logistics
(includes purchase & dispatch managers)

4) Regulatory & legal experts

5) Marketing/sales Professionals

6) Shop floor technicians, supervisors
Refrigeration mechanics and others

Food processing organizations were further segregated on the basis of size of employees.

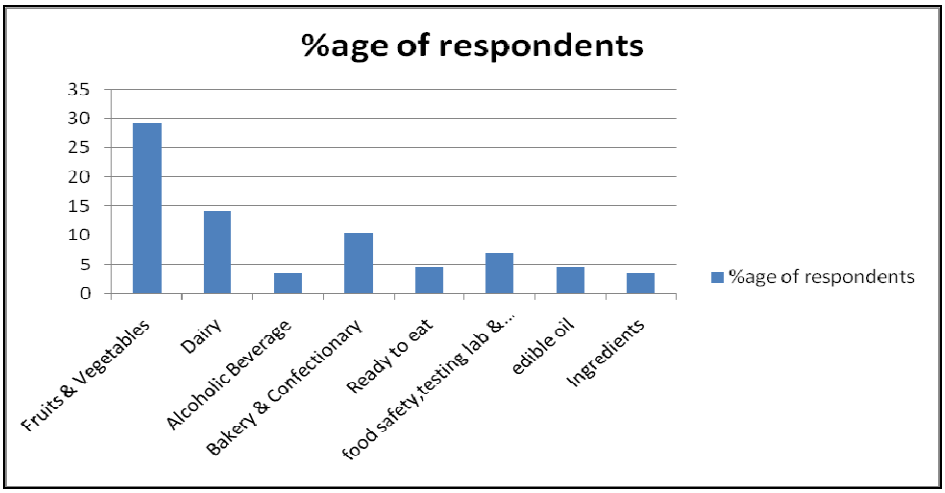
On the basis of employees' strength, the organizations were classified as follows:

7) More than 500 employees
8) Between 100 – 500 employees
9) Less than 100 employees

For each function within a food organization, expected increase in demand of skilled manpower over a period of one year and five years has been analyzed for each industry size.

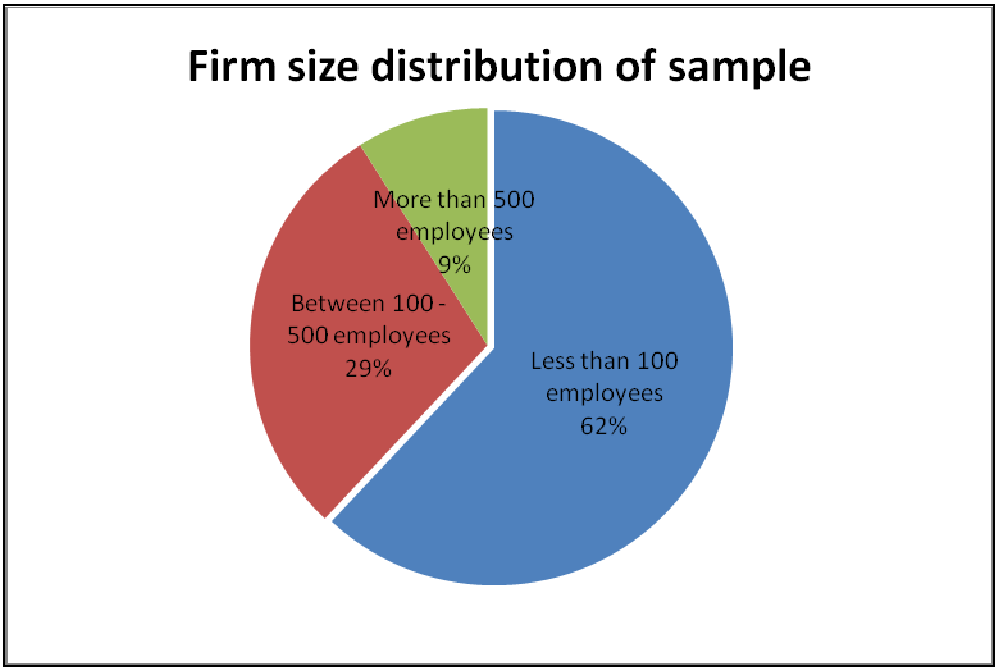
Respondents Profile

A macro view of the respondents from different categories can be shown as below:



The respondents for the survey represented Fruits & vegetables domain which constituted 29% of the entire sample, followed by dairy and bakery & confectionary constituting 14 % and 10% respectively. A sizeable percentage of respondents were also from Food safety, and testing laboratories.

According to the size of firm, respondents profile can be summarized as below:



FICCI survey showed that maximum percentage of respondents fell under the category of organizations with less than 100 employees i.e. 62% of total respondents. Organizations with employee strength of between 100 – 500 employees constituted 29% and 9% accounted for the firms with employee strength more than 500.

Chapter III- Key Findings and Analysis

I) Expected increase in demand of employees across various functional roles

With rapid expansion of the processed food industry, there is going to be a huge increase in demand for professionally skilled manpower. The Industry aims to grow at a rate of 40% of the current market size by 2015, to touch USD 258 billion by 2015**,** which can be achieved only if the challenges faced by the sector are fully addressed. One of the major bottlenecks hampering the growth of the sector is the availability of skilled manpower in various roles within the food industry.

The food industry employs a variety of managerial and professional workers. Managers include top executives, who make policy decisions; industrial production managers, who organize, direct, and control the operation of the manufacturing plant; and advertising, marketing, promotions, public relations, and sales managers, who direct advertising, sales promotion, and community relations programs.

Food manufacturing workers perform tasks as varied as the many foods we eat. For example, they slaughter, dress, and cut meat or poultry, process milk, cheese, and other dairy products, can and preserve fruits, vegetables, and frozen specialties, manufacture flour, cereal, pet foods, and other grain mill products, make bread, cookies, cakes, and other bakery products, manufacture sugar and candy and other confectionery products, process shortening, margarine, and other fats and oils, and prepare packaged seafood, coffee, potato and corn chips, and peanut butter.

Engineers, scientists, and technicians are becoming increasingly important as the food manufacturing industry implements new automation and food safety processes. These workers include industrial engineers, who plan equipment layout and workflow in manufacturing plants, emphasizing efficiency and safety. Also, mechanical engineers plan, design, and oversee the installation of tools, equipment, and machines.

Food scientists and technologists work in research laboratories or on production lines to develop new products, test current ones, and control food quality, including minimizing food-borne pathogens. Finally, many sales workers, including sales representatives, wholesale and manufacturing, are needed to sell the manufactured goods to wholesale and retail establishments.

Considering the importance of the role of each employee at various stages of food processing, the survey attempted to project the demand that will arise in future for various functions

operational within the Industry. For different size of industry the demand varies, hence the results have been analyzed separately for each industry size.

Firm Size: Less than 100 employees

Various Roles	Expected %age increase in demand - 1 year	Expected %age increase in demand - 5 years
Production Managers & Engineers	75	125
Quality Control &R&D specialists (includes lab testing, auditing)	66.66	100
Supply chain & logistics(includes purchase & dispatch managers)	65	95
Regulatory & legal experts	50	100
Marketing/sales Professionals	71.42	142.85
Shop floor technicians, supervisors Refrigeration mechanics and others	100	150

Firm Size: Between 100 – 500 Employees

Various Roles	Expected %age increase in demand - 1 year	Expected %age increase in demand - 5 years
Production Managers & Engineers	27.27	81.81
Quality Control &R&D specialists (includes lab testing, auditing)	33.33	77.77
Supply chain & logistics(includes purchase & dispatch managers)	50	100
Regulatory & legal experts	33.33	66.6
Marketing/sales Professionals	48	160
Shop floor technicians, supervisors Refrigeration mechanics & others	25	57

Firm Size: More than 500 Employees

Various Roles	Expected %age increase in demand - 1 year	Expected %age increase in demand - 5years
Production Managers & Engineers	69.09	127.27
Quality Control &R&D specialists (includes lab testing, auditing)	60	100
Supply chain & logistics(includes purchase & dispatch managers)	45.45	54.54
Regulatory & legal experts	66.66	83.33
Marketing/sales Professionals	25	50
Shop floor technicians, supervisors Refrigeration mechanics and others	36.66	66.66

Source: FICCI primary survey

FICCI survey reveals that irrespective of the firm size there would be huge demand for skilled professionals, both at the higher end technical skills and lower end skills.

- ***Production Managers & Engineers - It is expected that within a period of one year there would be an approx demand of 9,53,876 production managers and engineers in the sector, and would increase to 13,05,304 employees by 2015, which is currently around 65000 (46% increase in demand in 2010 and 100% by 2015)***

- ***Quality Control and R&D specialists: Demand of approx 8,03,264 quality control & R&D specialist is expected by 2010 and around 10,29,182 specialists by 2015(52% increase in demand in 2010 and 95% by 2015)***

- ***Supply chain & logistics : A huge demand of supply chain & logistics professionals is also expected in the sector, which will be around 8,28,366 in 2010 and approx 9,03,672 professionals by 2015(50 % increase in demand in 2010 and 63% by 2015)***

- ***Regulatory & legal experts: Although the number of experts in this area are relatively few currently, but it is expected that over a period of time a huge demand for regulatory & legal experts will arise. Demand is going to increase to approx 1,50,612 experts by 2010 and to 175714 by 2015(50% increase in demand in 2010 and by 75% in 2015)***

Also, at the lower end increase in demand for Shop floor technicians, ***supervisors Refrigeration mechanics and others would be 40% in 2010 and 70% by 2015 (I.e. approx 21,83,874 people by 2010 and 26,85,914 people by 2015)***. Meeting this demand would be challenging, since 80% of the total work force in the food processing sector comprises of people having lower end skill set.

The above mentioned demand figures for various roles have been arrived at, on the basis of following assumptions:

1) *25% of the total food industry is organized (source: MOFPI) hence extrapolation done on the basis of organized share to arrive at entire industry size.*

2) *Number of food processing units in India: approx 25 thousand (organized & unorganized) {MOFPI annual report 2005 figures(organized sector) + growth estimate of average 6% yearly of the sector}.The above figures **exclude** Rice mills, Solvent extract units and small bakeries and traditional units.*

3) *FICCI survey findings were used to arrive at average number of employees in various functions per organization.*

II) Status of shortage of skilled manpower in the sector

Because of the considerable mechanization in the industry, most food manufacturing plants face the issue of low productivity. But now with modernization and big expansion plans, in some highly automated plants, "hands-on" manual work has been replaced by computers and factory automation, resulting in less waste and higher productivity. Although much of the basic production—such as trimming, chopping, and sorting—will remain labor intensive for many years to come, automation is increasingly being applied to various functions, including inventory management, product movement, and quality control issues such as packing and inspection.

This transition towards automation, calls for an immediate need of right resources, which are well equipped and trained manpower with the newer processes and cutting edge technologies.

To understand the current status of shortage of trained manpower in the sector, FICCI survey highlighted following quick facts:

According to the respondents, **maximum skill shortage in the sector is for below mentioned roles, in the following order (high to low):**

- **Quality control and R&D specialists**
- **Regulatory and legal experts**
- **Production managers & engineers**
- **Shop floor technicians**, **marketing/sales professionals and**
- **Supply chain & logistics incharge**

The shortage of Quality and R&D specialists is one of the major bottlenecks hampering new product development and innovation in the food processing industry, unlike the food processing companies in developed nations, which have become competitive, because of inherent strength and strong focus on R&D and quality control. The shortage of quality control specialists and regulatory & legal experts is one of the prime reasons for non compliance of domestic and international regulatory and quality standards. The non compliance to international quality & regulatory standards has resulted in rejections of agri products in the global markets.

Due to lucrative job opportunities in other sectors, there is scarcity of production managers & engineers in the food processing sector, which needs to be addressed, if this sector has to grow and become globally competitive.

Though the demand for shop floor technicians, marketing professional and supply chain & logistics managers isn't the immediate cause of worry, but considering the strong policy measures taken by the Government to promote investments in the entire value chain, demand for logistics & supply chain managers, retail managers will go up significantly and meeting this demand would be challenging for the industry.

Thus considering the shortage of human resource in above fields, it is imperative that additional focus need to be given to address the issue and meet the immediate demand requirement across different functional levels in the food processing sector.

III) Training provisions for new employees

A strategy to achieve full employment must include as an important component, a strategy to ensure that all new entrants to the workforce are equipped with the knowledge and skill needed for high productivity and high quality.

The skills provided have to be attuned to new business requirements; focus on improving quality of education and trainings at all levels; and make technical/ vocational education system more flexible and inclusive for sustainable growth.

To understand organization's contribution towards the training of their employees, FICCI survey analyzed Industry perspective of various courses offered by educational institutions and their views about it being attuned to the needs and demand of the job.

The survey results revealed following facts:

- **55% of the respondents were satisfied with the course curriculum of the institutions**
- **35 % showed discontent with the current course structure**
- **9 % unsure about the courses' relevance.**

These results show that although majority of respondents are content with the course curriculum at various institutions, but still a sizeable percentage of respondents believe that workers must be trained as per the needs of the industry and not in a theoretical framework. ***35% of the respondents still believe that the course offered at various institutions' are outdated, not regularly revised and lack industry orientation. There is serious lacuna in the teaching pedagogy and methodology followed in such institutions. There is lack of focus on R&D, applied research, new product development, leading to disconnect between Industry & academia***. The course content has to be developed keeping in mind the industry demand with more focus on research & development, latest cutting edge technology and innovations, cost effective technology and packaging solutions with a futuristic look, considering the developments in the food processing sector.

FICCI survey also observed that to prepare and train the newly hired professionals according to the Industry needs, almost every organization conducts a formal training programme for their employees. The survey results also showed **that 79% of the organizations offer formal training to their employees,** though the period of training varied from industry to industry, according to its size. This shows that most of the companies have to spend lot of time to train the workforce, before actually absorbing them in the organization, which is huge wastage of resources. The training needs/timings could have been reduced if the institutions engaged in offering courses/training in various fields of processing would have been providing industry oriented training programs to the candidates. However with the formation of Skill Development Council (NSDC) this issue should get addressed to certain extent for skills required at the lower end. However for higher end skills, there needs to be clear emphasis on imparting industry oriented training programmes, which ironically is offered by very few institutions like CFTRI in the country. The objective is to have basic skills, be it at the higher end or the lower end, to be imparted by the institutions engaged in training and development, be it vocational/ITI/Universities/private institutions etc.

Following Survey results show the percentage of respondents offering training to newly hired employees for each given time period:

Number of hours of training	**Size of Industry**		
	<100 employees	100-500 employees	<500 employees
less than 200 hrs	22%	29%	27%
b/w 200-600 hrs	32%	33%	24%
b/w 600-1200 hrs	44%	35%	42%
more than 1200 hrs	2%	3%	7%

The above figures show that very few organizations across all sizes, offer training for duration of less than 200 hours, before streamlining their employees in core functions. However there is significant percentage of companies irrespective of the size offering training programs of more than 600-1200 hrs duration, which clearly shows the amount of resources wasted to train the newly hired workforce. **FICCI estimates show that this accounts to a total monetary loss of approx. 1 billion for food processing companies.**

Also, every organization employs different tools to train the newly hired. FICCI survey highlighted how the organizations of different size train their workers, before putting them into main stream jobs.

Below is a snapshot of the survey findings:

Training efforts by organizations	**Size of Industry**		
	<100 employees	100-500 employees	<500 employees
In-house	61%	54%	52%
Outsourced	14%	12%	12%
Industry sponsors for additional courses	9%	20%	18%
Both In-house and outsource	16%	14%	20%

FICCI survey reveals that most of the companies irrespective of the size, offer and spent significant time & resources on in-house training programs to newly hired employees. This shows, the want of, the state of art institutions imparting industry oriented training programs/courses, especially on technical skills, for which the industry prefers to invest in-house. This is a serious wastage of resources, which Industry could have focused on up gradation of the existing skills, on innovations & R&D, and latest and cutting edge technology. However for the want of skilled manpower, industry spends most of the time to train and equip the human resources with basic skill set, needed at various functions in the Industry. This is a very alarming situation for the growth of food processing industry and needs to be addressed. The non availability of the skilled resources across functions is one of the prime reasons, why this industry is still battling to grow and become competitive in the global arena.

IV) Employer's satisfaction from modern workforce – A qualitative analysis

FICCI survey observed that many of the business executives believe that India is not producing workers with the high-quality skills needed to meet modern workforce needs. This is a problem of both relevance and quality. Many respondents pointed to lack of acquaintance with modern tools and techniques, modern key communication, inter-personal and critical thinking abilities as major hindrances. While technical skills are still important to the bottom line of most companies, there seems to be a growing sense that this is something industry itself must help provide.

FICCI survey also analyzed the satisfaction level of the employers from their employees with regard to various criteria's crucial for an organization's performance and overall growth.

Criteria	**Percentage of Employers satisfied**	
	Satisfied	*Not satisfied*
Technical skills and knowledge needed for the job	42%	58%
Ability to use appropriate and modern tools, equipment, and technologies specific to their jobs	28%	72%
Ability to deliver work on time in accordance with the quality standards	34%	66%
Ability to design a system, component, or process to meet desired needs	32%	68%

From the findings of the survey, it is evident that there is a need to have access to human resource with the right skills - technical, managerial and generic skills.

FICCI survey results show that **58% of the companies** are not satisfied with the current level of **technical skills and knowledge needed for the job,** with their employees, **72% of the companies** feel that their **employees lack ability to use appropriate and modern tools, equipment, and technologies** specific to their jobs and **66% feel their workforce lack ability to deliver work on time in accordance with the quality standards** and **68% feel they don't have ability to design a system, component, or process to meet desired needs.**

Considering this, there is a pressing need for more focus by the industry members on overall development of their employees which involves the improvement of technical, managerial and customer service skills.

Chapter IV - Recommendations

FICCI feels that there is an immediate need to focus and address the critical issue of meeting the increasing skill demand in the food processing industry.

A short term and long term course of action that can be employed to face the challenge of rapidly rising human resource requirement in the sector is summarized below:

Short term action to be taken

1. Since 35% of the respondents still believe that the courses offered by various institutions are outdated and not regularly revised, it becomes imperative to review the course curriculum to match industry expectations. The government should immediately formulate a task force of all the stakeholders comprising of senior experts from industry, academia and the Government to get the course curriculum across all institutions and training institutes reviewed and updated. The review committee should set appropriate deadlines for reviewing the same. The courses curriculum needs to be updated regularly (at least once in 3 years, currently it happens once in 5-10 years) so that they are in line with current industry needs.

2. The Government could also establish a nodal body or authorize NIFTEM to act as the central monitoring agency for all institutions across the country offering course in food processing. The nodal agency would in turn ensure that the course curriculum is regularly updated, as and when needed, to meet the Industry expectations.

3. There is a need for immediate adoption of ITI's by the food processing industry in various clusters across the country to upgrade the lower end skills. The candidates after training could be directly employed by the industry; this model is already prevalent in some parts of the country at small scale, but now it needs a big push from the industry.

4. Food processing Industry should partner with few food technology/processing institutes on a pilot basis for up gradation of higher end skills, and the same could be replicated for more and more institutions. However, the government needs to address the regulatory/policy issues to facilitate this engagement at a broader scale rather than on piece meal basis.

5. FICCI survey on challenges faced by food processing sector has highlighted that shortage of Quality and R&D specialists is one of the major bottlenecks hampering new product development and innovation in the food processing industry, and therefore the Government should immediately get NIFTEM operational, and at the same time create a

road map for setting up similar state of art institutes of excellence across various parts of the country.

6. Government should immediately formulate an empowered committee on skill development for food processing sector, lead by the Ministry of food processing to review the existing state of affairs of manpower requirement in the food processing sector, and also set a vision for skill development in food processing. The committee should also consider the work that is already being done by various ministries and associations in this direction.

Long term Initiatives/action to be taken

i. Each state government should have a skill development cell, either dedicated to the food processing, where ever possible, or focusing on different sectors. The cell should be under the department of industries or food & agriculture. The state skill development cells can get the strategic inputs for running the cell from central government lead by Ministry of food processing.

ii. The government should allocate separate budget for human resource development for food processing sector for enhancing and up gradation of the skills and implementation of the various schemes for skill development. All the skills development cells and other organizations and ministries should work in tandem for effective implementation of the objectives set.

iii. Food processing Industries should partner with more and more food technology/processing institutes for up gradation of higher end skills, research and development, product innovation and should also encourage the institutes to take up consultancy work for the industry.

iv. Encourage and establish more centers of excellence like NIFTEM (The National Institute of Food Technology Entrepreneurship and Management) to promote cooperation and networking amongst existing institutions both within the country and international bodies, create a complete data base on domestic resources and bring in international best practices for improving the food processing sector.

v. Educational and training institutions should offer core courses in the area of 'Food Science' and 'Food Technology' catering to the needs of various stakeholders such as entrepreneurs, industry, exporters, policy makers, government and existing institutions. Majority of institutes could be located in the states where maximum activity in terms of food processing will happen in next five to ten years.

vi. The world class academic institution/training institutions to be set up over a period of time, catering to the educational and training needs of human resource in the Food Processing Industry, can undertake the following:

- Serve as nodal centers for assessing training requirements and formulating vocational training programs for various semi-skilled and skilled workforce of the food processing industry throughout the country.
- Structure and offer specialized management programs to meet the techno-managerial manpower requirement of the industry and foster entrepreneurship
- Offer world class graduate and research programs in all key FPI sub sectors to create a talent pool of international standards, well equipped to meet the aspirations of the food processing industry.
- Offer continual training to personnel of the industry to keep them abreast of latest technical developments and facilitate the relevance of high level curricula to Industry.
- Serve as information resource centers for standards, quality, accreditation, certificates etc.
- Assist to overcome regional and local variations in education by structuring and updating the course curricula.
- Offer more need based short term courses or training programs across sectors. This would also enable existing employees in the FPI sector to get updated with the latest trends /knowledge in their respective fields.

vii. Adopt some global best practices followed in various developed nations

- ✓ Introduce a system of double shift training program at training institutions involving vocational institutes, industrial training institutes, community colleges and polytechnics as well as skills development centres. This approach would increase the number of trained manpower phenomenally.
- ✓ Increasing collaboration between institutions of higher education and industry and for this purpose the Academia- Industry Consultative Council could be established.
- ✓ Introduce National Dual Training System (NDTS). This system places emphasis on training in the workplace thus promoting greater private sector participation with regard to skills training. This system though already in existence at small scale need to be further pushed.

Conclusion

The Food Processing industry in the country was dominated by basic processing segments such as paddy, flour and oil milling until a few years ago. However with increasing consumer awareness of global trends on the one hand, and growing demand for convenience on the other, the industry has been under increased pressure to develop innovative products, packaging, delivery systems and processes. The advent of such new and improved food products has meant greater sophistication and modernization of food processing units, higher efficiency level in performance, advanced research and development work and innovative marketing. This in turn has created the need for qualified workforce in each of these areas. The diverse scope of the food industry which spans the entire gamut of its sub sectors, such as grain-milling, fruit and vegetable processing, fisheries, dairy processing etc., calls for specialized human resources with in-depth expertise in their focus areas.

FICCI survey, by providing a broad picture of demand of human resource in food processing industry, stands testimony to the dire need of specialized and generic skill sets across the entire food value chain. A combined effort by the Industry, Academia and the Government to address the skill problem of the sector is the need of the hour. A focused approach would result in the achievement of the growth targets set for Indian food processing industry and will help the sector, which has high potential, to become globally competitive.