Chapter -2

Profile of FPI and Agriculture of India

2.1 Introduction

FPI is one of the largest industries of the India economy, its rank is fifth in the terms of production, consumption, exports and expected growth rate. With the fifth rank FPI is an important segment of the Indian economy in term of its contribution to GDP, employment and investment. The sectors contribute much as 9.0 to 10 per cent of GDP in agriculture and manufacturing sector.[1]The industry contributes to a large extent such as: 19% of industrial labour force working in the FPI, contribution in GDP is 5.5% and share in globe trade1.7%.The Government has formulated and implemented several plan schemes to provide financial assistance for setting up and modernizing food processing units, creation of infrastructure, support for research and development and human resource development in addition to other promotional measures to encourage the growth of the processed food sector.

2.2 Definition of Food processing

Food processing is set of methods and techniques used to transform raw ingredients into the food or to transform food into other for consumption by human or animal either in the home or by FPI. This definition is based on old literature. Since the Ministry of Food Processing has to compile the data from all such sources, there is a need for conceptual clarity on food processing. An inter-ministerial stakeholder meeting was held in the ministry, where a decision has taken on the definition of food processing industries. In future the ministry will include under food

[1] Ministry of food Processing Industries Annual Report (2012-13)

processing industries, items pertaining to these two processes viz. (a) Manufactured Processes: if any raw product of agriculture, animal husbandry or fisheries is transformed through a process (involving employees, power, machines or money) in such a way that its original physical properties undergo a change and if the transformed product is edible and has commercial value, then it comes within the domain of FPI and (b) Other Value Added Processing: Hence, it there is significant value addition (increased shelf life, shelled and ready for consumption etc.) such process also comes under food processing, even if it does not undergo manufacturing processes.[2]

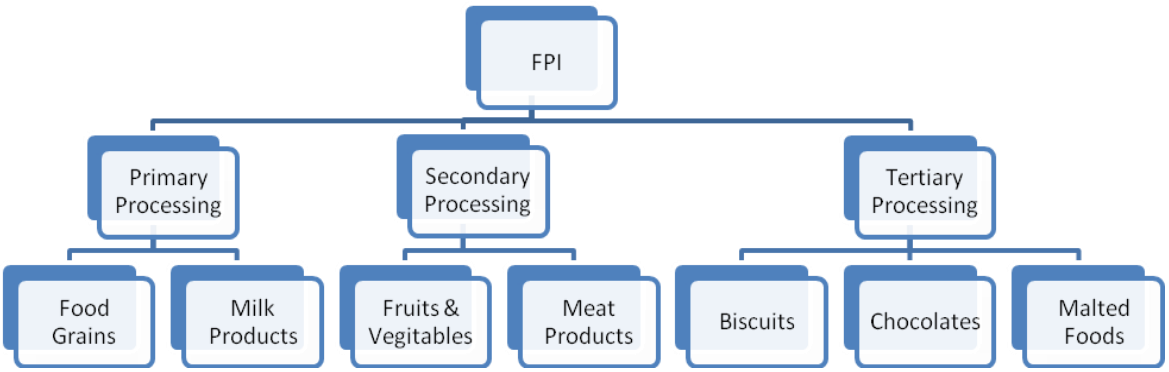
2.3 Industry Basic Classification

The FPI can be classified by the extent of processing involved in the manufacturing of the finished product.

Primary processing relates to conversion of raw agricultural produce milk, meat and fish into a commodity that is fit for consumption. It involves steps such as cleaning, grading, sorting, packing etc. Secondary processing would include the modification of a basic product to a stage where it requires some value addition in the kitchen, tomato puree, ground coffee and cleaning and processing of meat products are all processed up to the secondary stage. High value added brands like jam, sauces, biscuits and other bakery products are all food items include in the final or tertiary stage of processing and are ready for consumption at the point of site.

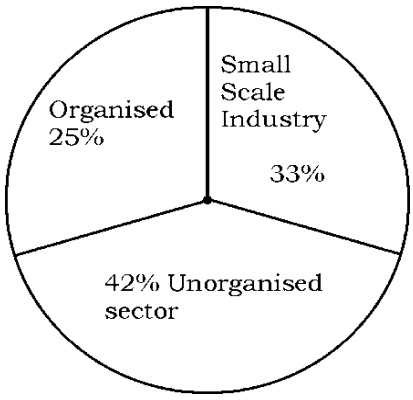
[2] Ministry of food Processing Industries,(2012-13) Govt. of India.

Figure: 2.1 Segmentation in FPI



In terms of broad structure, the industry is dominated by unorganized sector see in **Figure:2.1** The share of Indian FPI in total manufacturing sector is a major part. The organized sector consisting of large companies accounts for only 25% of the market. Thus around 75% of the market is divided between the small-scale sector (33%) and the unorganized sector (42%).

Figure 2.2 Structure of the Indian FPI (Value in Percent)



Source: Ministry of FPI

2.4 Historical Perspective

The middle of the nineteenth century, common agro processing industries included hand pounding units for rice, water power driven flour mills bullock driven oil grannies, bullock operated sugar, crushers, paper making units, spinning wheels and handloom units for weaving. In British India, during the year 1863, a note was written by the Governor of Madras state, Sir William Denison to the government of Madras state for laying greater stress on agriculture and agro processing (Royal commission 1928), Based on this, a set of improved machinery was brought from England for demonstration and adoption. It included threshing machines; winnowers chaff cutters, besides steam ploughs, steam harrows, cultivators, seed drills and hoes. The demonstration continued at set a pet near madras till 1871 with little outcome.

Importance of agro-processing sector was first realized and documented after the disastrous famine of Bengal during 1870's report of the famine commission, set by the British government, in its report submitted in 1880, clearly stated the need for agricultural improvement and improvement past harvest infrastructural development specifically, rail network[3].

The Royal Commission on Agriculture set up by the British government conducted a detailed study. In its report published during the year 1928, It called for scientific approach to the sector and stressed for developing rural industries and cooperatives.

Realizing the importance of the agro-processing sector for rural development as a tool for POORN SWARAJ, Mahatma Gandhi during 1930's promoted CHARKHA and balanced

1. K.P. Kachru, (May 2008), "Agro Processing Industries in India-Growth, Status and Prospects.

nutrition by setting example and writing articles in his famous magazine "Harijan". It was continued by his followers namely, Narhari Bhave, Binoba Bhave and Jay Prakash Narayan. They promoted self-dependence thought KHADI and village industries.

Post independence era in India witnessed rapid growth in agro processing sector specifically during 1980s. It followed the first phase of the Green Revolution that had resulted increased agricultural production and the need for its post harvest management. The importance of the sector was realized by business community leading to diversification from grain trading to processing. Lead was given by the rice processing industry, followed closely by wheat milling, paper and pulp industry, milk processing sector, jute industry, sugarcane processing and oils extraction through solvent plants. In some areas like fruits and vegetable processing, the growth has not been encouraging an account of poor demand for processed products by the consumers. In such cases, the industry has also not been able to develop the demand adequately.

2.5 Contribution of FPI in GDP

Table: 2.1 shows the contribution of FPI and total manufacturing sector in the GDP at 2004-05 Prices. The GDP of India increase Rs 4493743 crore in 2009-10 from Rs 3254216 crore in 2005-06, with Compound Annual Growth Rate (CAGR) of 8.40%. The contribution of FPI sector has increased to Rs 66078 crore in 2009-10 from 47,6689 crore in 2005-06 with CAGR of 8.49 %. CAGR for total manufacturing sector during the same period has been 9.35%. .

Table:2.1

Contribution of FPI in GDP at 2004-2005 Prices

Rs In crore

S. No	Share/Year	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	CAGR (5Year)
	GDP at Factor Cost, Of which	29,71,464	32,53,073	35,64,364	38,96,636	41,58,676	45,16,071	49,37,006	52,43,582	8.0
1	**GDP Agriculture***	5,03,786	5,31,745	5,54,395	5,89,383	5,88,757	5,92,110	6,43,111	6,67,446	3.8
2	**GDP Manufacturing**	4,53,225	4,99,021	5,70,458	6,29,073	6,56,302	7,30,435	8,01,477	8,23,023	7.6
3	**GDP-FPI**	44,355	47,689	52,161	57,320	60,378	58,752	67,508	78,094	8.4
	Registered	22,148	26,780	30,709	34,753	39,253	37,813	45,042	51,877	11.1
	Un-registered	22,207	20,910	21,453	22,568	21,125	20,939	22,467	26,217	4.1

Source: Data Bank on Economic Parameters of the Food Processing Sector.

2.6 Sectors and Products wise Processing of Agricultural and Agricultural Allied Sector in India

Food processing is encompassing a wide range of activities such as agriculture, horticulture, plantation, animal husbandry and fisheries. It also includes other industries that use agriculture input for manufacturing of edible products. The ministry of FPI, government of India indicates the following segment within the FPI-

1. Dairy, fruits and vegetable processing
2. Fisheries
3. Grains processing; meat and poultry processing
4. Consumer foods including packaged food.

Table 2.2 shows the level of processing of different products. We can see in the table that, highest level of processing in milk and meat products because these sectors are largest organization sectors of FPI. The high post harvest wastage, very low value addition in F&V products and processing are only 2.2% of total production in India, which show mismanagement in the use F&V production.

Table: 2.2 Level of Food processing in major commodities

Fruits & Vegetables	**2.2 %**
Meat	**20 %**
Poultry	**6 %**
Marine	**16**
Milk	**25 %**

Source: Annual Report of Food Processing Industries, Government of India, 2010-11

2.7 Fruits and Vegetables Processing

India is first in the production of fruits and second in vegetables, in spite of this Indian's share in international trade is low because in India 35% fruits and vegetables are wasted every year due to the low processing only 2.2 of total production (See in Table: 1.2) and the lack of storage facilities and others infrastructure facilities.

Over the last few years there has been a positive growth in ready to serve beverages, fruits juices and pulps, dehydrated and frozen fruits and vegetable products, pickles, convenience veg-spice pastes, processed mushrooms and varied vegetables. The domestic consumption of value added fruits and vegetables products are also very low compared to fresh fruits and vegetables in particular, which is attributed to higher incidence of tax and duties including that

on packaging material lower capacity utilization non-adoption of cost effective technology, high cost of finance, infrastructure constraints, inadequate upon intermediaries. The smallness of units and their inability for market promotion are also reasons for inadequate expansion of all the domestic market. The major fruits grown in India are mango, grapes, apples, apricots, orange, banana, fresh auocadas, guava, litchi, papaya, sapota and water melons; Mango accounts for 40% of the national fruit production and India is one of the leading exporters of fresh table grapes to the global market.

2.8 Meat Processing

The Indian meat processing sector is in the hands of small and medium scale. In meat and meat processing sector, poultry meat is the fastest growing animal's protein in India. The processing of this sector is 20 % of total production which is second highest after milk (see in Table 1.2). The estimated production of meat was 6.5 million tons during 2007-08. The necessary infrastructure is required for the development processing of meat and meat products for domestic market and also for exports. The Ministry of food processing industries is providing financial assistance by way of grant-in-aid. The ministry has extended the financial assistance during the last three years as under.

Table 2.3

Meat Processing

Year	No. of units	Grants-in-aid
2008-09	8	1.80 disbursed
2009-10	10	2.33
2010-11	20	4.55

Source: Annual Report of Food Processing Industries, Government of India, 2010-11

2.9 Fish Processing

India is the third largest fish producing country in the world and ranks second in inland fish production. The 8,000 km coastline from both inland and marine resources, 3 mn hectares of reservoirs, 1.4 mn hectares of brackish water, 50,600 sq km of continental shelf area and 2.2 mn sq km of exclusive economic zone supplement India's vast potential for fishes.

Processed fish products for export include conventional block frozen products, individual quick frozen products (IQF), minced fish products like fish sausage, cakes, cutlets, pastes, surimi, textures products and dry fish etc. Exports of marine products have been erratic and on a declining trend which can be owed to the adverse market conditions prevailing in the EU and US markets. The anti-dumping procedure initiated by the US Government has affected India's shrimp exports to the US.

Considerable infrastructure facilities for processing of marine products have been developed over a period of 50 years. However, a large number of processing and freezing units are required to release the potential of the sector .Ministry of food processing industries extended financial assistance for setting up technology up gradation of fish processing unit. The ministry has released grants of 126 lacs to 6 applicants (up to 31.12.2010)[4]

2.10 Milk Processing

India got first place in milk production throughout the world, maintaining the top position since 1988, to successful implementation of the operation flood programmers. World milk production is estimated at 693 million tons during 2007-08 and Indian milk production stands at 105 million

[4] Annual Report of Food Processing Industries, Government of India, 2010-11

tones. Despite a higher growth rate, the per capita availability of milk in India (252 grams per day). Buffalo milk is now estimated to account for 57% of the total milk production in India.

About 25% of milk production in India is processed which is highest among all products of agriculture and allied sector. The organized sector (large scale dairy plants) processes about 13 million tones annually, while the unorganized sector (halwaiis and vendors) processes about 22 million tones per annum. In the organized sector, there are 789 dairy plants in the Cooperative, private and Government sectors registered with the Government of India and the state Government's export of dairy products.

The ministry of FPI is promoting organized dairy processing sector to meet upcoming demands of processed dairy products and helping to identify various areas of research for future product development and quality improvement by way of providing financial assistance to the dairy processing units. The ministry has released grant of 1088 lakh to 52 applicants (up to 31.12.2010)

2.11 Consumer Industries

Consumer food industry includes pasta, breads, cakes, pastries, rusks, buns rolls, noodles corn flakes, rice flakes, ready-to-eat and ready-to-cook products, biscuits etc. Bread and biscuits constitute the largest segment of consumer foods. India's biscuits industry is the largest among all the food industries and has a turnover of around Rs. 3000 crores. India is known as the second largest classified under two sectors: organized and unorganized. Bread and biscuits are the major part of the bakery industry and cover around 80 percent of the total bakery products in India. Biscuits stand at a higher value and production level than bread. This belongs to the unorganized sector the bakery industry and covers over 70 percent of the total production.

The ministry of food processing industries provides financial assistance in consumer industries sector under the scheme of technology/modernization/expansion. The scheme has been decentralized w.e.f April 1, 2007.

Table 2.4

The assistance released to consumer industries onwards is as follow:

Year	No. of cases	Assistance Released
2007-08	156	3205.00
2008-09	112	1837.00
2009-10	145	2247.17
2010-11	111	1967.42

Source: Annual Report of Food Processing Industries, Government of India, 2010-11

India's biscuits industry came into limelight and started gaining a sound status in the bakery industry in the later part of 20th century when the urbanized society called for ready to eat food products at a tenable cost. Biscuits were assumed as sick-man's diet in earlier days. Even, the rural sector consumes around 55 percent of the biscuits in the bakery products.

2.12 Oil Milling Sector

Oilseeds and edible oils are two of the most sensitive essential commodities. India is one of the largest producers of oilseeds in the world and this sector occupies an important position in the agricultural economy and accounting for the estimated production of 28.21 million tones of nine

cultivated oilseeds during the year 2007-08. India contributes about 6-7% of the world oilseeds production. Export of oil meals, oilseeds and minor oil has increased from 5.06 million lone in the financial year 2006-07. In terms of value, realization has gone up from Rs. 5514 crores to Rs. 7997 crore. India accounted for about 6.4% of world oil meal export.

India is fortunate in having a wide range of oilseeds crops grown in its different agro climatic zones. Groundnut, mustard/rapeseed, sesame, safflower, linseed, nigerseed/ sector are the major traditionally cultivated oilseeds. Soyabean and sunflower have also assumed importance in recent year. Coconut is most important among plantation crops. In addition oilseed of tree and forest origin, which grow mostly in tribal inhabited areas, are also a significant source of oils.

2.13 Pulses Milling and Flour Milling Sector

For the adequate and focused growth of the sector, the ministry is providing financial assistance to the grain processing industries for its setting up/expansion/modernization in the form of grant. The main aim of the scheme is to promote the food processing sector with respect to adoption of modern technology to increase the quality of the product, reduce the cost of the production and generate employment in addition to reduction in wastage, value addition, fortification of food etc. The ministry has released grant of 907 lacs to 50 applicants in flour milling sector and 432 lacs to 51 applications in pulse milling sector (up to 31.12.2010). Following number of units along with the grant in aid disbursed during 2010-11 (upto December 2010) is as following:-

Table 2.5

Pulse & Flour Mills and Grant in aid Disbursed

Year	No. of Units Assisted		Grant in aid Disbursed	
	Pulse Mills	Flour Mills	Pulse Mills	Flour Mills
2007-08	13	14	183.13	433.51
2008-09	34	39	688.73	998.34
2009-10	23	29	162.49	393.60
2010-11	51	50	431.53	907.47

Source: Annual Report of Food Processing Industries, Government of India, 2010-11

2.14 Major Characteristics of the Indian FPI

Table 1.6 shows major characteristics of the Indian FPI since 2000-01 to 2009-10. Although number of factories and Net Value Added (NVA) in the food processing sector have been increased slowly-gradually increased over the years, invested capital are more than double during the same period which was 7020343 in 2001-01 and 17334979 in 2009-10. However, total inputs increased around three times from 1285329 in 2000-01 to 36986995 in 2009-10 in this sector during the same period. Wages to workers is around double during this period increased from 332588 in 2000-01 to 600875 in 2009-10.

Table 2.6

Characteristics of FPI

(value in lakh & figure in number)

Years	Factories	Invested capital	Total person engaged	Wages for workers	Total Inputs	Net value added
2000-01	23988	7020343	1332588	333983	12858329	1560827
2001-02	23485	7477426	1306677	342992	13182085	1644731
2002-03	23816	7956342	1308335	335258	15872432	1630158
2003-04	23839	8130845	1297074	333378	16062588	1593394
2004-05	25363	8408978	1342925	359266	18210701	1805955
2005-06	25725	9203854	1391616	398445	20079522	2345568
2006-07	25759	11248399	1476352	447811	24459229	3488800
2007-08	26220	13896917	1505246	516075	29679891	3500225
2008-09	27216	15706612	1563516	592470	35785392	4082493
2009-10	26164	17334879	1473989	600875	36986995	3661336

Source: Annual Survey of Industry Various Issues.

2.15 Foreign Direct Investment in Food Processing Sector

Now a day's Foreign Direct Investment (FDI) in India especially in case of retail, is a very hot issue in the discussion, but in case FPI, the government of India realized the importance of FDI

in 2005. That's why Government allowed 100 % FDI in all the FPI (except for items reserved for Micro, Small & Medium Enterprises, where FDI is permissible under automatic route up to 24%), subject to applicable laws/regulations/securities and other conditions. FDI under automatic route is approved at Reserve Bank of India (RBI) level and it does not require approval of Foreign Investment Promotion Board (FIPB). (See table 1.6.)

For estimating the total FDI in FPI, amounts reported for food processing, tea & coffee, vegetable oils & vanaspati and fermentation industries sectors have been added up.

Table 2.7

Foreign Direct Investment in Food Processing Sector from April 2000 to August 2011

S. No	SECTOR	Amount of FDI INFLOWS		% age with total FDI Inflows (+)
		(In Rs Crore)	(In US$ million)	
1	FPI	5872.16	1286.53	0.89
2	Fermentation Industries	4269.92	979.74	0.65
3	Vegetable Oil and Vanaspati	1103.22	238.72	0.17
4	Tea & Coffee	446.61	99.38	Negligible
5	Total in Food Processing Sector	11691.91	2604.37	1.78
Total		**658586.43**	**147088.13**	**100**

Source: DIPP, Ministry of Commerce

Note: Data includes some investment for rubber which is not a FPI

India need to sustain an average agriculture growth rate 4 to 4.5 % in order to reduce food insecurity and poverty. At this growth rate, agriculture development could more speedily

diversify into horticulture, fishery, dairying animal husbandry and other area[5]. So we can say FPI provides remunerative prices to farmers generate employment opportunities and provides convenience to consumers. There lies the answer to our major problem of agricultural development, disguised unemployment in agricultural sector, and unemployment in rural area, food insecurity and also helpful in rural development of India.

2.16 Competitive advantages that India enjoys in the Field of FPI

The Indian FPI is highly competitive and sunrise sector of the Indian economy. There are a large number of players in the organized as well as unorganized sector. The organized sector is small only 25 % of total food manufacturing, however, growing. For example, dairy sector poultry and marine are the largest organized sector of the FPIs. The sector offers potential for growth and a large number of Multi National Corporations have entered into India to leverage this opportunity. Some of the successful overseas players in this sector include Unilever, Cadbury, Nestle and Pepsi. These players face competition from strong Indian brands. Companies have adopted various strategies to maintain and increase their market share in India. These include competitive pricing, aggressive advertising campaign, expansion plans etc. Examples of such strategies are

- Agro Tech Foods uses two strategies to counter the threat of low priced competition. By launching lower-priced blended oils under the Sundrop umbrella, and acquiring a fairly strong presence in the mass market for edible oils through its low priced brand, Crystal. Secondly, it has reengineered its costs to lower its own fixed cost structure.
- In the mass segment, Britannia has introduced biscuit packs at lower price points.

[5] The Vision 2020, Document of the National Planning Commission, Govt. of India.

- Gits is strategically growing and broadening its export market and has launched new international style export packaging.
- The strategy followed by Haldiram is competitive pricing and labor intensive products that predominantly cater to the Indian palette. It follows aggressive marketing in terms of TV advertisements, print ads and kiosks of Haldiram's range of products at railway stations.
- Hindustan Level Limited has followed the strategy of divesting its non-core businesses and focusing on its food business as a growth driver.
- New products are being continuously launched in all product segments by Nestle. The dairy portfolio consisting of regular and flavoured curds, skimmed milk and fruit-based milk, condensed milk and butter is being expanded by launch of lassi and cheese.

2.17 Government Policies

- Post-harvest activities are an integral part of the food production system, and government's aim is to promote best practices for post-harvest handling and management along the entire food supply chain, focusing on a broad spectrum of operations and stakeholders in traditional and modern marketing systems. The ultimate goal of the system is to deliver high quality, safe food to consumers.
- The government has accorded it a high priority, with a number of fiscal reliefs and incentives, to encourage commercialization and value addition of agricultural produce, for minimizing pre/post harvest wastage, generating employment and export growth.
- Now no industrial license is required for setting up a new F&V processing industry and setting-up 100 per cent Export Oriented Units require specific Govt. approvals. Some

steps have taken by the government to enhance the growth of this sector. Many F & V processing industries are eligible for automatic approval of foreign technology agreement and up to 51 per cent foreign equity participation including tomatoes, mushrooms & other frozen vegetables, fruit, nuts, fruit-peel, fruit jellies, marmalades, fruit juices & vegetable juices etc.

- Now this sector is regulated by the Fruit Products Order, 1955 (FPO), issued under the Essential Commodities Act.
- Some items like: pickles & chutneys, tapioca sago and tapioca flour are reserved for exclusive manufacture in the small scale sector.
- Export of F&V products is freely allowed.
- The Government of India allows 100% FDI under the automatic route in the food processing sector, in agri-products, milk and milk products, and marine and meat products, except in the case of the following:
- Automatic approvals are provided for foreign investment and technology transfer in most of the cases. Units based on agri-products that are 100% export-oriented are allowed to sell up to 50% in the domestic market. There is no import duty on capital goods and raw material for 100% export-oriented units. Earnings from export activities are exempt from corporate tax. Additionally, there is 100% tax exemption for five years, followed by 25% tax exemption for the next five years, for new agro-processing industries.
- There is an increased awareness about the need to boost India's food processing sector given the country's immense potential with regard to agricultural production. Some of the policies and promotions for the food processing sector are:

2.17.1 Vision 2015 Action Plan: The Ministry of Food Processing Industries (MOFPI) has formulated a Vision 2015 Action Plan that includes trebling the size of the FPI, raising the level of processing of perishables from 6% to 20%, increasing value addition from 20% to 35%, and enhancing India's share in global food trade from 1.5% to 3%.

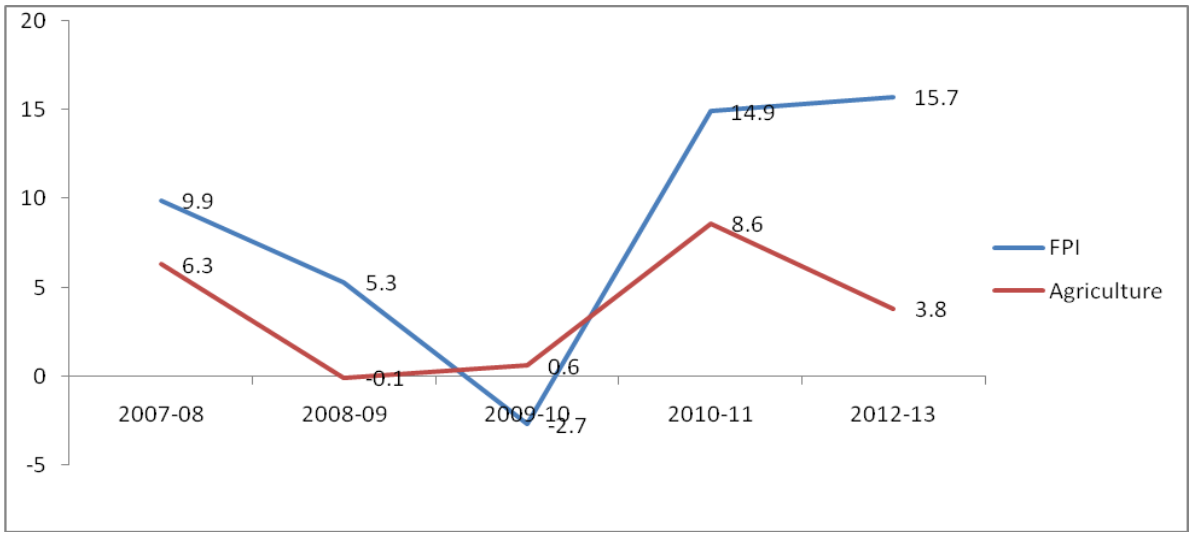
2.17.2 Mega Food Parks: According to the website of MOFPI, the Government of India is actively promoting the concept of Mega Food Parks (MFPs) and is expected to set up 30 such parks across the country to attract FDI. The government has released a total assistance of USD 23 million to implement the Food Parks Scheme. It has, until now, approved 50 food parks for assistance across the country. The Centre has also planned for a subsidy of USD 22 billion for mega food processing parks.

2.17.3 Agri-Export Zones: The government has established 60 fully equipped agri-export zones (AEZs), in addition to food parks, to provide a boost to agricultural and food processing exports.

2.18 Contribution of FPI and Agriculture in GDP

The Figure 2.3 shows that, the contribution of FPI to GDP has been growing faster than the agriculture sector. If the contribution to GDP of both agricultural sector and FPI were growing at the same rate, then it would mean that the growth in FPI is only due to increased agricultural raw material supply. However, what this graph indicates is that more and more agricultural products are being converted (in value terms) to food products. This means that the level of processing in value terms has been increasing.

Figure 2.3 Growths in the Contribution of FPI and Agriculture in GDP



Sources: Data Bank on Economic Parameters of the Food Processing Sector

2.19 Profile of Agriculture Sector

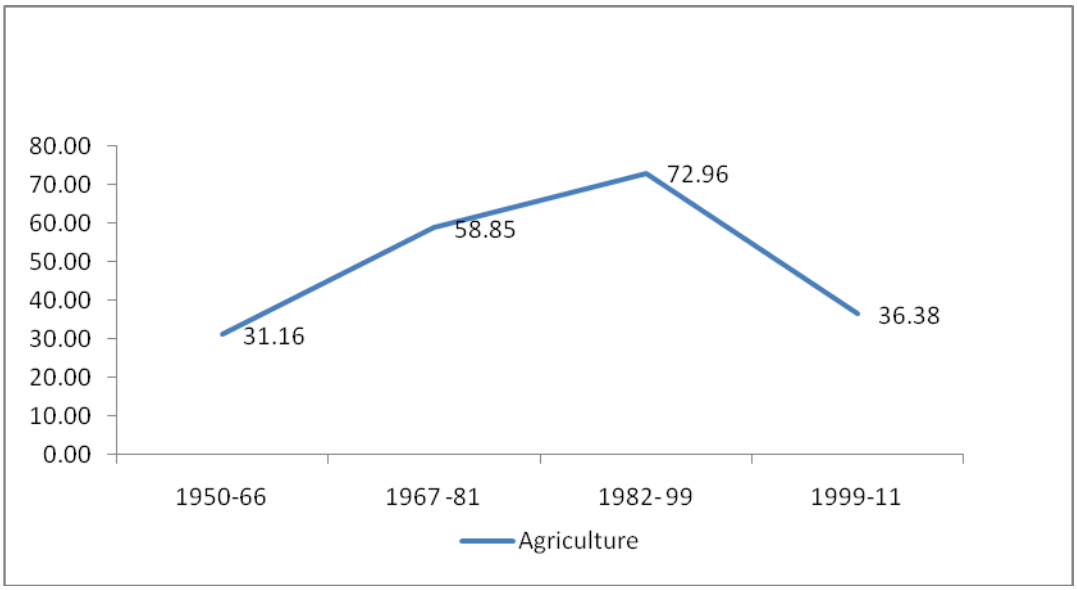
Agriculture sector has been the back bone of Indian economy since pre independence and post independence. The country has a huge potential for growth in agriculture with about 184 million hectares of arable land and diverse agro climatic conditions suitable for cultivation of a wide variety of crops. It play a vital role in providing food to the Nation, generate employment opportunity, raw material to industrial sector, etc. during 1950s agriculture was the main source of the Indian economy and engaged large number of people. Agriculture and allied sector contributed nearly fifty per cent to GDP. More than seventy per cent of total working population was engaged in agriculture and allied sector. It can be argued that the Indian economy was agriculture based economy at the time of independence. In recent years, the contribution of agriculture in the National income has declined drastically. However, the sector is providing significations employment and food security to the majority of population in the country. In this section we will discuss the brief status of Indian agriculture.

2.20 Performance of Agriculture

The agriculture sector grew at the rate of less than 1 percent in early 1950s. it reported the growth rate of 2 per cent during the 1950 to 1966, (See in Figure 2.4) the improvement in the growth rate is contributed by the growth of period 1955-60 as higher priority is given to the sector in second five year plan. The output of agriculture sector showed improved growth during 1966-1981. This might be outcome of introduction of green Revolution in 1966, which consisted of supply of fertilizers, high yielding varieties of seed, irrigation facilities and mechanization. The policy makers were concerned with in input supply, credit, marketing, price support and spared of technology. During this period, the Regional Rural Banks (RRBs) was established in 1975 to facilitate the credit requirement of agriculture sector. The government initiatives proved beneficial for the sector, but it could not perform as per the expectations due to the incidence of wars and natural calamity. The third phase proved beneficial for the sector as the average growth rate stood at 3.5 percent during 1982-1999. The enhanced growth of the sector is attributed to the 5.7 percent growth during 1980-85 even higher than the growth rate of GDP)[6]. This period was characterized with process of diversification. The non food-grain output like milk, poultry, F&V, etc, realized better growth that in turn accelerated the growth of agricultural sector. It was considered that the sector received substantial amount of funds for the sixth five year plan. In the last two decades, the growth of the sector has declined marginally.

[6] National Commission on Farmers, Fifth and Final Report (2006), Ministry of Agriculture, Government of India.

Figure No.2.4 Growth in GDP of Agriculture (percent)



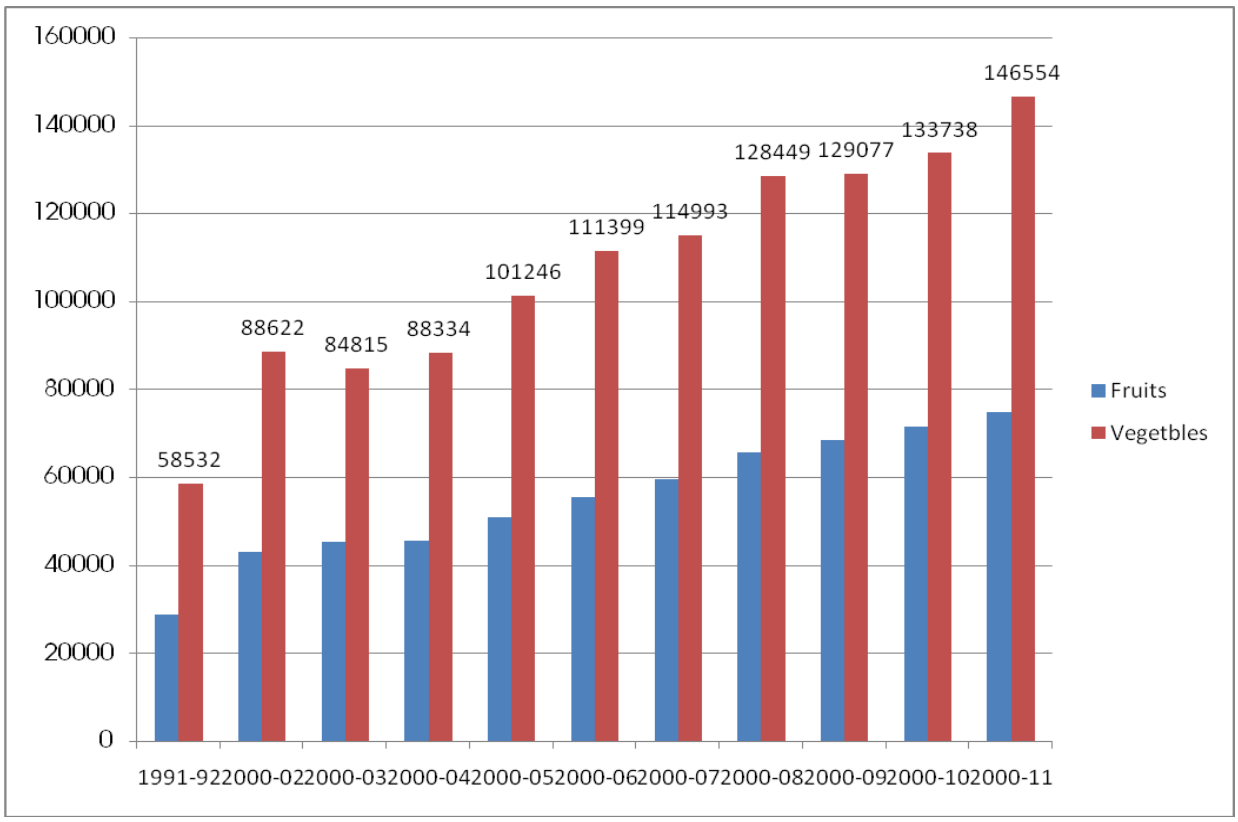
Sources: Handbook of statistic, RBI

2.21 Production of F&Vs in India

The productions of F&V have got second rank in the world. The production of F&V is increasing still, (See in the **Figure 2.5**) per capita availability is declining due to increasing population and in addition to this high wastage is also a major case of declining per capita per day availability of F&V. Now a day's production of F&V is increasing for many years. India's F&V production base is strong and it is 8% of total production of the world however, at the same time huge wastage of F&V production is a big problem for developing countries like India. In our country the F&V production contributes more than 30% to the agricultural GDP.[7] The production of F&V are increasing continuously, However, the wattage of F&V is still 35 per cent for last many year which is a major problem for agriculture development and food security point of view.

[7] Indian Horticulture Database -2011.

Figure: 2.5 Productions of F&V (in 000'MT)



Source: Indian Horticulture Database -2011.

2.22 Advantage of Agriculture Sector

The **table 2.8** shows area and production of different agriculture products along with its India's rank in the world production. India's total arable land is 151 million hectare where its rank is 2nd in world production and data shows that India stands at 1st rank on irrigated land production. Table shows India's comparative advantage in different commodities as India stands on a excellent rank for the different commodities it produces. India stands on 1st rank in the production of milk, pulses and tea worldwide where its total area for these commodities is 91, 15 and 0.85 respectively. On the other hand for India is at 2nd rank in the production of wheat, rice,

sugarcane and cattle in the world. Total area under the production is fruits 47 hectare and area under production of vegetables 82 hectare drives India on 2nd rank globally. So the table shows that India has potential in the production of many commodities. While the productivity needs a definite improvement. The growth of agriculture sector has significant potential for promoting exports of agricultural commodities & bringing about faster development of agro-based industries. Thus agriculture not only contributes to overall growth of economy but also reduces poverty by providing employment opportunities.

Table 2.8

Characteristics of the Indian Agriculture Sector

(Production in million tonnes)

	Land/Production	**India's Rank in World Production**
Arable Land **(Million ha)**	151	2
Irrigated Land **(Million ha)**	55	1
Wheat	72	2
Rice, Paddy	124	2
Coarse grains (including maize)	29	3
Milk	91	1
Fruits	47	2

Vegetables	82	2
Edible Oilseeds	25	3
Pulses	15	1
Sugarcane	245	2
Tea	0.85	1
Cattle **(million)**	186	2

2.23 Major Inputs and outputs of Agriculture and Allied sectors

The **table no. 2.9** shows the year wise statistics of inputs and output of agriculture and allied sectors for the time period from 1990-91 to 2009-10. The inputs of agriculture and agriculture allied sectors includes consumption of fertilizer in thousand tons, flow of institutional credit to agricultural sector in crore rupees, consumption of electricity for agricultural sector in GWh, net sown area, and net irrigated area. GDP of agriculture and agriculture allied sectors indicates the output of agriculture and agriculture allied sectors. As per table, data shows the increasing trend of GDP of agriculture and agriculture allied sectors from 1990-91 to 2009-10 as well as inputs of agriculture and agriculture allied have been used in increasing trend for maximum agricultural production except net sown area.

Table 2.9

Statistics of Inputs & Outputs of Agriculture and Allied Sectors

Time Period	GDP of Agricultural and Allied Sectors	Consumption of Fertiliser in 000 tons.	Flow of Institutional Credit to Agricultural sector(Crores)	Consumption of Electricity for Agricultural sector (GWh)	Net Sown Area	Net Irrigated Area
1990-91	3979.71	69.66	8983	50321	143.00	48.02
1991-92	3902.01	72.17	11507	58557	141.63	49.87
1992-93	4161.53	71.32	15169	63328	142.72	50.29
1993-94	4299.81	67.08	16494	70699	142.34	51.34
1994-95	4502.58	75.68	18744	79301	142.96	53.00
1995-96	4471.27	74.02	22032	85732	142.20	53.40
1996-97	4914.84	76.76	26411	84019	142.93	55.11
1997-98	4789.33	86.78	31956	91242	141.95	55.21
1998-99	5092.03	90.04	36862	97195	142.75	57.44
1999-00	5227.95	94.72	46268	90934	141.06	57.53
200-01	5227.55	87.56	52827	84729	141.36	55.13
2001-02	5541.57	90.12	62045	81673	140.73	56.92
2002-03	5175.59	86.06	69560	84486	132.47	53.87

2003-04	5643.91	88.19	86981	87089	140.76	56.96
2004-05	5654.26	94.52	125309	88555	141.17	59.21
2005-06	5944.87	104.5	180485	90292	141.46	60.79
2006-07	6191.90	112.69	229400	99023	140.00	62.70
2007-08	6550.80	115.27	254658	104182	140.90	63.10
2008-09	6556.89	127.21	301908	107776	141.36	63.20
2009-10	6625.09	135.27	384514	105979	141.45	63.34

Note: Output of Agriculture and Allied Sectors data are at 2003-04 base prices (Rupees Billion).The value of Net Sown Area and Net Irrigated Area have been given in million hectares.

Table No. : 2.10

All India Area, Production and Yield of Food-grains

Year	Area	Production	Yield
1990-91	127.84	176.39	1380
1991-92	121.87	168.38	1382
1992-93	123.15	179.48	1457
1993-94	122.75	184.26	1501
1994-95	123.86	191.50	1546
1995-96	121.01	180.42	1491

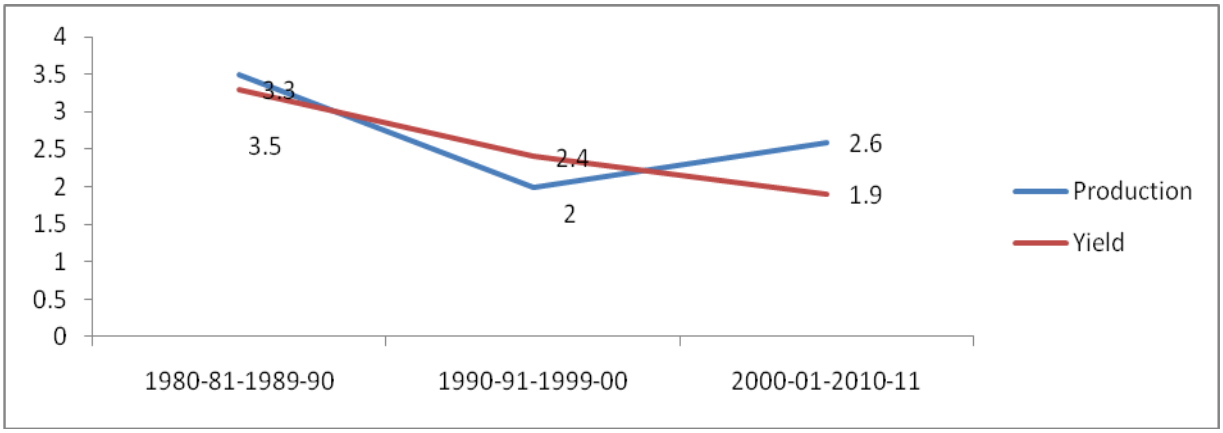
1996-97	123.58	199.44	1614
1997-98	123.85	192.26	1552
1998-99	125.17	203.61	1627
1999-00	123.10	209.80	1704
2000-01	121.05	196.81	1626
2001-02	122.78	212.85	1734
2002-03	113.86	174.77	1535
2003-04	123.45	213.19	1727
2004-05	120.00	198.36	1652
2005-06	121.60	208.60	1715
2006-07	123.71	217.28	1756
2007-08	124.07	230.78	1860
2008-09	122.83	234.47	1909
2009-10	121.37	218.80	1798
2010-11	122.99	225.33	1831
2011-12	122.81	227.34	1850

Source: Agricultural Statistics at a Glance 2012, Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India.

The table 2.10 shows that depicts year wise area, production and yield of food grains for the period 990-91 to 2011-12. Table shows trend of area, production and yield of food grains for the given period. Area under food-grain is declined from 127.84 in 1990-91 to 125 .17 in 1998, otherwise the fluctuation in food-grain area all most same from 1990-91 to 2011-12. Production of food-grain is also increased from 176.49 in 1990-91 to 212.85 in 2002-03, however, in 2003-04 the production is drastically declined (174.77) the same thing happen with the yield this yield is also declined from 2001-02 1734 to 1535 in 2002-03. The table also shows that in 2008-09 the production and yield was highest 234.47, 1909 respectively.

After remaining a food deficit country for about two decades, after independence, India became largely self-sufficient in food grains production at the macro level. There have hardly been any food grains imports after the mid-1970s. Government of India paid considerable attention to the problem of food availability at national level by giving price and non-price incentives to the farmers. As a result food grain production increased from 50.8 MT in 1950-51 to 241.6 MT in 2010-11. However, the availability of food-grain is declined since last two decades.

Figure:2.6 Trends of Growth Rate in Production and Yield of Food-grains



Source : Agricultural statistics at a glance, 2011, Directorate of Economics & Statistics, Ministry of Agriculture, Government of India.

Figure1 shows that the growth rate of food-grains production has decreased from 3.5 percent in 1980-81 - 1989-90 to 2.0 per cent in 1990-91 to 1999-00 and improved to 2.6 per cent during 2000-01 - 2010-11 because of bumper production from last three consecutive years. Similarly, the growth rate of yield of food-grains declined from 3.3 per cent during 1980-81-1989-90 to 1.9 per cent during 2000-01-2010-11. Adding to it, the fear arouse for the sustainability of future food security due to climate change, degradation of land in the form of depleting soil fertility, soil erosion, salinity, water logging and falling ground water table.

2.24 Conclusion

The contribution of the agriculture sector in total output of the economy has reduced remarkably. This may be attributed to the higher relative growth rate of the rest of the economy. However, the sector is able to maintain the improved growth in the recent year in comparison to its level of 1950s. Various government initiatives might have helped the sector to achieve the better growth, but it is not able to meet the expectations as the agriculture out has great impaction natural

calamities. It can be argued that output of agriculture sector is not able to enhance the entitlement of individuals for consumption and that is a matter of concern from food security point of view.