CHAPTER 4
THE ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT

In this chapter an attempt has been made to evaluate the role of agriculture in economic development of India during the period under study i.e. from 1980-81 to 2012-13. This chapter is divided in to sub sections. First the basic concept of agriculture and the scope of agriculture in India including agricultural land use classification in India have been explained. In the next section the overall contribution of agriculture in various sectors in India like national income, employment, international trade, agricultural export and import, industries, tertiary sector, capital formation, purchasing power of people, revenue to the government and economic planning have been analyzed using tables, figures and statistical methods. After that how agriculture is responsible for the overall economic growth. In last section of the chapter, overall conclusion obtained from the study of agriculture sector in economic development of India.

4.1 Concept of Agriculture

Agriculture is derived from Latin words *Ager* and *Cultura*. *Ager* means land or field and *Cultura* means cultivation. Therefore the term agriculture means cultivation of land *i.e.*, the science and art of producing crops and livestock for economic purposes. It is also referred as the science of producing crops and livestock from the natural resources of the earth. The primary aim of agriculture is to cause the land to produce more abundantly, and at the same time, to protect it from deterioration and misuse. It is synonymous with farming–the production of food, fodder and other industrial materials.

Agriculture is defined in the Agriculture Act 1947, as including 'horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use ancillary to the farming of land for Agricultural purposes". It is also defined as 'purposeful work through which elements in nature are harnessed to produce plants and animals to meet the human needs. It is a biological production process, which depends on the growth and development of selected plants and animals within the local environment.[1]

Agriculture is the mainstay of Indian Economy and about 65% of Indian population depends directly on agriculture. It has to support almost 17 per cent of world population from 2.3 per cent of world geographical area and 4.2 per cent of world's water resources. The economic reforms, initiated in the country during the early 1990s, have put the economy on a higher growth trajectory.[2] Though its contribution to the overall Gross Domestic Product (GDP) of the country has fallen from about 30 per cent in 1990-91 to less than 15 per cent in 2011-12, a trend that is expected in the development process of any economy, agriculture yet forms the backbone of development.

4.2 Scope of Agriculture in India

In India, population pressure is increasing while area under cultivation is static or even shrinking, which demand intensification of cropping and allied activities in two dimensions *i.e.*, time and space dimension. India is endowed with tropical climate with abundant solar energy throughout the year, which favours growing crops round the year. There is a vast scope to increase irrigation potential by river projects and minor irrigation projects. In

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1 Chandrasekaran, B, Annadurai K, Somasundaram K (2010). A Textbook of Agronomy, New Age International (P) Limited, Publishers.

2 Pandey, M.M (Feb 2009). Indian Agriculture – An Introduction"Submitted to Fourth Session of the Technical Committee of APCAEM, Chiang Rai, Thailand, p.1.

additional to the above, India is blessed with more labourer availability. Since agriculture is the primary sector, other sectors are dependent on agriculture. The picture of the scope of agriculture in India gets cleared with the details of Land use classification in all over India. Here are the concepts and definitions of geographical area, reporting area for land utilization, cultivable land, not cultivable land, fallow land, net area sown, etc. of Land use statistics.

Concepts and Definitions of Land Use Statistics[3] and the table 4.1A and 4.1B are as follows:

- **Forest area:** This includes all land classified either as forest under any legal enactment, or administered as forest, whether State-owned or private, and whether wooded or maintained as potential forest land. The area of crops rose in the forest and grazing lands or areas open for grazing within the forests remain included under the "forest area".
- **Area under non-agricultural uses:** This includes all land occupied by buildings, road and railways or under water, e.g. rivers and canals, and other land put to uses other than agriculture.
- **Barren and un-culturable land:** this includes all land covered by mountains, deserts, etc. Land, which cannot be brought under cultivation except at an exorbitant cost is classified as unculturable whether such land is in isolated blocks or within cultivated holdings.
- **Permanent pasture and other grazing land:** This includes all grazing land whether it is permanent pasture/meadows or not. Village common grazing land is included under this category.
- **Land under miscellaneous tree crops, etc.:** This includes all cultivable land, which is not included in 'Net area sown' but is put to some agricultural use. Land under casuring trees, thatching grasses,

[3] Land use Statistics at a glance 2010-11 data updated on 30-4-2013, Directorate of Economics and Statistics, Department of Agriculture and cooperation, Ministry of Agriculture, Government of India, New Delhi, and April 2013.

bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards' are classified under this category.

- **Culturable waste land:** This includes land available for cultivation, whether taken up or not taken up for cultivation once, but not cultivated during the last five years or more in succession including the current year for some reason or the other. Such land may be either fallow or covered with shrubs and jungles, which are not put to any use. They may be accessible or inaccessible and may lie in isolated blocks or within cultivated holdings.
- **Fallow lands other than current fallows:** This includes all land, which was taken up for cultivation but is temporarily out of cultivation for a period of not less than one year and not more than five years.
- **Current fallows:** This represents cropped area, which is kept fallow during the current year.
- **Net area sown:** This represents the total area sown with crops and orchards. Area sown more than once in the same year is counted only once.
- **Geographical area:** The latest figures of geographical area of the State and Union Territories are as provided by the Office of the Surveyor General of India.
- **Reporting area for land utilization statistics:** The Reporting area stands for the area for which data on land use classification is available. In areas where land utilization figures are based on land records, reporting area is the area according to village papers. Also there are tracts in many States for which no village paper exists. In such cases, estimates of classification of area from agriculture census, 2000-01 and 2005-06 are adopted to complete the coverage.
- **Gross cropped area:** This represents the total area sown once and/or more than once in a particular year, i.e. the area is counted as many

times as there are sowings in a year. This total area is also known as total cropped area or total area sown.

- **Area sown more than once:** This represents the areas on which crops are cultivated more than once during the agricultural year. This is obtained by deducting Net Area Sown from Gross Cropped Area.
- **Cropping intensity:** It is the ratio of total cropped area to net area sown.
- **Agricultural land/total culturable land /total cultivable area/total arable land:** This consists of net area sown, current fallows, fallow lands other than current fallows, culturable waste land and land under miscellaneous tree crops.
- **Total cultivated area or land:** It is the area arrived at by deducting the total cultivable area from the total reported area.

Table 4.1A: Land Use Classification in India

(In Thousand Hectares)

Year	Geographical Area	Reporting area for land utilization statistics (col.4+7+ 11+14+15)	Forests	Not available for cultivation			Other uncultivated land excluding fallow land			
				Area under non-agri-cultural uses	Barren and uncultur-able land	Total (col.5+6)	Permanent pastures & other grazing lands	Land under Misc. tree crops & groves (not incl. in net area sown)	Culturable waste land	Total (col.8 to 10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1980-81	328726	**304159**	67460	19596	19958	**39554**	11989	3578	16744	**32311**
1990-91	328726	**304862**	67805	21087	19389	**40476**	11404	3818	14995	**30217**
2000-01	328726	**305195**	**69843**	23752	17483	**41235**	10662	3445	13631	**27737**
2001-02	328726	**305127**	**69720**	23914	17414	**41328**	10528	3442	13520	**27489**
2002-03	328726	**305357**	**69821**	24119	17517	**41636**	10450	3431	13651	**27532**
2003-04	328726	**305566**	**69968**	24516	17466	**41982**	10484	3381	13241	**27106**
2004-05	328726	**305587**	**69960**	24760	17468	**42229**	10452	3362	13272	**27086**
2005-06	328726	**305447**	**69994**	24992	17331	**42323**	10444	3391	13225	**27060**
2006-07(p)	328726	**305650**	**70025**	25444	17287	**42731**	10418	3351	13274	**27042**
2007-08(p)	328726	**305667**	**69965**	25881	17020	**42901**	10362	3400	13044	**26806**
2008-09(p)	328726	**305843**	**69978**	26210	16851	**43061**	10344	3343	12735	**26423**
2009-10(p)	328726	**305834**	**69988**	26276	17047	**43323**	10339	3214	12952	**26505**
2010-11(p)	328726	**305903**	**70006**	26513	17051	**43564**	10301	3207	12657	**26165**

Table (4.1B): Land Use Classification in India

(In Thousand Hectares)

Year	Fallow Lands			Net area Sown	Total cropped area	Area sown more than once (col. 16- 15)	Agricultural Land/Culti- vable land/ Cultur- able land/Arable land (col.9+10+14+15)	Cultivated land (col.13+15)	Cropping Intensity(% of col.16 over col.15)
	Fallow lands other than current fallows	Current fallows	Total (Col. 12+13)						
(1)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1980-81	9720	14826	**24546**	**140288**	**172630**	**32342**	**185156**	**155114**	1,231
1990-91	9662	13703	**23365**	**142999**	**185742**	**42743**	**185177**	**156702**	1,299
2000-01	10267	14777	**25044**	**141336**	**185340**	**44005**	**183455**	**156113**	1,311
2001-02	10513	15343	**25856**	**140734**	**188014**	**47280**	**183552**	**156077**	1,336
2002-03#	11966	22459	**34426**	**131943**	**173889**	**41947**	**183450**	**154402**	1,318
2003-04	11313	14489	**25802**	**140708**	**189661**	**48953**	**183132**	**155198**	1,348
2004-05	10878	14792	**25670**	**140642**	**191103**	**50461**	**182946**	**155434**	1,359
2005-06	10696	14213	**24908**	**141162**	**192737**	**51575**	**182686**	**155375**	1,365
2006-07(p)	10516	15512	**26028**	**139823**	**192381**	**52558**	**182476**	**155335**	1,376
2007-08(p)	10333	14646	**24979**	**141016**	**195223**	**54207**	**182439**	**155662**	1,384
2008-09(p)	10290	14192	**24482**	**141899**	**195314**	**53414**	**182459**	**156092**	1,376
2009-10(p)@	10833	16008	**26842**	**139177**	**188991**	**49814**	**182184**	**155185**	1,358
2010-11(p)	10321	14267	**24589**	**141579**	**198969**	**57390**	**182032**	**155847**	1,405

Source: Data collected from Land use Statistics at a glance 2010-11 data updated on 30-4-2013, Directorate of Economics and Statistics, Department of Agriculture and cooperation, Ministry of Agriculture, Government of India, New Delhi, and April 2013.

Data Sources for the publication: State Agricultural Statistics Authorities/Bureau/Directorate of Economics and Statistics, Geographical Map Publication, Survey of India, Dehradun, Agriculture census, State of Forest Report 2009, Forest Survey of India, Dehradun.

Notes:

1. (P): Provisional except Geographical Area.
2. (p): Provisional #: In 2002-03 there is significant decline in Total Cropped Area and Net Area Sown due to decline in net area sown in the States of Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh Maharashtra, Orissa, Rajasthan, Tamil Nadu, West Bengal and Haryana. This was mainly due to deficient rainfall.
3. Net area sown in the States of Andhra Pradesh, Bihar, Jharkhand, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. This was mainly due to deficient rainfall.
4. @ : In 2009-10 there is significant decline in Total Cropped Area and Net Area Sown due to decline in net area sown in the States of Andhra Pradesh, Bihar, Jharkhand, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. This was mainly due to deficient rainfall.

The table on land use classification is divided into two parts that is table 4.1A and table 4.1B. These tables provide the complete details of land use classification on all over India from 1980 to 2011. The statistics of land utilization constitute one of the important items required for planning and development of policy formulation in agriculture. The Directorate of Economics and Statistics in the Ministry of Agriculture has been collecting data on the nine-fold classification of land, irrigated area (source-wise and crop-wise) and total area under crops from States and Union Territories in the country. The present publication is the fourteenth in the series containing updated data for the period 2001-02 to 2010-11.[4]

Table 4.1A and table 4.1B explained that the total Geographical Area is 328726 thousand hectares and Reporting area for land utilisation statistics increased from 304159 thousand hectares in 1980-81 to Rs. 305903 thousand hectares in 2010-11. The area comes under Forests also increased around 3.7 per cent from 67460 thousand ha in 1980-81 to Rs. 70006 thousand ha in 2010-11. The total land not available for cultivation exhibited a rising trend by 10 per cent from Rs. 39554 thousand hectares in 1980-81 to Rs. 43564 thousand hectares in 2010-11. The total of other uncultivated land excluding fallow land has come down roughly by 19 per cent from Rs. 32311 thousand hectares in 1980-81 to Rs. 26165 thousand hectares in 2010-11. The total Fallow land were observed to have a discontinuous trend of data, it started from Rs. 24546 thousand hectares in 1980-81 declined till 1990-91, then it started to increase up to Rs. 34426 thousand hectares in 2002-03 again it declined to Rs. 24908 thousand hectares in 2005-06, after that it has improved to Rs. 26028 thousand hectares in 2006-07 then it has declined for three years and in last it declined to 24589 hectares in 2010-11. But as you can see

[4] Viswanathan R. Economics and Statistical Advisor in April 2013 in Land use Statistics at a glance 2010-11 data updated on 30-4-2013, Directorate of Economics and Statistics, Department of Agriculture and cooperation, Ministry of Agriculture, Government of India, New Delhi.

overall it showed a minor positive trend from Rs. 24546 thousand hectares in 1980-81 to Rs. 24589 thousand hectares in 2010-11. There have been fluctuations in the Net Area Sown units thought it increased from Rs. 140288 thousand hectares in 1980-81 to Rs. 141579 thousand hectares in 2010-11 with declining figures in 2002-03, 2006-07 and 2009-10 years. As per 1980-2002 the total cropped area has been increasing but it dropped to Rs. 173889 thousand hectares in 2002-03, after that it increased to Rs. 195314 thousand hectares in 2008-09, again in 2009-10 it declined to Rs. 188991 thousand hectares and in the end it increased to Rs. 198969 thousand hectares in 2010-11. Area sown more than once is total cropped area minus net area sown registered a substantial increase from Rs. 32342 thousand hectares in 1980-81 to Rs. 57390 thousand hectares in 2010-11. It has shown a continuous improvement till 2001-02 by Rs. 47280 thousand hectares and then it again geared up and ends with Rs. 54207 thousand hectares in 2007-08. Agricultural Land/Cultivable/Culturable/Arable land has increased from Rs. 185156 thousand hectares in 1980-81 to Rs. 185177 thousand hectares in 1990-91 after that it showed continuous drop from Rs. 183552 thousand hectares in 2001-02 to Rs. 182439 thousand hectares in 2007-08. In all, there is a noticeable declining number from Rs. 185156 thousand hectares in 1980-81 to 182032 hectares in 2010-11. The cropping intensity that is per cent of total cropped area over net area sown estimated a significant growth of 14 per cent from 1,231 per cent in 1980-81 to 1405 per cent in 2010-11.

4.3 Role of Agriculture in Economic Development

Indian Agriculture is one of the most significant contributors to the Indian economy. The agriculture sector of India has occupied almost 43% of India's geographical area. In the earlier times, India was largely dependent upon food imports, but the successive story of the agriculture sector of Indian economy has made it self-sufficing in grain production. The country also has substantial reserves for the same. India depends heavily on the agriculture

sector, especially on the food production unit after the 1960 crisis in food sector. Since then, India has put a lot of effort to be self-sufficient in the food production and this endeavour of India has led to the Green Revolution. The Green Revolution came into existence with the aim to improve the agriculture in India.

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The services enhanced by the Green Revolution in the agriculture sector of Indian economy are as follows:

- Acquiring more area for cultivation purposes
- Expanding irrigation facilities
- Use of improved and advanced high-yielding variety of seeds
- Implementing better techniques that emerged from agriculture research
- Water management
- Plan protection activities through prudent use of fertilizers, pesticides.

All these measures taken by the Green Revolution led to an alarming rise in the wheat and rice production of India's agriculture. Considering the quantum leap witnessed by the wheat and rice production unit of India's agriculture, a National Pulse Development Programme that covered almost 13 states was set up in 1986 with the aim to introduce the improved technologies to the farmers. A Technology Mission on Oilseeds was introduced in 1986

right after the success of National Pulse Development Programme to boost the oilseeds sector in Indian economy. Pulses too came under this programme. A new seed policy was planned to provide entree to superior quality seeds and plant material for fruits, vegetables, oilseeds, pulses and flowers.

The Indian government also set up Ministry of Food Processing Industries to stimulate the agriculture sector of Indian economy and make it more lucrative. India's agriculture sector highly depends upon the monsoon season as heavy rainfall during the time leads to a rich harvest. But, the entire year's agriculture cannot possibly depend upon only one season. Taking into account this fact, a second Green Revolution is likely to be formed to overcome such restrictions. An increase in the growth rate and irrigation area, improved water management, improving the soil quality and diversifying into high value outputs, fruits, vegetables, herbs, flowers, medicinal plants and bio-diesel are also on the list of the services to be taken by the Green Revolution to improve the Indian agriculture.

4.3.1 Contribution of Agriculture to National Income

Agriculture is considered the backbone of Indian Economy and the growth rate of the economy is strongly influenced by the performance of agriculture. The reason underlying this assertion is that among the nine major sectors, agriculture remains the largest sector of the economy. Before going in deep with contribution of agriculture to National Income, we should first know the concept of National Income. National Income or Net National Product at Factor Cost is the total net earnings from the production of goods and services in a country over a period of time, usually one year, and consisting essentially of wages, salaries, rent, profits, and interest and net factor income from abroad or National Income is defined as the value of all final goods and services produced by the normal residents of a country, whether operating within the domestic territory of the country or outside, in a year. The contribution of agriculture and allied sector and its percentage share to total

Gross Domestic Product (GDP) at Factor Cost of India is shown with the help of following table 4.2:

Table 4.2: Gross Domestic Product (GDP) at Factor Cost from Agriculture, Agriculture and Allied Sector and its Percentage Share to Total GDP

Base Year: 2004-05 (In Rupees Billion)

Year	GDP At Factor Cost		Agriculture & Allied Activities		Agriculture		(2) as % of (1)	(3) as % of (1)
	Constant Prices (1)	Current Prices	Constant Prices (2)	Current Prices	Constant Prices (3)	Current Prices		
(Base Year: 2004-05)								
1980-81	7985.06	1,368.38	2,850.15	484.26	2,381.02	413.26	35.69	29.82
1990-91	13,478.89	5,318.13	3,979.71	1,543.50	3,361.76	1,311.08	29.53	24.94
2000-01	23,427.74	19,919.82	5,227.55	4,606.08	4,394.32	3,887.22	22.31	18.76
2001-02	24,720.52	21,677.45	5,541.57	4,986.20	4,678.15	4,205.96	22.42	18.92
2002-03	25,706.90	23,382.00	5,175.59	4,850.80	4,297.52	4,044.91	20.13	16.72
2003-04	27,778.13	26,222.16	5,643.91	5,446.67	4,763.24	4,591.58	20.32	17.15
2004-05	29,714.64	29,714.64	5,654.26	5,654.26	4,766.34	4,766.34	19.03	16.04
2005-06	32,530.73	33,905.03	5,944.87	6,377.72	5,029.96	5,368.22	18.27	15.46
2006-07	35,643.64	39,532.76	6,191.90	7,229.84	5,237.45	6,046.72	17.37	14.69
2007-08	38,966.36	45,820.86	6,550.80	8,365.18	5,569.56	7,162.76	16.81	14.29
2008-09	41,586.76	53,035.67	6,556.89	9,432.04	5,554.42	8,066.46	15.77	13.36
2009-10	45,160.71	61,089.03	6,609.87	10,835.14	5,577.15	9,285.86	14.64	12.35
2010-11	49,370.06	72,669.67	7,134.77	13,069.42	6,068.48	11,320.48	14.45	12.29
2011-12	52,435.82	83,534.95	7,394.95	14,173.66	6,305.40	12,680.81	14.10	12.02
2012-13	55,054.37	94,610.13	7,536.10	16,448.34	6,413.64	14,186.78	13.69	11.65

Source: Reserve Bank of India, publications, Government of India, table 1 and 3.

Table 4.2 presents the Gross Domestic Product at Factor Cost at current and constant prices, and share of agriculture, agriculture and allied activities in GDP and their corresponding percentage. The Gross Domestic Product in the country like India is experiencing a faster rate of growth in the recent years. With regards to the composition of GDP, the percentage shares

of various sectors have largely changed. Data provided by the Central Statistical Organisation reveals that from 1980-81 to 1990-91 the percentage share of agriculture and allied activities in GDP has been in the range of 35 to 29 per cent and the percentage share of agriculture in GDP has been in the range of 30 to 25 per cent, though it was declining, but as the process of industrialisation and economic growth gathered momentum, the share of agriculture indicated a sharp decline and reached a level of 18.7 per cent in 2000-01, and it further dropped to 11.65 per cent in 2012-13 and the share of agriculture and allied activities declined from 22 per cent in 2001 to 13.69 per cent in 2012-13.

Though the contribution of agriculture to the GDP income of India, it is great news that today the service sector is contributing more than half of the Indian GDP. It takes India one step closer to the developed economies of the world. Earlier it was agriculture which mainly contributed to the Indian GDP. The Indian government is still looking up to improve the GDP of the country and so several steps have been taken to boost the economy. Policies of FDI, SEZs and NRI investment have been framed to give a push to the economy and hence the GDP. In a separate query, the Minister of State for Agriculture Tariq Anwar said despite a decline in the sector's contribution to GDP, food grain production and productivity has risen. Share of agriculture and allied activities in the Gross Domestic Product (GDP) has dropped by nearly 5 per cent in the last eight years to 14 per cent, due to higher growth in other sectors. The percentage has been declining gradually with the passing of years. This decline is a result of several factors like governmental intervention in labour, land, and credit markets; lack of Infrastructure; small size of land holdings; poorly maintained or non-existent land records; inadequate use of modern technology; illiteracy; inadequate finance and marketing services for farm produce; inadequate irrigation facilities; more importance given to non-agricultural sectors by government etc.

Comparison can be made between the position agriculture in India with that in the other countries as regards the share of agriculture in the national income. In the United Kingdom, agriculture contributes only 2 per cent of the national income; in U.S.A. it is 3 per cent; in Canada it is 4 per cent; in Australia it is 5 per cent; and so on. The most developed country, the smallest is the share of agriculture in national output. India, having not yet reached the stage of an advanced economy, has an agricultural sector which is still the dominant one in the country.[6]

Now we can compare the components of GDP at Factor Cost, share to total GDP and percentage rate of growth in GDP in agriculture to other sectors of the Indian economy with the help of the following table 4.3:

[6] Sundharam, K.P.M. and Ruddar Datt (2006). Indian Economy, S Chand Publications, p. 486.

Table 4.3: Components of GDP at Factor Cost, Share to Total GDP and % Rate of Growth in GDP (31-05-2014)

Base Year: 2004-05

	Financial Year	1980-81	1990-91	2000-01	2010-11	2011-12	2012-13	2013-14 (P)
Actual Value at Constant 2004-05 Prices (in Rs. Crore)	Gross Domestic Product	798,506	1,347,889	2,348,481	4,918,533	5,247,530	5,482,111	5,741,791
	Agriculture & Allied Services	285,015	397,971	522,755	717,814	753,832	764,510	800,548
	Agriculture	238,102	336,176	439,432	610,905	643,543	649,424	681,412
	Industry	204,861	372,360	640,043	1,373,339	1,480,657	1,494,921	1,500,225
	Services	300,614	573,465	1,185,683	2,827,380	3,013,041	3,222,680	3,448,226
Share to Total GDP at Constant 2004-05 Prices	Agriculture & Allied Services	35.69	29.53	22.26	14.59	14.37	13.95	13.94
	Agriculture	29.82	24.94	18.71	12.42	12.26	11.85	11.87
	Industry	25.66	27.63	27.25	27.92	28.22	27.27	26.13
	Services	37.65	42.55	50.49	57.48	57.42	58.79	60.05
GDP Annual Growth Rate (YoY)	Gross Domestic Product	7.17	5.29	4.15	8.91	6.69	4.47	4.74
	Agriculture & Allied Services	12.89	4.02	-0.01	8.6	5.02	1.42	4.71
	Agriculture	14.44	4.28	-0.61	9.54	5.34	0.91	4.93
	Industry	5.24	7.33	6.03	7.55	7.81	0.96	0.35
	Services	4.62	5.19	5.07	9.67	6.57	6.96	7

Source: (1) Central Statistical Organisation (CSO) - 31.05.2014, Data book for PC; 3rd July, 2014, online available at http://planningcommission.nic.in/data/datatable/0306/table%203 .pdf
(2) RBI, Government of India

Notes: Data for 2013-14 are provisional.

Table 4.3 presents the components of GDP at Factor Cost, share to total GDP and % rate of growth in GDP from the year 1980 to 2014. The share of agriculture and agriculture and allied services to total GDP at constant prices of India has been declining over the period as shown as in table 4.3. Agriculture declined around 2.5 times from 29.82 per cent in 1980-

81 to 11.87 per cent in 2013-14 and agriculture and allied services declined around 2.56 times from 35.69 per cent in 1980-81 to 13.94 per cent in 2013-14. Agricultural sector contributed Rs. 238102 crore in 1980-81 and Rs. 681412 crore in 2013-14 which is a difference of 2.8 times in twenty four years. It shows that contribution of agriculture and agriculture and allied services is increasing but percentage share in Gross Domestic Product at factor cost is declining. It signifies that the share of other sectors in the economy is rising.

As seen in the above table 4.3 that the contribution of industry shows an increase from Rs. 204861 crore in 1980-81 to Rs. 1500225 crore in 2013-14 and its percentage share also increases slightly from 25.66 per cent in 1980-81 to 26.13 per cent in 2013-14. The services sector comprises of three components, i.e., (i) Trade, hotels, transport and communication; (ii) Financing insurance, real estate and business services; and (iii) Public administration, defence and other services which contributed Rs. 300614 crore in 1980-81 and Rs. 3448226 crore in 2013-14 in GDP at FC and their percentage share to GDP also increases by 22.4 per cent from 37.65 per cent in 1980-81 to 60.05 per cent in 2013-14 which shows a tremendous rise during this period. If we take a look at GDP annual growth rate, then we will realise that it declined from 7.17 per cent to 4.15 per cent during 1980-81 to 2000-01 period but after that it showed a sharp rise of 8.91 per cent in 2010-11 per cent then again it declined continuously to 4.74 per cent in 2013-14. Because of this decrease in overall GDP annual growth rate, all the sectors slipped gradually from 1980 to 2014 except the service sector respectively. The agriculture and allied services declined from 12.89 per cent in 1980-81 to 4.71 per cent in 2013-14 and in 2000-01 it reached to negative figure -.01 per cent, the agriculture declined by 9.51 per cent from 14.44 per cent in 1980-81 to 4.93 per cent in 2013-14, the industrial sector declined from 5.24 per cent in 1980-81 to 0.35 per cent in 2013-14 but despite the fall in overall GDP

growth rate, the service sector increases from 4.62 per cent in 1980-81 and reached the level of 7 per cent in 2013-14. Services sector has acted as the important engine of overall growth of Indian economy for more than a decade. The Indian economy has successfully navigated the difficult years of the recent global economic crisis because of the vitality of this sector in the domestic economy. The continuous decline in the share of agriculture and allied activities in the GDP is partly because of the high growth in other sectors in the economy and partly to the low growth in this sector especially agriculture. Agriculture Growth Rate in India GDP has slowed down for the production in this sector has reduced over the years. This sector has had low production due to a number of factors like illiteracy, insufficient finance, and inadequate marketing of agricultural products. Further the reasons for the decline in Agriculture Growth Rate in India GDP are that in the sector the average size of the farms is very small which in turn has resulted in low productivity. Also another reason is the fact that the sector has not adopted modern technology and agricultural practices and mainly the insufficient irrigation facilities. As a result of this the farmers are dependent on rainfall, which is however very unpredictable. Agriculture Growth Rate in India GDP has declined over the years. The Indian government must take steps to boost the agricultural sector for this in its turn will lead to the growth of Agriculture Growth Rate in India GDP.

4.3.2 Contribution of Agriculture to Employment

India is among the most potential developing economies throughout the world. Though the share of agriculture in the aggregate economy has declined rapidly during the planned development of the country; it assumes a pivotal role in the rural economy. Jha Brajesh[7] states that the NSS quinquennial surveys on employment show a decline in the share of

[7] Jha, Brajesh. Employment, Wages And Productivity In Indian Agriculture, Institute of Economic Growth University of Delhi Enclave, North Campus, Delhi-110007, India, website: http://iegindia.org

agriculture and an increase in the share of non-agricultural sector in aggregate employment. Such a structural shift though expected in a developing economy, has been slower in the Indian economy. This process is even slower in the rural economy. Nevertheless in rural India the growth rate of employment in the non-agricultural sector has been far short of the increase in the rural workforce. As a consequence, the incidence of rural unemployment on the basis of current daily status (CDS) is as high as seven per cent in the year 1999-00. There is no evidence to suggest improvement in the quality of rural employment, which is generally associated with the structural changes of employment. In this context employment in agriculture remains important. The recent NSS quinquennial survey on employment shows that the number of agricultural workers has almost stagnated.[8] Agricultural income during the '90s has however grown at an impressive rate. The employment of main workers engaged in agriculture can be seen in the following table 4.4:

Table 4.4: Employment of Main Workers in Agriculture

(In Millions)

Year	Total Population	Rural Population	Agricultural Workers		
			Cultivators	Agricultural Labourers	Total Working Population
1981	683.3	525.6 (76.9)	92.5 (62.5)	55.5 (37.5)	148
1991	846.4	630.6 (74.5)	110.7 (59.7)	74.6 (40.3)	185.3
2001	1028.7	742.6 (72.2)	127.3 (54.4)	106.8 (45.6)	234.1
2011	1210.6	833.5 (68.8)	118.7 (45.1)	144.3 (54.9)	263

Source: Agricultural Statistics 2013, table 3.1, Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, Registrar General of India, New Delhi.

Notes: 1. Figures within parentheses in columns 3 are percentages to total population.
2. Figures within parentheses in columns 4 and 5 are percentages to column 6.

Table 4.4 presents the employment of main workers in agriculture sector that is total population, rural population, cultivators, agricultural

[8] Employment in agriculture during the last NSSO quinquennial surveys were 1.9E+08 (1999-00), 1.88E+08 (1993-940), 1.45E+08 (1983).

labourers, total working population from the period 1981 to 2011. The latest available agricultural census data of (Agricultural Statistics 2013, table 3.1, Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India) reveals that the proportion of agricultural labourers increased from 37.5 per cent in 1981 to 54.9 per cent in 2011 while that of cultivators (self- employed) declined from 62.5 per cent in 1981 to 45.1 per cent in 2011. The NSSO data further revealed that out of total working population 148 million in 1981, there were 92.5 million cultivators and 55.5 million agricultural labourers. As the total working population increased by 1.7 times up to 263 million in 2011, the cultivators also by 1.3 times increased to 118.7 million and agricultural labourers by 2.6 times up to 144.3 million. The percentage of rural population out of total population declined consistently from 76.9 per cent in 1981 to 68.8 per cent in 2011. However, with rapid increase in population the absolute number of people engaged in agriculture has become exceedingly large. Development of the other sectors of the economy has not been sufficient to provide employment to the increasing additions to working population forced to fall back upon agriculture even if their marginal productivity on land is zero or nearly so. This gives rise to the familiar problem of underemployment and disguised unemployment.

Comparison of Employment in Agriculture and Non Agriculture Sector: The Economic Survey had given estimates of employment and unemployment on Usual Principal Status (UPS) basis from various rounds of NSSO survey. In the meantime, the Eleventh Five year Plan has largely used the Current Daily Status (CDS) basis of estimation of employment and unemployment in the country. It has also been observed that the estimates based on daily status are the most inclusive rate of 'unemployment' giving the average level of unemployment on a day during the survey year. It captures the unemployed days of the chronically unemployed, the unemployed days of usually employed who become intermittently unemployed during the reference week and unemployed days of those classified as employed according to the

criterion of current weekly status. The comparison of employment in agriculture sector and non agriculture sector is as follows:

Table 4.5: Employment of Agriculture and Non-Agriculture in various NSS rounds (CDS basis)*

(In Millions)

Years	Agriculture	Non-Agriculture	Total
1993-94	191.58	122.35	313.93
1999-2000	191.55	146.64	338.19
2004-05	200.4	184.51	384.91
2009-10 (UPSS)	243.21	216.97	460.18

Source: Directorate General of Employment & Training (DGET), Ministry of Labour & Employment, Government of India.

Notes: * CDS estimates not available for earlier NSS Rounds; not applicable in 66th Round.

Estimates on employment of agriculture and non agriculture in various NSS rounds on CDS basis (Table 4.5) indicate that the employment in agriculture sector declined from 191.58 million in 1993-94 to 191.55 million in 1999-2000 whereas in non-agriculture sector it has increased from 122.35 million in 1993-94 to 146.64 million in 1999-2000 and after that both the sectors increased. Employment in agriculture sector increased consistently to 243.21 million in 2009-10 and is always more than the employment in non-agriculture sector which is 216.97 million in 2009-10. In total, it showed increment of 46 per cent from Rs. 313.93 millions in 1993-94 to 460.18 millions in 2009-10.

4.3.3 Contribution of Agriculture to International Trade

Agriculture has been a way of life and continues to be the single most important livelihood of the masses. India is the second largest economy in Asia after China, as measured in terms of its GDP. Despite being an agrarian economy, where the agricultural sector provides employment to approximately 60 per cent[9] of the population and contributes 25 per cent to the GDP of the

[9] On the basis of current daily status (CDS) figure is 58 per cent.

country, India has remained a marginal player in world agricultural trade. Agriculture trade contributes 15% of total foreign exchange earnings. Broadly, agricultural and agri-based products can be divided into three categories, they are raw products, semi-raw products and processed and ready to yield products. The major agri-exports of India are cereals, rice, basmati rice and non-basmati rice, spices, oilcake, tobacco un-manufactured, tea, coffee and marine products. Lack of market access in the developed market economy countries due to high tariffs and pronounced Non-tariff barriers has been acting as a deterrent for the exports. As against agricultural exports, agri-imports constitute only a small proportion of the country's total imports 5%.[10] The share of agricultural and non agricultural exports is explained below with the help of the following table 4.6:

Table 4.6: Share of Agricultural and Non-Agricultural Exports in Total Exports of India

Year	Total Exports (Million USD)	Agriculture and allied products Export (Million USD)	Percentage Share of Agricultural Export	Percentage Share of Non-agricultural Export	Ratio of Agricultural export to Non-agricultural export
1	2	3	4	5	6
1991-92	17865.4	3202.5	17.9	82.1	1:5
1999-00	36822.4	5608.0	15.2	84.8	1:6
2000-01	44560.3	5973.2	13.4	86.6	1:6
2001-02	43826.7	5901.2	13.5	86.5	1:6
2002-03	52719.4	6710.0	12.7	87.3	1:7
2003-04	63842.6	7533.1	11.8	88.2	1:7
2004-05	83535.9	8474.7	10.1	89.9	1:9
2005-06	103090.5	10213.8	9.9	90.1	1:9
2006-07	126361.5	12683.5	10.0	90.0	1:9
2007-08	159006.7	19398.8	12.2	87.8	1:7
2008-09	173865.3	17774.5	10.2	89.8	1:8
2009-10	184770.0	19572.4	10.6	89.4	1:8
2010-11	193570.0	20324.9	10.5	89.5	1:8

Source: Directorate General of Commercial Intelligence and Statistics, Government of India

Table 4.6 presents the share of agricultural and non- agricultural exports in total exports of India and their ratio. The details in the above table

[10] Krishna Chaitanya V (2004). International Trade and Indian Agriculture Sector, Assistant Professor & Research Associate (Finance Area), Dhruva College of Management, Kachiguda, Hydearabad.

indicate a contrasting trend during the two decades. Figures provided by the Directorate General of Commercial Intelligence and Statistics, Government of India shows that the share of agricultural exports in the total exports was 17.9 per cent in 1991-92, which has decreased nearly by 8 per cent to 9.9 per cent the year 2005-06, there after the share was continuously rising for 2 years and increased to 12.2 per cent in 2007-08 after that again it declined to 10.5 per cent in 2010-11. During the study period the gap between agricultural exports and non agricultural exports has increased. Agricultural exports experienced very slow rise compared to the total exports. India's exports have increased since the reforms in 1991.

Now, the percentage share of non- agricultural exports to the total exports increased by 8 per cent from 82.1 per cent in 1991-91 to 90.1 per cent in 2005-06 after that it started to decline reached at the level 89.5 per cent in 2010-11. Between the years 2007-08 to 2008-09 there was an increase of 2 per cent.

However, the share of agricultural exports in total exports began to decline from 1999-2000 from 15.2 per cent to a low of 10.5 per cent in 2010-11 with a lowest level of 9.9 per cent in 2005-06. Thus the decade from 1999-2000 to 2010-11 witnessed a substantial decline in the share of agricultural exports to total exports of India. Above figures showed that the share of non-agricultural exports in total exports has indicated a rising trend during the corresponding period. The rising trend of non-agricultural exports as a percentage of total exports has been observed during the entire period from 1991-92 to 2010-11. It is important to note that the ratio of agricultural exports to non-agricultural exports during period 1991-92 to 2006-07 has indicated a rising trend after that it declined a little to 1:8 in 2010-11 with maximum difference sustain from 2004-05 to 2006-07.

India has been both an importer and exporter of agricultural commodities for a very long time. India's agri-exports can be divided into three broad categories, i.e. export of a) raw products, b) semi raw products c)

processed and ready-to-eat products. The major agricultural exports of India are cereals mostly rice (Basmati and non-Basmati), spices, cashew, oilcake/meals, tobacco, tea, coffee and marine products. Agricultural imports constitute only a small proportion of the country's total imports. To analyze the contribution of agricultural exports and imports to total national exports and import, the situation of agricultural export and import after 1991 or after reform process is given in the following table 4.7:

Table 4.7: Contribution of Agricultural Imports and Exports to Total National Imports and Exports

(In Rs. Crore)

Year	Agriculture Imports	Total National Imports	% of Agriculture Imports to Total National Imports	Agriculture Exports	Total National Exports	% of Agriculture Exports to Total National Exports
1990-91	1205.86	43170.82	2.79	6012.76	32527.28	18.49
1991-92	1478.27	47850.84	3.09	7838.04	44041.81	17.80
1992-93	2876.25	63374.52	4.54	9040.30	53688.26	16.84
1993-94	2327.33	73101.01	3.18	12586.55	69748.85	18.05
1994-95	5937.21	89970.70	6.60	13222.76	82673.40	15.99
1995-96	5890.10	122678.14	4.80	20397.74	106353.35	19.18
1996-97	6612.60	138919.88	4.76	24161.29	118817.32	20.33
1997-98	8784.19	154176.29	5.70	24832.45	130100.64	19.09
1998-99	14566.48	178331.69	8.17	25510.64	139751.77	18.25
1999-00	16066.73	215528.53	7.45	25313.66	159095.20	15.91
2000-01	12086.23	228306.64	5.29	28657.37	201356.45	14.23
2001-02	16256.61	245199.72	6.63	29728.61	209017.97	14.22
2002-03	17608.83	297205.87	5.92	34653.94	255137.28	13.58
2003-04	21972.68	359107.66	6.12	36415.48	293366.75	12.41
2004-05	22811.84	501064.54	4.55	41602.65	375339.53	11.08
2005-06	21499.22	660408.90	3.26	49216.96	456417.86	10.79
2006-07	29637.85	840506.31	3.53	62211.42	571779.28	10.88
2007-08	29906.23	1012311.70	2.95	79039.52	655863.52	12.05
2008-09	37183.04	1374435.55	2.71	85551.67	840755.06	10.18
2009-10	59528.37	1363735.55	4.37	89341.50	845533.64	10.57
2010-11	57334.32	1683466.96	3.41	117483.61	1142921.92	10.28
2011-12	82819.15	2345463.24	3.53	187609.33	1465959.39	12.80
2012-13 (P)	109211.51	2669839.78	4.09	230141.13	1634672.95	14.10

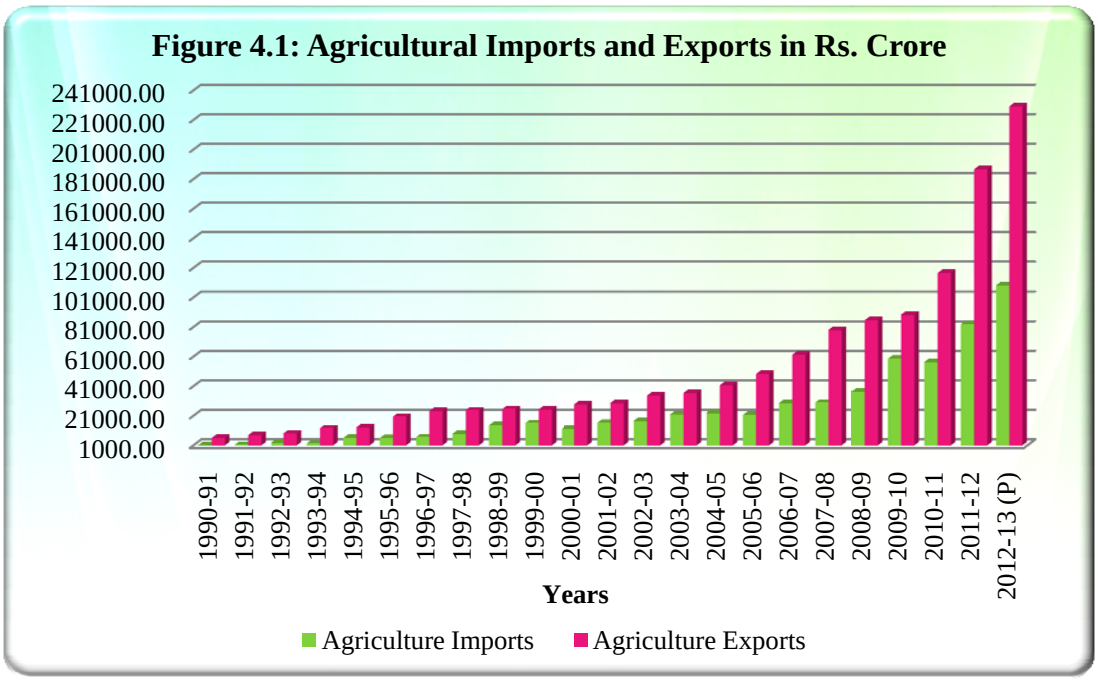
Source: Directorate General of Commercial Intelligence & Statistics, Ministry of Commerce, Kolkata

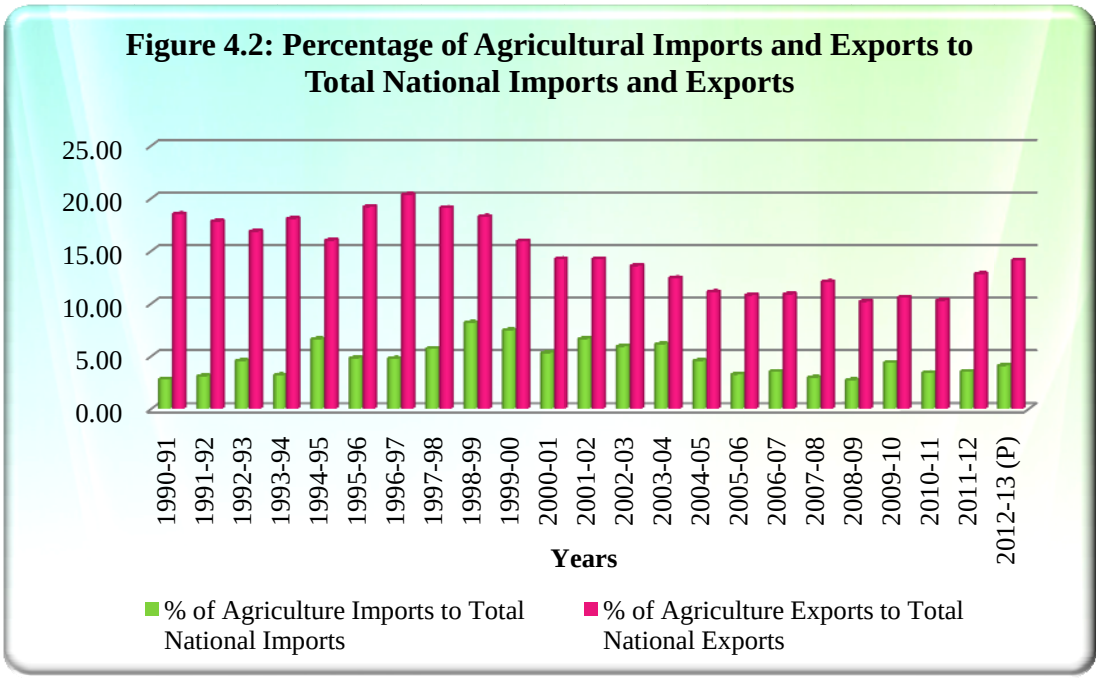
Notes: (P) - Provisional

Table 4.7 depicts the imports and exports of agricultural commodities in post reforms period and their percentage to total national imports and

exports. The data provided by the Directorate General of Commercial Intelligence & Statistics revealed that the agricultural imports have mixed trends but overall it has increased from Rs. 1205.86 crore in 1990-91 to Rs. 109211.51 crore in 2012-13 which clearly indicates 90 times increase in two decades. Similarly the agricultural exports have increased consistently from Rs. 6012.76 crore to Rs. 230141.13 crore in 2012-13 which indicates 38 times increase. The total national imports have been increasing continuously since 1990-91 that is from Rs. 43170.82 crore to Rs. 2669839.78 crore in 2012-13 which shows 61 times increase similarly the total national exports have also been increasing since 1990-91 that is from Rs. 32527.28 crore to Rs. 1634672.95 crore in 2012-13 which shows 50 times increase, which is less than the change in total national imports. The percentage share of agricultural imports to total national imports has mixed trend but overall it has increased from 2.79 per cent in 1990-91 to 4.09 per cent in 2012-13 which shows 1.3 per cent increase. This share is maximum in the year 1998-99 which is 8.17 per cent and minimum in the year 2008-09 which is 2.71 per cent. While the percentage share of agricultural exports to total national exports has decreased from 18.49 per cent in 1990-91 to 14.10 per cent in 2012-13 which indicates 4.39 per cent decline. This share has mixed trend during 1990-91 to 1995-96 after that it has declined continuously till 2010-11 after that it has started to rise again. This share is maximum in the year 1996-97 which is 20.33 per cent and minimum in the year 2008-09 which is 10.18 per cent. India's agricultural imports have displayed extreme fluctuations. The agricultural exports are greater than agricultural imports whereas total national exports are less than total national imports throughout the years. India has a large potential to increase its agricultural exports in a liberalized world provided it can diversify a significant part of its agriculture in to high value crops and in agro-processing. This would depend first on undertaking large infrastructure investment in agricultural and agro processing as also in rural infrastructure and research and development. For the visual inspection of the movement of

Agricultural imports and exports and their percentage share to total national import and export we have drawn two figures that is figure 4.1 and figure 4.2 based on the above table 4.7.





Source: As in table 4.7

Figure 4.1 and figure 4.2 present the graphical representation of agricultural imports and exports in rupees crore and their percentage share to

total national imports and exports. The agricultural exports and imports both has been continuously increasing since 1991 till 2012-13 whereas the percentage share of agricultural imports and exports have mixed trends which can be seen clearly through the variations of the bar lines explained above. In overall, we can easily visualize from the figure 4.2 that the percentage change of agricultural imports to total national imports shown in blue coloured bar lines has increased from 1990-91 to 2012-13 whereas the percentage share of agricultural exports to total national exports shown in red coloured bar lines have declined during the same period. On the other hand the agricultural export and imports in rupees crore both have increased from 1990-91 to 2012-13 and the agricultural exports is always more than agricultural imports throughout the years.

4.3.4. Contribution of Agriculture to Industrial Development

Both Agriculture and Industrial sector are considered as important ingredients particularly in the initial stages of economic development of a developing country. Agriculture has played a key role in the development of human civilization. Industry is also important for India as it contributes more to the GDP than agriculture and also helps faster economic growth. Agriculture provides raw materials to the industries. Cotton and Jute textile industries, sugar, vanaspathi and plantations – all these depend on agriculture. Many of our small scale and cottage industries like handloom weavings, rice husking, coir, khadi etc., depend upon agriculture for their raw materials. There are many other industries, which depend on agriculture in an indirect manner. The inter-relationship between agriculture and industry has been discussed from different channels. First, agriculture supplies food grains to industry to facilitate absorption of labour in the industry sector. Secondly, agriculture supplies the inputs like raw cotton, jute, tea, coffee etc. needed by the agro-based industries. However, this linkage will be weakened if the industrial inputs required by agriculture are imported. Thirdly, industry

supplies industrial inputs like fertilizer, pesticides, machinery etc. to the agriculture sector.[11] Fourthly, agriculture influences the output of industrial consumer goods through demand.[12] Fifthly, agriculture generates surpluses of savings, which can be mobilized for investment in industry, and other sectors of the economy. Sixthly, fluctuations in agricultural production may affect private corporate investment decisions through the impact of the terms of trade on profitability.[13] Whereas some of these channels emphasize the linkage between agriculture and industry on the supply side or production side, others stress the linkages through the demand side. The production linkages basically arise from the interdependence of the sectors for meeting the needs of their productive inputs, whereas the demand linkage arises from the interdependence of the sectors for meeting final consumption.

More importantly, the linkages between agriculture and industry can indicate a sector's economic pull and push, because the direction and level of such linkages present the potential capacity of each sector to stimulate other sectors and then reflect the role of this sector accordingly. The demand for industrial products from agriculture sector is influenced either by agricultural output changes or the terms of trade between agriculture and industrial output. Therefore, a distinction between the output effect and the Terms of Trade effect of the demand for industrial products from agriculture is worth emphasizing at this point. The transfer of surplus resources in production such as capital, labour and raw materials, etc. from agriculture to industry is one of the important contributions of agriculture to industrial sector. But then, in

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11 As the technology of agricultural production changes, this link will become stronger. However, this linkage will be weakened if the agricultural inputs used in industry are exported, instead of being processed domestically (Rangarajan, 1982).

12 The rural consumption of industrial consumer goods is nearly two- and a-half times that of urban consumption (Rangarajan, 1982). A low and stable price for wage goods may lead to increased profitability for industrial goods, which may be conducive to increased private corporate investment. On the other hand, an increase in the terms of trade in favor of agriculture may promote rural household savings and investment.

13 A low and stable price for wage goods may lead to increased profitability for industrial goods, which may be conducive to increased private corporate investment.

recent years, the significance of agriculture to industries is going down as many more industries have come up which are not dependent on agriculture. It is notable that Rangarajan[14] finds that a 1 per cent addition to the agricultural growth rate stimulates a further 0.5 percentage point increase in the growth rate of industrial output and hence a 0.7 per cent increase in the growth rate of national income. This finding, though based on a different methodology, is roughly the same as the findings of Peter Hazell and his associates in the Muda River Project in Malaysia.

4.3.5. Contribution of Agriculture to Tertiary Sector

Service sector also known as tertiary sector is essential for economic growth in any economy including India. It has emerged as the largest and fastest-growing sector in the global economy in the last two decades. Service sector can be classified into four broad categories:

(i) Trade, hotels, and restaurants;

(ii) Transport, storage, and communication;

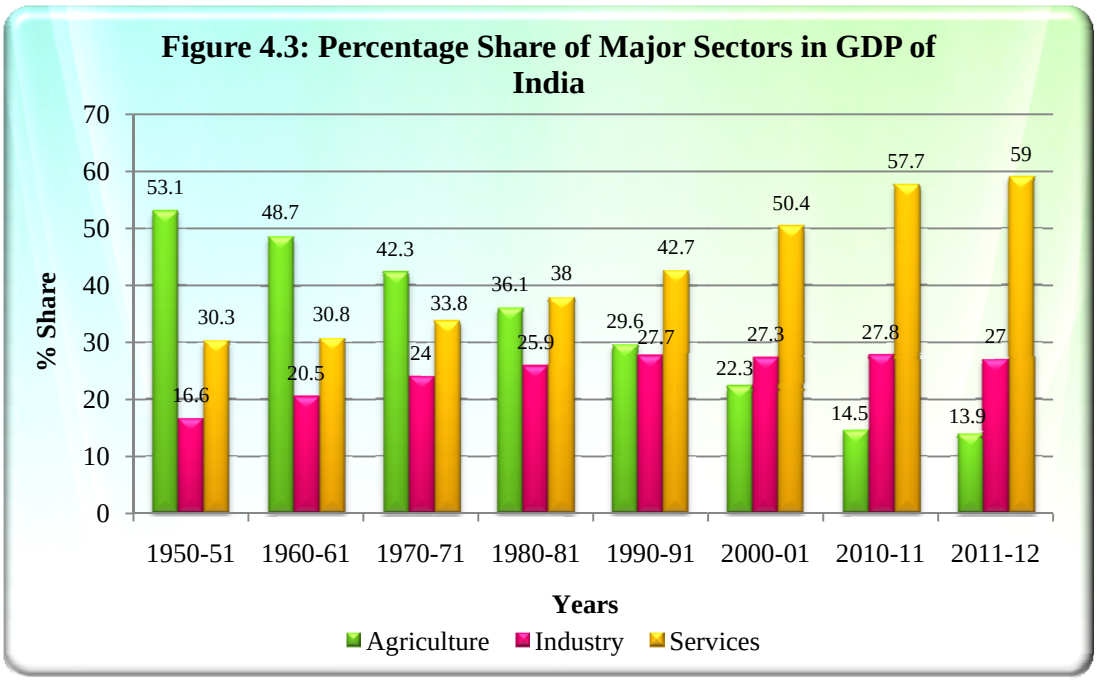
(iii) Financing, insurance, real estate, and business services; and

(iv) Community, social, and personal services.

The current situation in India is that the growth rate of services has overtaken both agriculture and industry and is now more than 50% of GDP. The services sector has the highest growth rate and is the least volatile sector. Growth is particularly marked in public services, IT and financial services. In some areas the growth rate of the services sector is 40-50% due to increased use of mobile technologies. India therefore has a services-oriented economy. It hasn't followed traditional growth models (as in China) in that it has skipped the manufacturing stage and has jumped straight from the agricultural stage to services. Growth in the services sector will support growth in the agricultural and industrial sectors, although growth in manufacturing, which

[14] Rangarajan, C. (1982). Agricultural Growth and Industrial Performance in India, Research Report 33, International Food Policy Research Institute, October.

causes pollution, is not so desirable in terms of job creation and increased prosperity. Services growth picked up in the eighties, accelerated in the nineties and since then it proves to be the major growth driver of our economy. The changes in relative shares of agriculture, industry & service sectors in GDP over the years are shown in the following figure 4.3:



Source: (i) Economic Survey, 2011-12, published by GOI.
(ii) Garg, Ishu and Walia, Suraj (2013). An Analysis of Services Sector in Indian Economy, Vol. 3, Issue 3, International Journal of Research in Economics & Social Sciences, available at http://www.euroasiapub.org
(iii) Handbook of Statistics on Indian Economy 2010-11.

Figure 4.3 presents the percentage share of agriculture; industry and services sector in GDP of India. The green coloured lines denotes agriculture sector, pink coloured lines show industrial sector and the yellow coloured lines show service sector. As it's clear from this figure that the industrial sector is the less fluctuated sector comparing with agriculture and service and its percentage share in GDP of India increased from 16.6 per cent in 1950-51 to 27.7 per cent in 1990-91, after that there has not been much change in the share of industry in GDP since 1990-91. The entire decline in the share of agriculture from 53.1 per cent in 1950-51 to 13.9 per cent in 2011-12 has been due to a rapid increase in the share of services from 30.3 per cent of GDP in

1950-51 to 42.7 per cent in 1990-91 and further to as high as 59 per cent in 2011-12. However, in 1980-81, the service sector has overtaken the agriculture on the basis of GDP share and since then it became the primary contributor of GDP. Similarly, industry sector whose share in GDP has remained in the range of 16 per cent to 28 per cent over the years got second rank in terms of its contributions. The entire decline in share of agriculture has been balanced by an increase in share of the services sector. After liberalization policy the share of service sector has increased very rapidly. At present the service sector is the fastest growing sector in the economy. The main reason behind this growth is the contribution of information technology (IT), information technology enabled services (ITES), real estates, BPOs, entertainment and telecommunication services.

4.3.6. Contribution of Agriculture to Capital Formation

Capital formation refers to net additions of capital stock such as equipment, buildings and other intermediate goods. A nation uses capital stock in combination with labour to provide services and produce goods; an increase in this capital stock is known as capital formation or Capital Formation is an addition to productive capacity of the economy. It is also known as investment in national accounting. Gross Capital Formation (GCF) comprises of Gross Fixed Capital Formation (GFCF) and Changes in Stock (CIS). GFCF refers to creation of physical assets and CIS primarily measures the inventories i.e. the working capital. GCF comprises two types of investment that is public and private sector investment. Capital formation in public sector includes irrigation works, command area development, land reclamation, a forestation, development of State farms, etc. Capital formation in private sector includes- construction activities in private sector including improvement, reclamation of land, construction of non-residential buildings, farm houses, wells and other irrigation works etc. The machinery equipment

includes tractors, transport equipment, agriculture machinery and equipment. It also includes livestock development.

Capital formation is one of the basic factors for increasing production. Capital formation through investment in agriculture helps in improving the stock of equipment, tools and productivity of natural resources, which in turn, enables the farmers to use their resources, particularly land and labour, more productively.[15] This is all the more important in agriculture where we are faced with the task of increasing production to keep pace with the increase in population against the odds of the vagaries of monsoon. Judicious use of natural resources for sustainable production of agriculture, adoption of advanced technology and development of infrastructure for facilitating all agricultural activities, ensuring food security in the broader sense of making adequate nutritious food available and accessible to all and making agriculture a profitable commercial activity at par with other industries in the arena of global economy are the problems that can be successfully tackled only with a strong capital base. This requires a close monitoring of the status of capital formation which in turn hinges on the nature of statistical system and quality of data available for measurement of capital formation.[16]

Raghbendra Jha (2007)[17] examined that Investment as a proportion of GDP has been on a rising trend since the 1970s, agricultural investment as a share of total investment has been falling since the 1980s and investment in agriculture has been stagnant the subsidy for agriculture has risen sharply. One of the reasons for deceleration in agricultural growth has been declining levels of investment in agriculture and allied sectors and irrigation. A key

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15 Ramesh Goliat and SM.Lokare (2008). Capital Adequacy in Indian Agriculture: A Riposte, Occasional Paper Vol.29, No.1, Reserve Bank of India, Mumbai.

16 Report of the committee on Capital Formation in Agriculture in Directorate of Economics & Statistics, Department of Agriculture & Cooperation Ministry of Agriculture Government of India, New Delhi, March, 2003

17 Raghbendra, Jha (2007). Investment and Subsidies in Indian Agriculture, ASARC Working Paper 2007/03, Canberra.

reason for declining public investment in agriculture has been ever increasing agricultural subsidies such as fertilizers, power, irrigation, food, etc. In addition there has been deterioration of institutions or organizations providing inputs and services that is credit, seeds, technology, and extension to agricultural sector. The gross capital formation in agriculture and allied sector and its percentage share to total gross capital formation is depicted in the following table 4.8:

Table 4.8: Gross Capital Formation (GCF) in Agriculture & Allied Sector and its Percentage Share to Total GCF (At Current Prices)

(In Rupees Crore)

Year	Total GCF of Economy			GCF in Agriculture & Allied Sector			(%) Share of GCF in Agriculture & Allied Sector to Total GCF		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
1	2	3	4	5	6	7	8	9	10
1980-81	12994	13970	**26964**	1876	2466	**4342**	14.4	17.7	**16.1**
1990-91	56874	80724	**137598**	3586	12253	**15839**	6.3	15.2	**11.5**
2000-01	144638	348647	**493285**	8176	38558	**46734**	5.7	11.1	**9.5**
2001-02	156537	380317	**536854**	10354	51284	**61638**	6.6	13.5	**11.5**
2002-03	149399	455451	**604850**	9565	52317	**61882**	6.4	11.5	**10.2**
2003-04	174579	539069	**713648**	12219	49248	**61467**	7.0	9.1	**8.6**
2004-05	216962	738084	**955046**	16031	55774	**71805**	7.4	7.6	**7.5**
2005-06	271835	935661	**1207496**	20634	65690	**86324**	7.6	7.0	**7.1**
2006-07(P)	329679	1123121	**1452800**	25472	74650	**100122**	7.7	6.6	**6.9**
2007-08(Q)	429014	1346740	**1775754**	33422	82005	**115427**	7.8	6.1	**6.5**

Source: Central Statistics Organisation
Notes: P: provisional estimates, Q: quick estimates

Table 4.8 presents the Gross Capital Formation (GCF) in Agriculture & Allied Sector and its Percentage Share to Total GCF (At Current Prices) in Rupees crore from 1980-81 to 2007-08. Data provided by the Central Statistical Organisation (CSO) reveals that the total GCF of economy

including public and private sector has increased consistently around 65 times over the years from Rs. 26964 crore in 1980-81 to Rs. 1775754 crore in 2007-08. Similarly, the total GCF in Agriculture & Allied Sector has also increased by 26 times during the period Rs. 4372 crore in 1980-81 to Rs. 115427 crore in 2007-08 with one drop to Rs. 61467 crore in 2003-04. The percentage Share of GCF in Agriculture & Allied Sector to Total GCF by the public sector fallen from 14.4 per cent in 1980-81 to 6.4 per cent in 2002-03 after that it started to rise and reached to the level of 7.8 per cent in 2007-08 where as in contrast the private investment declined continuously after 2001-02 from 13.5 per cent to 6.1 per cent in 2007-08. And if we notice the figures of total percentage Share of GCF in Agriculture & Allied Sector to Total GCF, there is a mixed trend it declined from 16.1 per cent in 1980-81 to 9.5 per cent in 2000-01 after that it increased for a year to 11.5 per cent in 2001-02 again there is a sharp decline consistently to 6.5 per cent in 2007-08. As agriculture is getting diversified, there is a need to not only augment but also re-structure the pattern of investment in agriculture. As concluded from this table that, the Private Sector has taken the lead in directing the growth and pattern of agriculture investment and overall the private sector investment is greater than the public sector investment throughout the years. The immediate steps should be taken to improve capital formation for agriculture in both Public and Private Sectors. Otherwise, it may be difficult to sustain the agriculture growth and rural purchasing power. Major measures taken for agricultural development through enhanced capital formation include the following:[18]

- A roadmap for agricultural diversification has been prepared with focus on horticulture, floriculture, animal husbandry and fisheries.
- Strengthening of agriculture marketing infrastructure.
- National scheme for the repair, renovation and restoration of water bodies.

[18] website: http:/indiabudget.nic.in

- Focus on micro irrigation, micro finance, micro-insurance and rural credits.
- Setting up a Knowledge Centre in every village.
- Setting up a National Fund for strategic agricultural research.
- Provision of urban amenities in rural areas through creation of new growth poles.

It is concluded that the situation is definitely not good, but not as alarming as is sometimes made out to be. This is because of the rising share and role of private sector investments in agriculture over time. And the trend in that has remained robust despite decline in public sector capital formation in agriculture; the fact is that public sector investment has an inducement effect on private sector capital formation. The private sector investment in agriculture has been increasingly influenced by other factors, especially the terms of trade. And this has implications for the structure of growth within agriculture sector.

4.3.7. Contribution of Agriculture to Purchasing Power of People

The value of a currency expressed in terms of the amount of goods or services that one unit of money can buy. Purchasing power is important because a decrease in purchasing power is called inflation which is a serious problem of the country. The country's economic growth is mainly attributed to increasing purchasing power of the people. The (Purchasing Power Parity) PPP conversion factor shows how much of a country's currency is needed in that country to buy what $1 would buy in the United States. By using the PPP conversion factor instead of the currency exchange rate, we can convert a country's GNP per capita calculated in national currency units into GNP per capita in U.S. dollars while taking into account the difference in domestic prices for the same goods. Thus PPP helps us compare GNPs of different

countries more accurately. Because prices are usually lower in developing countries, their GNP per capita expressed in PPP dollars is higher than their GNP per capita expressed in U.S. dollars.[20] India comes on 4th rank after USA, China, Japan in Purchasing Power Parity of GDP in 2010 that is 4.06 trillion.[21]

Shri Narendra Modi[22] shares his vision on the development of India's agriculture sector. The prime minister pointed, "Through agriculture we need to increase purchasing power of farmers and people in villages. This will drive economic growth".

Agriculture provides purchasing power not only to those directly engaged in it but to others also who are indirectly engaged in it through the industries and services sectors. When farmers earn more they also spend more. In the process, they create new markets and new opportunities for hundreds of blacksmiths, carpenters, masons, weavers, potters, leather workers, utensil-makers, tailors, cotton ginners, oil pressers, transporters and countless others. Thus, there are many industries, the prosperity and employment of which are dependent upon the purchasing power of the agricultural population. Hence, it is concluded that besides purchasing food for non-agricultural workers and raw materials for consumer industries, it has created demands for many new industries, which, in turn, have provided high and well paid employment. This existing role of agriculture in the Indian economy points out the necessity for the development of Indian agriculture to the fullest extent possible as the prosperity of agriculture largely stands for the prosperity of the economy. The significance of agriculture lies in the fact that

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20 Source: www.worldbank.org

21 The World's Largest Economies 2012, The Richest dated 5.20.2012

22 Narendra Modi (March 20, 2014), during 'Chai Pe Charcha', available at http://www.narendramodi.in

the development in agriculture is an essential condition for the development of the national economy.

4.3.8. Contribution of Agriculture to Revenue to the Government

Government revenue is money received by a government. It is an important tool of the fiscal policy of the government and is the opposite factor of government spending. Revenues earned by the government are received from sources such as taxes levied on the incomes and wealth accumulation of individuals and corporations and on the goods and services produced, exported and imported from the country, non-taxable sources such as government-owned corporations' incomes, central bank revenue and capital receipts in the form of external loans and debts from international financial institutions. State government get a major part of their revenue in terms of land revenue, irrigation charges, agricultural income tax etc. Central government also earns revenue from export duties on the agricultural production. Moreover our government can raise substantial revenue by imposing agricultural income tax. The higher the government collects tax revenue, the greater the money it will have to spend on developmental projects. Agriculture helps the government by increasing its tax revenue. Also as agriculture provides raw material to many of the important industries of India, therefore, as agriculture expanded in the country, industrial activity too took hold. This expansion in industrial sector also leads towards increased tax revenue for the government from the industrial sector. In this way the agriculture has a significant role in increasing the tax revenue of the government.

4.3.9. Role of Agriculture Sector in Economic Planning

Plans made by a government for the future financial state of a country are called Economic Planning. Economic Planning in India was started in 1950 is necessary for economic development and economic growth. Agriculture in Economic Planning is one of the major factors for the growth of the Indian economy which is still primarily agrarian. Agriculture Planning in India is a very important tool to enhance and maximize the total agriculture based produce. The planning in agriculture is mainly looked after by the Planning Commission of India which operates and executes under the aegis of the government of India. Agriculture in India planning takes into account all factors that are related to the rural sector where most of Indian agriculture originates. The sole objective of the Planning Commission in terms of Agriculture Planning in India is to enhance the total output of agriculture and boost the economic growth of the country.

The importance of agriculture in the national economy is indicated by many facts. For example, agriculture is the main support for India's transport system, since railways and roadways secure bulk of their business from the movement of agricultural goods. Internal trade is mostly in agricultural products. Further, good crops implying large purchasing power with the farmers lead to greater demand for manufacturers and, therefore, better prices. In other words, prosperity of the farmers is also the prosperity of industries. Likewise, bad crops lead to a depression in business. Generally it is the failure in the agricultural front that has led to failure of economic planning in particular periods. Agricultural growth has direct impact on poverty eradication. It is also an important factor in containing inflation, raising agricultural wages and for employment generation. It is clear, therefore, that agriculture is the backbone of the Indian economy and prosperity of agriculture can also largely stand for the prosperity of the Indian economy. At the same time, it is true that per capita productivity in agriculture is less than

in industry. Naturally, most scholars of developing economies observe that this dominance of agriculture in India's economy is responsible for the low per capita income in the country.

Performance of Agriculture Sector during 11th plan 2007-12 and 12th plan 2012-17

Eleventh Five Year Plan has focused on a model that encompasses 4 per cent growth in agriculture. This was considered vital not only for improving food and nutrient security, but also for inclusive growth and checking rural urban divide. It is widely felt and has also been documented that high rates of growth experienced by India during the last two decades or so have largely benefited urban and non agriculture population in India. To address this disquiet trend, the ongoing Eleventh Five Year Plan (2007-2012) has placed heavy emphasis on agriculture and rural development and a number of important policy measures have been initiated to address the issues of agrarian distress. Further, right from the Ninth Five- Year Plan onwards, 4 per cent growth in Indian agriculture has been targeted, but the actual growth rate has remained considerably lower than this target. The lower than targeted performance of agriculture in the backdrop of an impressive growth of the overall economy has serious implications[23]. The Planning Commission today said the annual agriculture growth target for the 12th Five Year Plan (2012-17) would be set at 4 per cent as it was in the previous two plans.

The Planning Commission deputy chairman Montek Singh Ahluwalia also said, "During the current five year plan (2007-12) we are likely to achieve average farm growth of about 3.5 per cent, which would be little lower than targeted 4 per cent." Ahluwalia who was conferred a doctorate degree of science by Indian Council of Agriculture Research (ICAR) here,

[23] Report of the working group on, "Crop Husbandry, Agricultural inputs, Demand and Supply projections and Agricultural Statistics for the Twelfth Five Year Plan (2012-2017)", in Government of India, Planning Commission Oct 2011.

stressed on the need for more investment in agriculture research. The growth rate of agriculture and allied sector and the growth rate of total economy from ninth five year plan to eleventh plan are depicted in the following table 4.9:

Table 4.9: Growth Rate of Agricultural and Allied Sectors

Plan	Share of Agriculture in the Economy	Growth Rate of Agriculture & Allied Sectors	Growth Rate of Total Economy
(All Figures based on 2004–05 prices)			
Ninth Five Year Plan	23.4	2.5	5.7
Tenth Five Year Plan	19	2.4	7.6
Eleventh Plan (2007–08 to 2011–12)			
2007–08	16.8	5.8	9.3
2008–09	15.8	0.1	6.7
2009–10	14.7	1	8.4
2010–11 (Quick Est.)	14.5	7	8.4
2011–12 (Rev Est.)	14	2.8	6.5
Eleventh Plan Average	15.2	3.3	7.9

Source: Twelfth Five Year Plan (2012–2017), Economic Sectors, Volume II, Planning Commission Government of India

Table 4.8 presents the share of agriculture in the economy, their growth rates and growth rate of total economy during plan period. Analysis of growth rate of agriculture & allied sectors revealed mixed trends; figures provided by the Planning Commission revealed that the average of annual growth rates of GDP in agriculture and allied sectors during the Eleventh Five Year Plan is now placed at 3.3 per cent. This is short of the target of 4 per cent but is significantly better than the achievement of 2.4 per cent in the Tenth Plan. Failure to reach the target growth is one reason for the high inflation in prices of food and other primary commodities that persist despite the recent slowdown in overall GDP growth.

The annual average growth in agriculture and allied sectors realized during the first four years of the Eleventh Plan period, i.e., 2007-08 to 2010-11, is 3.3 per cent against the targeted growth rate of 4 per cent. As above table there is an opposite relation between the growth rate of agriculture and allied sectors and the growth rate of total economy during ninth and tenth plan period. The growth rate of agriculture and allied sector declined from 2.5 in ninth five year plan to 2.4 in tenth plan as contrast to this the growth rate of total economy increased from 5.7 in ninth plan to 7.6 in tenth plan period. Agriculture and allied sectors recorded slightly lower average growth than targeted in the Eleventh Plan period due to severe drought experienced in most parts of the country during 2009-10 and drought/deficient rainfall in some states, namely Bihar, Jharkhand, Eastern UP and West Bengal in 2010-11. However, timely and corrective measures taken by the government helped boost agricultural production and growth in agriculture and allied sectors reached 7.0 per cent in 2010-11, the highest growth rate achieved during the last 6 years.

In 2011-12 agriculture and allied sectors are estimated to achieve a growth rate of 2.8 per cent. However a matter of great concern is the fact that agricultural growth is still, to an extent, characterized by fluctuations due to the vagaries of nature.[24]

The 12th Five Year Plan (2012-17) growth target of total economy has been set as 9 per cent and the growth rate for agriculture sector has been set at 4 per cent with food grains growth at about 2 per cent and non-food grains sector (horticulture, livestock and fisheries) growing at about 5-6 per cent. However, looking at the growth in agriculture sector in general and high-value agriculture, particularly, horticulture, fisheries, dairy and meat sector during the 11th Plan, there is a need to put additional efforts to achieve 4 per

[24] Pratiyogita Darpan, Extra Issue of Indian Economy 2012, Agriculture, p. 104.

cent growth in agriculture. The twin objective of India's 12th five year plan are ensuring food security and improving the lot of farmers through higher investments in agriculture and allied sectors, says Sharad Pawar, Past Union Minister for Agriculture and Food Processing Industries. The 12th Plan will be focusing on strategies for stable and remunerative prices to farmers; greater role for the private sector in agriculture, diversification and R&D efforts; distribution of more institutional credit equitably; providing greater focus on small and marginal farmers, improving productivity in rainfed areas; and creating a more competitive environment for agricultural marketing, he added.[25]

4.4 Agricultural development Essential for Economic Growth

The importance of agriculture in India arises from the fact that the development in agriculture is an essential condition for the development of the national economy. Ragner Nurkse argues that the surplus population in agriculture should be shifted to the newly started industries. Nurkse's thesis is that agricultural productivity will be increased on the one hand and on the other new industrial units would be set up with the use of surplus labour.

The Nurksesian thesis, though widely welcomed at one time, has been questioned recently. Firstly, industrialization does not consist only of transference of workers from agriculture to industries. Industrialization requires a particular set of motives and values which an agricultural economy cannot supply. A change in agriculture itself is essential before such motivations and values are evolved. Secondly, the marketable agricultural surplus will have to be increased significantly to feed the increasing urban population and to provide raw materials to industries. Thirdly, the new industries and fast growing services sectors however, fast they may develop, will not be able to provide adequate employment for the constantly increasing population in

[25] Source: http://www.commodityonline.com/news

India. There is a limit to the capacity of employment in industries in the short period. Necessarily, therefore, increased employment will have to be found, not in the new industries, but in agriculture or in rural industries. This will further necessitate improvement in agriculture.

In other words, general economic development will require rapid agricultural development either to precede or to go hand in hand with it. Thus, any change in the agricultural sector positive or negative has a multiplier effect on the entire economy. The agricultural sector acts as a bulwark in maintaining food security and in the process, national security as well. To maintain the ecological balance, there is a need for sustainable and balanced development of the agriculture and allied sectors. Recognizing the crucial role played by this sector in enabling the widest dispersal of economic benefits, the Tenth plan emphasized that agricultural development is central to rapid economic development of the country.

The findings obtained in the study of this chapter validate that agriculture has a multifunctional role to play in economic development. Apart from providing food and fibre, agriculture is the main source of growth other sectors too like industries, manufacturing, and service sector. The analysis of use of land by agriculture sector shows that agricultural land has declined by 1.6 per cent during 1980-81 to 2010-11 despite of this the cropping intensity that is per cent of total cropped area over net area sown estimated a significant growth of about 14 per cent during the same period which results in increase in production of agricultural commodities. Observing the data of GDP, the conclusion here is that today the service sector is contributing more than half of the Indian GDP, earlier it was agriculture which mainly contributed to the GDP. The percentage share of agriculture to total GDP has been declining gradually with the passing years. This decline is a result of various factors like government intervention in labour, land and credit markets; lack of

infrastructure; small size of land holdings; poorly maintained or non-existent land records; inadequate use of modern technology; illiteracy; inadequate finance and marketing services for farm produce; inadequate irrigation facilities; more importance given to non-agricultural sectors by government etc. But there is an impressive growth in employment opportunities from agriculture sector. Employment in agriculture sector increased consistently from 191.58 million in 1993-94 to 243.21 million in 2009-10 and is always more than the employment in non agriculture sector which is 216.9 million in 2009-10. Agriculture sector also plays an important role in international trade. The growth of export as well as imports is robust during this period in India. However, imports have increased faster than export, widening the gap. Agriculture sector is also very important for industrial development because agriculture provided raw materials to industries. Many of our small scale and cottage industries like handloom weavings, rice husking, coir, khadi etc., depend upon agriculture for their raw materials. The contribution of agriculture in tertiary sector is commendable. Agricultural services sector is comprised of a wide array of services sold to farm-oriented enterprises and to non-farm final consumers. Agriculture is also helpful in increasing purchasing power of people. It provides purchasing power to all those who are directly or indirectly (like industries and services) engaged in it. As Shri Narendra Modi shares his vision on the development of India's agriculture sector by pointing that through agriculture, the need is to increase purchasing power of farmers and people in villages which will drive economic growth. Lastly agriculture is an important tool of increasing revenue to the government because a major part of the revenue received from the land revenue, irrigation charges, agricultural income tax, etc. Central government also earns revenue from export duties on the agricultural production. Overall the conclusion is that the agricultural development is very essential for economic growth because it is the backbone of Indian economy.