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INDIAN AGRICULTURE - THE BACKBONE OF ECONOMIC DEVELOPMENT AND FARMER'S LIVELIHOOD

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Abstract

Agriculture plays an important, though declining role in the economy and its share in overall GDP are also falling. Despite India's economic development, over 70 % of the population still live in rural areas. Agriculture is the key employer of the labour force. Indian agriculture policy was aimed essentially at improving food self-sufficiency and alleviating hunger through food distribution. Aside from investing in agricultural infrastructure, the government supports agriculture through measures including minimum support prices (MSP) for the major agricultural crops, farm input subsidies and preferential credit schemes. Reforms introduced in India in the early 1990s have greatly increased overall trade flows.

Key words: Agriculture, GDP, Trade, Market, Economic Growth, Employment and ToT

1. Introduction

Agriculture plays a vital role in India's economy. Agriculture in India has an extensive background which goes back to ten thousand years. At present, India holds the second position in the world in agricultural production. It also contributes a major share in the Gross Domestic Product (GDP) of the country. In addition, the sector recruits about over 58 per cent entire manpower of the rural households who depend on agriculture as their principal means of livelihood. Agriculture, along with fisheries and forestry, is one of the largest contributors to the Gross Domestic Product (GDP). As per estimates by the Central Statistics Office (CSO), the share of agriculture and allied sectors (including agriculture, livestock, forestry and fishery) was 16.1 per cent of the Gross Value Added (GVA) during 2014 – 15 at 2011–12 prices. During Q1 FY2016, agriculture and allied sectors grew 1.9 per cent year-on-year and contributed 14.2 per cent of GVA. Regardless of the fact that there has been a gradual slump in its contribution to GDP of the country, agriculture is currently the biggest industry in India. On the whole, it plays a key role in the socioeconomic growth of the country. The main objectives of the present research includes: 1) To list out ranking of agricultural products, 2) To glance Share of Agriculture in Gross State Domestic Product, 3) To list major investments and developments in agriculture and 4) To list major government initiatives in the Agricultural sector.

Agriculture sector is the mainstay of the Indian economy, contributing about 15 per cent of national Gross Domestic Product (GDP) and more importantly, about half of India's population is wholly or significantly dependent on agriculture and allied activities for their livelihood (GOI,

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2011). Agriculture remains a major source of employment, absorbing about 52 per cent of the total national work-force in 2004-05, down from about 70 percent in 1971 (Vijay Paul Sharma 2011).

Around the turn of the century, India overtook the United States as the world's largest producer of milk and is also a major producer of pulses, such as chickpeas and lentils, which are major sources of protein in vegetarian diets in agricultural production boosted rural incomes (Adam Cagliarini and Anthony Rush, 2011). The ToT for farmers and the agriculture sec-tor rose significantly during the period 2004 – 05 to 2013 – 14. Though, they stagnated after 2010 – 11. The ToT for agriculture rose much faster than for farmers. The sector's fortunes will hinge more on its links with other sectors as well as on people moving from agriculture to higher productivity employment in non-agriculture, as increasingly non-farm in-comes are forming higher proportions of incomes for the farm sector (Mahendra Dev and Chandrasekhara Rao 2015).

2. Agricultural Products in India

India is one of the fastest growing economies of the world and is currently the focus of a great deal of international attention. In terms of agriculture some of the issues are as follows:

- India ranks first in producing the following agricultural outputs: Anise, Fresh fruit, Badian, Fennel, Tropical fresh fruit, Coriander, Pigeon peas, Jute, Spices, Pulses, Castor oil seed, Millets, Safflower seeds, Sesame seeds, Limes, Lemons, Dry chillies and peppers, Cow's milk, Cashew nuts, Chickpeas, Ginger, Okra, Guavas, Turmeric, Goat milk, Mangoes, Meat and Buffalo milk.
- In addition, the country also ranks as the top producer of millets such as Bajra, Jowar, and Ragi. In terms of rice production, India holds the second position after China.
- India produces about 10 % of the fruits produced in the world. The country holds the first position in the world in producing the following fruits: Papaya, Mangoes, Sapota and Banana.
- India also holds a high rank in the world in the production of the following: Sorghum, Tobacco, Coconuts, Rapeseed, Tomatoes and Hen's eggs.
- India ranks sixth in the world in the production of coffee. India has the biggest number of livestock in the world. India also ranks high as the producer of the following: Cabbages, Cashews, Fresh vegetables, Cotton seed and lint, Brinjal, Garlic, Silk, Goat meat, Cardamom, Nutmeg and Mace, Wheat, Onions, Sugarcane, Rice, Dry beans, Lentil, Tea, Groundnut, Cauliflowers, Green peas, Pumpkins, Potatoes, Gourds, Squashes and Inland fish
- The population of India is increasing at a faster pace than its capacity to produce wheat and rice.
- India holds the second position in the production of wheat, rice, cotton, sugarcane, and groundnuts. It is also the second biggest harvester of vegetables and fruits, representing about 9 % and 10 % of the overall vegetable and fruit production in the world respectively.
- The country is the top producer of jute, milk and pulses and holds the second rank in the production of silk and is also the biggest consumer of silk in the world.

Below shown tables may further highlight idea of the status of agriculture in India. Table -1 show All-India Index Number of Production of Principal Crops based on year 2007-08.

3. Market Size

Over the recent past, multiple factors have worked together to facilitate growth in the agriculture sector in India. These include growth in household income and consumption, expansion in the food processing sector and increase in agricultural exports. Rising private participation in Indian agriculture, growing organic farming and use of information technology are some of the key trends in the agriculture industry.

Table - 1: All-India Index Number of Production of Principal Crops

(TE: 2007-08=100)

Crops	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Average Growth during 2007-08 to 2013-14
'(1)	'(2)	'(3)	'(4)	'(5)	'(6)	'(7)	'(8)	'(9)
Rice	102.9	105.6	94.8	102.2	112.1	112	113.4	106.1
Wheat	105.4	108.2	108.3	116.5	127.2	125.4	128.6	117.1
Jowar	104.7	95.7	88.5	92.5	79	69.8	71.2	85.9
Bajra	114.7	102.2	74.8	119.3	118.2	100.6	105.6	105.1
Maize	116.6	121.4	102.9	133.7	133.9	136.9	149.8	127.9
Ragi	108.5	102.9	95.2	110.6	97.3	79.4	94.7	98.4
Small Millets	110	88.8	76.3	88.3	90.2	87	90.1	90.1
Barley	95.8	135.3	108.5	133.2	129.7	140.4	145	126.9
Coarse Cereals	112.1	110	92.3	118.9	114.8	109.2	117.3	110.7
Cereals	105.5	107.4	100.2	111.1	119.1	117.3	120.6	111.6
Tur	113.5	83.6	91	105.6	98	111.6	121.5	103.5
Gram	97.5	119.8	126.8	139.5	130.7	149.9	167.6	133.1
Moong	127.4	86.6	57.9	150.7	136.8	99.3	125.2	112
Urad	104.1	83.9	88.3	125.7	126.1	135.5	108.1	110.2
Lentil	91.2	107.1	115.9	106	118.9	127.4	115.5	111.7
Other Pulses	105.9	102.6	87	131.1	112.2	112.1	101.6	107.5
Total Pulses	105.1	102	102.3	129.3	121.3	129.2	135.1	117.8
Foodgrains	105.4	106.5	100.6	114.4	119.5	119.4	123.1	112.7
Groundnut	125	97.6	73.9	112.5	94.8	63.9	131.7	99.9
Castor	112.6	125.2	107.9	144.3	245.3	209.9	180.5	160.8
Niger Seed	97.1	103.7	88.6	95.5	87	89.4	78.5	91.4
Sesamum	112.6	95.3	87.5	132.9	120.6	101.9	100.4	107.3
R&M	81.8	100.9	92.6	114.6	92.6	112.5	111.6	100.9
Linseed	97.3	100.8	91.5	87.3	90.8	88.5	84.9	91.6
Safflower	97.1	81.9	77.4	65.1	62.9	46.9	49.3	68.6
Sunflower	106.3	84.1	61.8	47.3	37.5	39.5	39.7	59.5
Soya Bean	117.1	105.8	106.4	136	130.4	156.6	128	125.8
Total Oilseeds	108.6	100.8	88.9	116.8	106.5	107.4	119.3	106.9
Sugarcane	106.1	86.8	89	104.3	110	103.9	106.6	101
Cotton	115.9	99.7	107.5	147.7	157.6	153.2	164.2	135.1
Jute	100.5	94.7	110.4	98.4	105.6	101.7	108	102.8
Mesta	105.5	77.9	62.5	65.1	70.6	62.8	63.8	72.6
Coconut	97.4	97.5	104	104.1	143.5	149.9	154.2	121.5
Cottonseed	115.9	99.7	107.5	147.7	157.6	153.2	163.4	135
Sunhemp	98.8	143.5	125.6	172.7	132.2	100.7	100.7	124.9
Potato	114.6	138.4	147.2	170.4	166.9	182.5	186.7	158.1
Tapioca	105.6	116.5	97.6	97.8	105.9	87.6	93.7	100.7
Sweet Potato	98.8	117.4	114.8	109.8	112.5	118.7	121.3	113.3
Onion	102.7	152.4	136.6	169.8	196.7	188.9	216.8	166.3
Banana	114.2	169.7	171.3	192.7	184.1	171.5	178.4	168.8
Tobacco	93	115.1	141.6	170.6	160	139.8	139.8	137.1
Guar Seed	133.6	144.6	44.3	146.8	165.6	183.8	183.8	143.2
Black Pepper	67.6	68	73.2	74.6	58.9	76.1	64.6	69
Dry Chillies	109.5	107.2	101.5	103.2	107.7	110.1	116.1	107.9
Dry Ginger	98.3	97.7	99	180.4	194.3	175.5	175.5	145.8
Turmeric	98	101.3	97.8	122.4	143.9	119.7	126.9	115.7
Areca Nut	100	100.6	100	100	142.4	127.4	132	114.6
Cardamom	85.7	99.1	102.3	102.3	102.3	115.1	134.3	105.9
Coriander	121.2	94.8	92.8	188.7	208.7	205.2	194.2	157.9
Garlic	131.2	102.1	102.4	129.9	150.8	154.6	149.9	131.6
Tea	95.9	98.8	100.7	98.2	99.2	99.2	99.2	98.8
Coffee	95.4	95.5	105.4	108.9	114.3	115.8	115.8	107.3
Rubber	99.8	104.5	100.5	104.2	109.3	110.5	110.5	105.6
Non-food grains	108.6	107.6	105	128.1	131.3	129.1	136.4	120.9
All Crops	107	107	102.8	121.1	125.3	124.2	129.7	116.7

Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation

The Table - 2 shows Share of Agriculture and Allied Sector in Gross State Domestic Product at Current Prices (Rs. Lakhs) from year 2011-12 to 2013-14 of state wise.

Table - 2: Share of Agriculture and Allied Sector in Gross State Domestic Product at Current Prices (Rs. Lakhs)

S. No	State/UT	GSDP from Agriculture and allied			% Share of Agriculture and Allied in Total GSDP			% Growth over and Allied Previous Year	
1	2	3	4	5	6	7	8	9	10
		2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	2012-13	2013-14
1	Andhra Pradesh	14556906	17196447	19622464	21.97	22.79	22.96	18.13	14.11
2	Arunachal Pradesh	439919	491026	547494	42.32	41.55	40.58	11.62	11.5
3	Assam	3218020	3569643	4155039	25.58	25.21	25.55	10.93	16.4
4	Bihar	6497800	8053801	7576634	26.71	27.19	22.09	23.95	–5.92
5	Chhattisgarh	2914456	3468416	3716987	20.19	21.22	20.09	19.01	7.17
6	Goa	227418	255180	NA	4.32	5.36	NA	12.21	NA
7	Gujarat	11267379	10828947	NA	18.95	16.16	NA	–3.89	NA
8	Haryana	6320575	6736014	7756870	21.15	19.84	20.2	6.57	15.16
9	Himachal Pradesh	1215183	1432832	1610320	18.71	19.44	19.5	17.91	12.39
10	Jammu & Kashmir	1440270	1742781	2041194	21.12	22.47	23.38	21	17.12
11	Jharkhand	2449674	2782135	3212144	18.06	18.35	18.59	13.57	15.46
12	Karnataka	7334879	8118453	8155322	16.11	15.64	13.99	10.68	0.45
13	Kerala	4786870	5050804	NA	15.55	14.46	NA	5.51	NA
14	Madhya Pradesh	8406923	11027436	15440540	26.97	29.63	34.24	31.17	40.02
15	Maharashtra	13868550	14422747	16355262	11.8	10.9	11.08	4	13.4
16	Manipur	240849	260842	NA	21.73	20.89	NA	8.3	NA
17	Meghalaya	268285	289579	317094	15.6	15.83	15.07	7.94	9.5
18	Mizoram	137955	151960	NA	20.02	18.17	NA	10.15	NA
19	Nagaland	353999	408232	466534	25.54	26.04	26.28	15.32	14.28
20	Odisha	3720150	5035317	5657085	17.34	19.71	19.61	35.35	12.35
21	Punjab	7529006	8183507	8697142	29.37	28.7	27.43	8.69	6.28
22	Rajasthan	12162118	13519486	15027681	30.15	29.44	29.25	11.16	11.16
23	Sikkim	100053	110243	124798	11.23	10.53	10.08	10.19	13.2
24	Tamil Nadu	8857771	8661891	10001500	13.28	11.63	11.71	-2.21	15.47
25	Tripura	467507	508911	NA	22.28	21.33	NA	8.86	NA
26	Uttar Pradesh	19762214	22837170	26124310	28.84	29.19	29.34	15.56	14.39
27	Uttarakhand	1404189	1586241	1803439	14.35	14.71	14.73	12.96	13.69
28	West Bengal	11806747	13758370	15188000	22.35	22.46	21.69	16.53	10.39
29	Andaman & Nicobar Islands	53058	55331	57603	10.62	9.82	9.37	4.28	4.11
30	Chandigarh	10317	10718	11629	0.45	0.43	0.4	3.89	8.5
31	Delhi	281899	341941	366803	0.95	0.98	0.91	21.3	7.27
32	Puducherry	80043	95183	116886	5.46	5.68	5.55	18.91	22.8

Source: Central Statistics Office.
Notes: Agriculture and Allied includes Agriculture, forestry, logging and fishing.
NA Not available

Table-3 Highlights India's Position in World Agriculture (in 2012) with respect important key variables such as Area, population, Crop, Fruits & Vegetables, Livestock, and Animal Products.

Table - 3: India's Position in World Agriculture (in 2012)

Item	India	World	% Share	India's Rank	Next to
'(1)	'(2)	'(3)	'(4)	'(5)	'(6)
1. Total Area (Million Hectares)	329	13442	2.4	Seventh	Russian Federation, Canada, USA, China, Brazil, Australia
Land Area	297	13009	2.3	Seventh	Russian Federation, China, USA, Canada, Brazil, Australia
Arable Land	159	1411	11.3	Second	USA
2. Total Population* (Million)	1241	6909	18	Second	China
Agriculture	661	2617	25.2	Second	China
3. Economically Active Population* (Million)					
Total	491	3282	15	Second	China
Agriculture	267	1310	20.4	Second	China
4. Crop Production (Million Tonnes)					
(A) Total Cereals	260	2458	10.6	Third	China, USA
Wheat	86	701	12.3	Second	China
Rice (Paddy)	157	722	21.7	Second	China
Total Pulses	17	67	25.5	First	
(B) Oilseeds					
Groundnut (in shell)	7	38	18.2	Second	China
Rapeseed	8.1	59	13.7	Third	Canada, China
5. Fruits & Vegetables (Million Tonnes)					
(A) Vegetables & Melons	105	1090	9.6	Second	China
(B) Fruits excluding Melons	74	637	11.6	Second	China
(C) Potatoes	42	373	11.3	Second	China
(D) Onion (Dry)	15	86	17.4	Second	China
6. Commercial Crops (Million Tonnes)					
(A) Sugarcane	342	1800	19	Second	Brazil
(B) Tea	0.96	4.7	20.6	Third	China, Turkey
(C) Coffee (green)	0.3	8.45	3.6	Seventh	Brazil, Viet Nam, Colombia, Indonesia, Ethiopia, Mexico
(D) Jute & Jute-like Fibres	1.96	3.58	54.7	First	
(E) Cotton (lint)	8.5	26.14	32.5	Second	China
(F) Tobacco Leaves	0.83	7.37	11.3	Third	China, Brazil
7. Livestock (Million Heads)					
(A) Cattle	210	1430	14.7	Second	Brazil
(B) Buffaloes	111	194	57.3	First	
(C) Camels	0.45	25	1.8	Tenth	Somalia, Sudan, Ethiopia, Niger, Mauritania, Kenya, Mali, Pakistan, Chad
(D) Sheep	74	1078	6.9	Third	China, Australia
(E) Goats	154	910	16.9	Second	China
(F) Chicken	774	19571	4	Fifth	China, USA, Indonesia, Brazil
8. Animal Products					
(A) Total Milk ('000 MT)	121847	723143	16.8	First	
(B) Eggs Total ('000 MT)	3378.1	69103	4.9	Third	China, USA
(C) Total Meat ('000 MT)	6190	295462	2.1	Fifth	China, USA, Brazil, Germany
9. Implements (Thousands Numbers) *					
Agricultural Tractors-in-use	3149	29320	10.7	Second	USA

Source: FAO Statistics.
Note: * Figure relates to 2007

As per the 4th Advance Estimates, food grain production is estimated at 252.68 million tonnes (MT) for 2014-15. Production of pulses estimated at 17.20 million tonnes. With an annual output of 138 MT, India is the largest producer of milk. It also has the largest bovine population. India is the largest importer of pulses at 19.0 MT and 3.4 MT, respectively. India, the second-largest producer of sugar, accounts for 14 per cent of the global output. It is the sixth-largest exporter of sugar, accounting for 2.76 per cent of the global exports. India is the largest producer, consumer and exporter of spices and spice products. Spice exports from India are expected to reach US$ 3 billion by 2016–17 due to creative marketing strategies, innovative packaging, strength in quality and strong distribution networks. The spices market in India is valued at Rs 40,000 crore (US$ 6.16 billion) annually, of which the branded segment accounts for 15 per cent. The procurement target for rice during marketing season (MS) 2015–16 has been finalised as 30 MT. Agricultural export constitutes 10 per cent of the country's exports and is the fourth-largest exported principal commodity. The agro industry in India is divided into several sub segments such as canned, dairy, processed, frozen food to fisheries, meat, poultry, and food grains.

4. Investments

In terms of agricultural contribution, some of the most developed states in India are Punjab, Uttar Pradesh, Madhya Pradesh, Haryana, Bihar, Andhra Pradesh, Maharashtra, West Bengal and Gujarat play a key role in the agrarian development of India. The total arable territory in India is 15,73,50,000 km^2, which represents about 52.92% of the overall land zone of the country. Arable land in India is diminishing because of continuous strain from an ever-increasing number of inhabitants and growing urbanisation. Several players have invested in the agricultural sector in India, mainly driven by the government's initiatives and schemes. According to the Department of Industrial Policy and Promotion (DIPP), the Indian agricultural services and agricultural machinery sectors have cumulatively attracted foreign direct investment (FDI) equity inflow of about US$ 2,182 million from April 2000 to June 2015.

Some major investments and developments in agriculture in the recent past are as follows:

- Mahindra & Mahindra (M&M), India's leading tractor and utility vehicle manufacturer, announced its entry into pulses retailing under the brand 'NuPro'. Going forward, the company plans to foray into e-retailing and sale of dairy products.
- Fertilizer cooperative IFFCO launched a joint venture with Japanese firm Mitsubishi Corp for manufacturing agrochemicals in India.
- Acumen, a not-for-profit global venture fund, has invested Rs 11 crore (US$ 1.7 million) in Sahayog Dairy, an integrated entity in the segment, based at Harda district in Madhya Pradesh.
- Rabo Equity Advisors, the private equity arm of Netherlands-based Rabo Group, raised US$ 100 million for the first close of its second fund – India Agri Business Fund II. The fund plans to invest US$ 15–17 million in 10–12 companies.
- Oman India Joint Investment Fund (OIJIF), a joint venture (JV) between the State Bank of India (SBI) and State General Reserve Fund (SGRF), invested Rs 95 crore (US$ 14.62 million) in GSP Crop Science, a Gujarat-based agrochemicals company.
- The world's seventh-largest agrochemicals firm, Israel-based ADAMA Agrochemicals plans to invest at least US$ 50 million in India over the next three years.
- Belgium-based Univeg has collaborated with Mahindra & Mahindra to develop a fresh fruit supply chain.
- Companies from the US, Canada, Australia, Israel, the Netherlands and other European countries have shown strong interest to transfer the best practices, linkages between scientific institutes,

agriculture storage, cold-chain management, market access, and productivity enhancement such as the introduction of new technology in seed and plant biotech.

- Canada-based International Food Security Research Fund has major investments in food security research in several Indian universities. These strengthen food-processing and sustainable agricultural techniques.

5. Government Initiatives

In order to keep up the momentum gained during the 11th Plan and achieve the targeted growth rate of 4 % during the 12th Five Year Plan as also the ensure focused approach and to avoid overlap, all the ongoing 51 schemes of the Department have been restructured into five missions *viz*.,

- National Food Security Mission (NFSM),
- Mission for Integrated Development of Horticulture Mission (MIDH),
- National Mission on Oil Seed and Oil Palm (NMOOP),
- National Mission for Sustainable Agriculture (NMSA), and
- National Mission on Agricultural Extension & Technology (NMAET);

Five Central Sector Schemes and one State Plan Scheme *viz*.,

- National Crop Insurance Programme (NCIP).
- Integrated Scheme on Agri-Census & Statistics (ISAC&S).
- Integrated Scheme of Agriculture Marketing (ISAM).
- Integrated Scheme of Agriculture Cooperation (ISAC).
- Secretariat Economic Service.
- Rashtriya Krishi Vikas Yojana (State Plan Scheme).

Recognizing the importance of Agriculture Sector, the Government during the budget 2014-15 took a number of steps for sustainable development of Agriculture. These steps include:

- Enhanced institutional credit to farmers;
- Promotion of scientific warehousing infrastructure including cold storages and cold chains in the country for increasing shelf life of agricultural produce;
- Improved access to irrigation through Pradhan Mantri Krishi SichayeeYojana;
- Provision of Price Stabilisation Fund to mitigate price volatility in agricultural produce;
- Mission mode scheme for Soil Health Card;
- Setting up of Agri-tech Infrastructure fund for making farming competitive and profitable;
- Provide institutional finance to joint farming groups of "Bhoomi Heen Kisan" through NABARD;
- Development of indigenous cattle breeds and promoting inland fisheries and other non-farm activities to supplement the income of farmers.

Central Government recognizes and discharges its responsibility to assist State Governments in overall development of Agriculture sector. Effective policy measures are in position to improve agricultural production and productivity and address problems of farmers. State Governments are also impressed upon to allocate adequate funds for development of agriculture sector in State plan, as well as initiate other measures required for achieving targeted agricultural growth rate and address problem of farmers.

Given the importance of the agriculture sector, the Government of India, in its Budget 2015–16, planned several steps for the sustainable development of agriculture. The government has already taken steps to address two major factors (soil and water) critical to improve agriculture

production. Steps have been taken to improve soil fertility on a sustainable basis through the soil health card scheme and to support the organic farming scheme 'Paramparagat Krishi Vikas Yojana'. Other steps include improved access to irrigation through 'Pradhanmantri Gram SinchaiYojana'; enhanced water efficiency through `Per Drop More Crop'; continued support to Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and the creation of a unified national agriculture market to boost the incomes of farmers.

The Government of India recognises the importance of microirrigation, watershed development and 'Pradhan Mantri Krishi Sinchai Yojana'; thus, it allocated a sum of Rs 5,300 crore (US$ 815 million) for it. It urged the states to focus on this key sector.

The state governments are compelled to allocate adequate funds to develop the agriculture sector, take measures to achieve the targeted agricultural growth rate and address the problems of farmers.

The Department of Agriculture and Cooperation under the Ministry of Agriculture has inked MOUs/agreements with 52 countries including the US. In addition, the Department of Agriculture Research & Education (DARE) and the Department of Animal Husbandry, Dairying & Fisheries (DAHD&F) under the Ministry of Agriculture have signed MOUs/agreements with other countries, taking the number of partnerships with other countries to 63.

These agreements would provide better agricultural facilities in areas such as research and development, capacity building, germ-plasm exchange, post-harvest management, value addition/food processing, plant protection, animal husbandry, dairy and fisheries. The agreements could help enhance bilateral trade as well.

Given the correlation between improvement in agriculture and the development of the country, the Government of India adopted several initiatives and programmes to ensure continuous growth. It allocated Rs 25,000 crore (US$ 3.9 billion) for the Rural Infrastructure Development Fund (RIFD), Rs 1,500 crore (US$ 231 million) for the long-term rural credit fund, Rs 45,000 crore (US$ 6.93 billion) for the short-term cooperative rural credit finance fund and Rs 25,000 crore (US$ 3.85 billion) for the short-term Regional rural bank (RRB) refinance fund. It also marked an ambitious target of Rs 8.5 lakh crore (US$ 130.9 billion) of agriculture credit during 2015–16.

Some of the recent major government initiatives in the sector are as follows:

- India and Lithuania have agreed to intensify agricultural cooperation, especially in sectors like food and dairy processing.
- Gujarat Government has planned to connect 26 Agricultural Produce Market Committees (APMCs) via electronic market platform, under the National Agriculture Market (NAM) initiative.
- The State Government of Telangana plans to spend Rs 81,000 crore (US$ 12.1 billion) over the next three years to complete ongoing irrigation projects and also undertake two new projects for lifting water from the Godavari and Krishna river.
- The National Dairy Development Board (NDDB) announced 42 dairy projects with a financial outlay of Rs 221 crore (US$ 34.02 million) to boost milk output and increase per animal production of milk.
- The government planned to invest Rs 50,000 crore (US$ 7.7 billion) to revive four fertiliser plants and set up two plants to produce farm nutrients.
- The Ministry of Food Processing Industries took some new initiatives to develop the food-processing sector that would enhance the income of farmers and export of agro and processed foods, among others.
- The Government of Telangana allocated Rs 4,250 crore (US$ 654 million) for the first phase of the farm loan waiver scheme.

- The scheme is expected to benefit 3.6 million farmers who took loans of Rs 100,000 (~US$ 1,539) or below before March 31, 2014.

6. Need for attention

There are certain salient features of agriculture in India and is correlated with each other. Some of these are Subsistence farming, Heavy Pressure of Population on Agriculture, Non adoption of Mechanised Farming, Traditional Methods of farming, Variety of Crops, Predominance of Food Crops, Seasonal Patterns.

There are certain multidimensional problems and challenges faced by the agriculture sector in India which needs attention from different angles and need to be corrected immediately. Some of these are long-standing and some are emerging due to the ongoing agricultural practices. Some such problems are Stagnation in Production of Major Crops, Soil Exhaustion, Decrease in Fresh Ground Water, Unadoptable and Costly Farm Inputs, Unorganized Agricultural Marketing, Lack of Storage Facilities, Bad Effect of Global Climate Change, Farmer Suicides.

7. Road Ahead

The agriculture sector in India is expected to generate better momentum in the next few years due to increased investments in agricultural infrastructure such as irrigation facilities, warehousing and cold storage. Factors such as reduced transaction costs and time, improved port gate management and better fiscal incentives would contribute to the sector's growth. Furthermore, the growing use of genetically modified crops will likely improve the yield for Indian farmers. The 12th Five-Year Plan estimates the food grains storage capacity to expand to 35 MT. Also, a 4 per cent growth would help restructure the agriculture sector in India in the next few years.

8. Conclusion

Agriculture occupies a prominent position in Indian policy-making not only because of its contribution to GDP but also because of the large proportion of the population that is dependent on the sector for its livelihood. However, it is clear that India's agricultural sector has made huge strides in developing its potential. The green revolution massively increased the production of vital food grains and introduced technological innovations into agriculture. This progress is manifested in India's net trade position. Where once India had to depend on imports to feed its people, since 1990 it is a net exporter of agri-food products. Its agriculture is large and diverse and its sheer size means that even slight changes in its trade have significant effects on world agricultural markets. But to strengthen agriculture, India still needs to clear problems and challenges faced by the agriculture sector in India immediately.

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