

## AGRICULTURE AND FOOD MANAGEMENT : AN OVERVIEW

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### Abstract:

*There is need to have stable and consistent policies where markets play a deserving role and private investment in infrastructure is stepped up. An efficient supply chain that firmly establishes the linkage between retail demand and the farmer will be important. Rationalization of agricultural incentives and strengthening of food price management will also help, together with a predictable trade policy for agriculture. These initiatives need to be coupled with skill development and better research and development in this sector along with improved delivery of credit, seeds, risk management tools, and other inputs ensuring sustainable and climate-resilient agricultural practices. Finally, while the sharp increase in prices of food articles, especially proteins, fruits and vegetables, and the growing foodgrains stocks in public sector continue to be subjects of debate, these may be the pointers towards the need for both relative price shifts responding to shifts in demand and reconsidering traditional instruments of food management.*

### KEYWORDS:

Food management. Foodgrains & Retail demand

### INTRODUCTION

8.2 Although agriculture, including allied activities, accounted for only 14.1 per cent of the GDP at constant (2004-5) prices in 2011-12, its role in the country's economy is much bigger with its share in total employment according to the 2001 census, continuing to be as high as 58.2 per cent. The declining share of the agriculture and allied sector in the country's GDP is consistent with normal development trajectory of any economy, but fast agricultural growth remains vital for jobs, incomes, and the food security. The growth target for agriculture in the Twelfth Five Year Plan remains at 4 per cent, as in the Eleventh Five Year Plan.

### PERFORMANCE OF THE AGRICULTURE SECTOR

Average annual growth of the agriculture and allied sector during the Eleventh Five year Plan at 3.6 per cent fell short of the 4 per cent growth target. Realised growth, however, has been much higher than the average annual growth of 2.5 and 2.4 per cent achieved during the Ninth and Tenth Plans, respectively. Growth has also been reasonably stable despite large weather shocks during 2009 (deficient south west monsoon), 2010-11 (drought/deficient rainfall in some states), and 2012-13 (delayed and deficient monsoon). An important reason for this dynamism has been due to a step-up in the gross capital formation (GCF) in this sector relative to GDP of this sector, which has consistently been improving from 16.1 per cent in 2007-8 to 19.8 per cent in 2011-12 (at constant 2004-5 prices) (Table 8.1).

8.4 Overall GCF in agriculture (including the allied sector) almost doubled in last 10 years and registered a compound average annual growth of 8.1 per cent (Fig 8.1). Rate of growth of GCF accelerated

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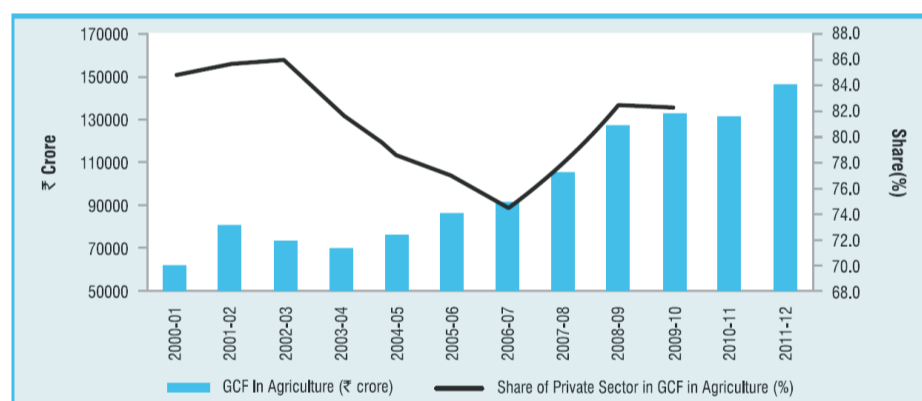
to 9.7 per cent in the Eleventh Plan (2007-12) compared to a growth of 2.7 per cent during the Tenth Plan

**Table 1 : Agriculture Sector : Key Indicators**  
(per cent at 2004-5 prices)

Sl. No.	Item	2007-8	2008-9	2009-10	2010-11	2011-12 1st Revision
1	Growth in GDP in Agriculture & Allied Sector	5.8	0.1	0.8	7.9	3.6
	Share of Agriculture & allied sectors in total GDP	16.8	15.8	14.6	14.5	14.1
	Agriculture	14.3	13.4	12.3	12.3	12.0
	Forestry and logging	1.7	1.6	1.5	1.4	1.4
	Fishing	0.8	0.8	0.8	0.7	0.7
2	Share of agriculture & allied sectors in total Gross Capital Formation (GCF)	6.4	7.8	7.3	6.2	6.8
	Agriculture	5.9	7.2	6.7	5.6	6.2
	Forestry and logging	0.1	0.1	0.1	0.0	0.1
	Fishing	0.5	0.5	0.5	0.5	0.5
3	GCF in Agriculture and Allied sectors as per cent to GDP of the sector	16.1	19.4	20.1	18.4	19.8
4	Employment in the agriculture sector as share of total workers (Census 2001)	58.2				

Source : Central Statistics Office, Directorate of Economics & Statistics (Department of Agriculture and Cooperation) and Population Census 2001.

**Figure 1 : Gross Capital Formation (GCF) in Agriculture**



(2002-07). Average annual growth of private investment at 12.5 per cent during Eleventh Plan (first four years) was significantly higher as against nearly stagnant investment during the Tenth Plan.

### Rainfall Distribution during Monsoon 2012

The performance of Indian agriculture is still heavily dependent on rainfall and south west monsoon (June to September), comprising 75 per cent of total annual rainfall, substantially affects production and productivity of agriculture. During 2012, south-west monsoon rainfall over the country as a whole was 8 per cent less than the long period average (LPA). The seasonal rainfall was 93 per cent of its LPA over north-west India, 96 per cent over central India, 90 per cent over peninsular India, and 89 per cent over north-east India. Out of a total of 36 meteorological subdivisions in the country, 23 received excess/ normal rainfall and in the remaining 13 subdivisions rainfall was deficient (Table 2).

### CROP PRODUCTION

During the Eleventh Plan period, foodgrains production in the country recorded an increasing trend, except in 2009-10 when total foodgrains production declined to 218.1 million tonnes due to severe drought experienced in various parts of the country. During 2011-12, total foodgrains production reached an all-time high of 259.32 million tonnes. However, the production of 2012-13 kharif crops (Table 8.3) is likely to be adversely affected by deficiency in the south-west monsoon and the resultant

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acreage losses. The overall area coverage at 665.0 lakh ha under foodgrains during kharif 2012- 13 shows a decline of 55.8 lakh ha compared to 720.86 lakh ha during kharif 2011-12 (fourth AE) . Output is expected to decline in all major crops.

**Area, Production, and Yield of Agricultural Crops**

There are limitations to the expansion of area for cultivation. Multiple cropping, improvement in yield levels and shifts in area for certain crops hold the key to the long-term output growth. An analysis of

**Table 2: Monsoon Performance 2003 – 2012 (June-September)**

Year	Number of meteorological subdivisions			Percentage of districts with normal/ excess rainfall	Percentage of long period average rainfall for the country as a whole
	Normal	Excess	Deficient/ Scanty		
2003	23	8	5	76	102
2004	23	0	13	56	87
2005	24	8	4	72	99
2006	21	6	9	60	100
2007	18	13	5	72	106
2008	31	2	3	76	98
2009	11	3	22	42	78
2010	17	14	5	70	102
2011	26	7	3	76	101
2012	22	1	13	58	92

Source : Indian Meteorological Department.

**Table 3 : Agricultural Production of Principal Crops Production in Million Tonnes/Bales Rate of Growth**

Crop	Season	Production in Million Tonnes/Bales					Rate of Growth		
		2000-01	2006-07	2009-10	2010-11	2011-12	2012-13 (AE)	CAGR 2011-12/ 2006-07	2012-13/ 2011-12
Rice	Khari	72.8	80.2	75.9	80.7	92.8	90.7	3.0	-2.3
Coarse Cereals	Khari	24.9	25.6	23.8	33.4	32.5	28.5	4.9	-12.3
Cereals	Khari	97.6	105.8	99.7	114.1	125.2	119.2	3.4	-4.8
Pulses	Khari	4.5	4.8	4.2	7.1	6.1	5.5	4.9	-9.8
Foodgrains	Khari	102.1	110.6	104	121.2	131.3	124.7	3.5	-5.0
Oilseeds	Khari	11.94	14.01	15.73	21.92	20.7	19.5	8.1	-5.8
Cotton *	Khari	9.52	22.63	24.02	33.0	35.2	33.8	9.2	-4.0
Jute**	Khari	9.32	10.32	11.23	10.01	10.7	10.6	0.7	-0.9
Sugarcane	Khari	295.96	355.52	292.3	342.38	361.0	334.5	0.3	-7.3
Coarse Cereals	Total	31.1	33.9	33.5	43.7	42.04	38.47	4.4	
Cereals	Total	185.7	203.1	203.4	226.5	242.23	232.57	3.6	
Pulses	Total	11.1	14.2	14.7	18.2	17.09	17.58	3.8	
Foodgrains	Total	196.8	217.3	218.1	244.8	259.32	250.14	3.6	
Oilseeds	Total	18.44	24.29	24.88	32.48	29.8	29.5	4.2	
Share of production in Khari to total production (per cent)									
Total Cereals		52.6	52.1	49.0	50.4	51.7	51.3		
Total Pulses		40.5	33.8	28.6	39.0	35.7	31.3		
Total Foodgrains		51.9	50.9	47.7	49.5	50.6	49.9		
Total Oilseeds		64.8	57.7	63.2	67.5	69.5	66.1		

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

\*Bales of 170 kgs each. \*\* Bales of 180 kgs each.

the all-India compound annual growth rate (CAGR) in the indices of area, production, and yield of major agricultural crops during the last three decades indicates significant progress towards increasing production, yield levels and crop diversification (Table 3 &4).

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**Table 4 : CAGRs of Area, Production, and Yield Indices of Principal Crops during 1980- 1 to 1989-90, 1990-1 to 1999-2000 (Base : TE 1981-2=100), and 2000-1 to 2011-12 (Base: TE 1993-4=100) (% per annum)**

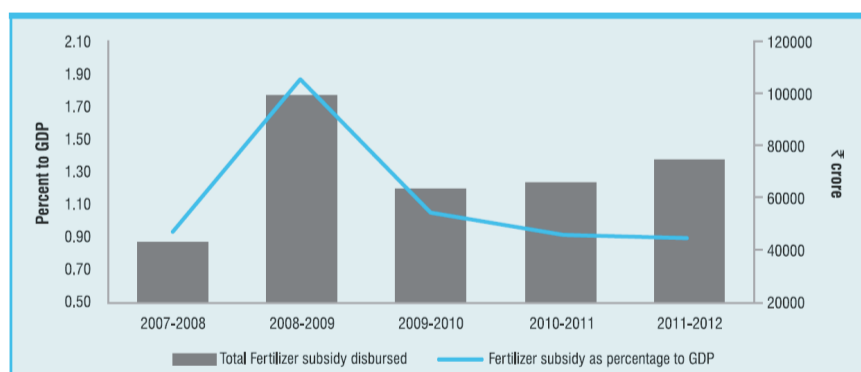
	1980-1 to 1989-90			1990-1 to 1999-2000			2000-1 to 2011-12*		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Rice	0.41	3.62	3.19	0.68	2.02	1.34	0.00	1.78	1.78
Wheat	0.46	3.57	3.10	1.72	3.57	1.83	1.35	2.61	1.24
Coarse cereals	-1.34	0.40	1.62	-2.12	-0.02	1.82	-0.81	3.01	3.85
Total pulses	-0.09	1.52	1.61	-0.60	0.59	0.93	1.60	3.69	2.06
Sugarcane	1.44	2.70	1.24	-0.07	2.73	1.05	1.38	2.07	0.68
Total oilseeds	1.51	5.20	2.43	0.86	1.63	1.15	2.12	3.36	1.22
Cotton	-1.25	2.80	4.10	2.71	2.29	-0.41	3.22	13.53	9.99

Source : Department of Agriculture and Cooperation.  
\*As per fourth AE.

Overall, the 1980-90 period witnessed relatively higher growth in production and yield in major crops compared to the 1990-2000 period except for the marginal increase in growth of yield in coarse cereals and the same levels of growth in production of wheat and sugarcane. Further, a lower growth (coarse cereals, pulses, sugarcane) and marginally higher growth (rice, oilseeds) was observed in the area under these major crops during the 1990-2000 period vis a vis 1980-1990 except in wheat and cotton where growth rate was 1.72 per cent and 2.71 per cent respectively. By and large the growth rates achieved in the 1980-90 period could not be sustained during the 1990-2000 period. In coarse cereals yield increases were able to offset a negative growth in area. In both wheat and rice, in all the three sub periods, there was an increase in area and yield, though rate of increase in yield levels had significantly moderated in latter periods. Yield levels significantly improved for cotton, pulses and coarse cereals during

Under the Nutrient Based Subsidy (NBS) scheme for phosphatic and potassic (P&K) fertilizers implemented in 2010, a fixed amount of subsidy, decided on annual basis, is provided to each grade of P&K fertilizer, depending upon its nutrient content. An additional subsidy is also provided to secondary and micro-nutrients. Under this scheme, manufacturers/marketers are allowed to fix the maximum retail price (MRP). Presently (as in November 2012), farmers pay only 58 to 73 per cent of the delivered cost of P&K fertilizers; the rest is borne by the Government of India in the form of subsidy. However, the government continues to share a substantial burden in the form of fertilizer subsidy (Figure .2).

**Figure 2 : Fertilizer Subsidy disbursed**



**Irrigation**

India has made considerable progress in developing irrigation infrastructure. However irrigation efficiency is low for both surface and ground waters. In order to help the rainfed farmers improve productivity and profitability, in situ soil and water conservation practices are developed for different agro-climatic regions with special emphasis on effective rainwater management along with a suite of location-specific technologies. Substantial irrigation potential has been created through major

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and medium irrigation schemes. The central government initiated the Accelerated Irrigation Benefit Programme (AIBP) in 1996-7 for extending assistance for the completion of incomplete irrigation schemes. Under the AIBP, ` 55416 crore of central loan assistance (CLA)/grant has been released up to 31 December 2012. An irrigation potential of 7622.5 thousand ha is reported to have been created by states, from major / medium /minor irrigation projects under the AIBP till March 2011. The Command Area Development Programme has also been amalgamated with the AIBP to reduce the gap between irrigation potential that has created and that is utilized.

#### **Agriculture Research and Education**

Agriculture research has played a vital role in agricultural transformation. Indian Council of Agricultural Research (ICAR) Institutes undertake basic, strategic, and applied research, focusing particularly on problems of rainfed agriculture, while State Agricultural Universities (SAUs) concentrate on generating required manpower and on applied and adaptive research to address local problems. Publicsector agricultural R&D spending to agricultural GDP in India remained in the range of 0.50 to 0.59 per cent in the last decade, needing to be enhanced considerably. The ICAR in partnership with SAUs has developed a number of technologies that are being used by farmers on a large scale. These includes 9838 tonnes of breeder seed, 13,228 tonnes of foundation seed, 20,541 tonnes of certified seed, 14,860 tonnes of truthfully labelled seed, about 40,000 tissue culture plantlets of field crops and three new improved varieties of sugarcane during 2011-12.

#### **NATIONAL FOOD SECURITY MISSION**

To enhance the production of rice, wheat, and pulses by 10, 8, and 2 million tonnes respectively by the end of the Eleventh Plan through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities; and enhancing farm-level economy to restore the confidence of farmers of targeted districts, a centrally sponsored National Food Security Mission (NFSM) was launched in 2007-8 with three major components, viz. NFSM-Rice, NFSM-Wheat, and NFSM-Pulses. During the Eleventh Five Year Plan, NFSM-Rice was implemented in 144 districts of 16 states, NFSM-Wheat in 142 districts of 9 states and NFSM-Pulses in 468 districts of 16 states. In 2012- 13, six north-eastern states, viz. Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, and Sikkim were included under NFSM-Rice and the hill states of Himachal Pradesh, and Uttarakhand under NFSMRice and Wheat and J & K under NFSM- wheat. Specifically, during 2012-13 a Special Plan to achieve 19+ million tonnes of pulses production during kharif 2012 was launched with a total allocation of ` 153.5 crore comprising ` 107.3 crore for activities to be undertaken under the NFSM and ` 46.2 crore for activities to be undertaken under the Micro Irrigation Scheme. During 2012-13, ` 87.0 crore has been allocated for additional area coverage of pulses during rabi/summer 2012-13.

#### **RASHTRIYA KRISHI VIKAS YOJANA**

The Rashtriya Krishi Vikas Yojana (RKVY) was launched in 2007-8 with an outlay of ` 25,000 crore in the Eleventh Plan for incentivizing states to enhance public investment. States were provided ` 22,408.79 crore under the RKVY during Eleventh Five Year Plan. The RKVY format permits taking up national priorities as sub-schemes, allowing the states flexibility in project selection and implementation. Allocation under the RKVY for 2012-13 is ` 9217 crore. The RKVY links 50 per cent of central assistance to those states that have stepped up the percentage of state plan expenditure on the agriculture and allied sector. A total of 5768 projects were taken up by states in the Eleventh Plan of which 3343 had been completed till December end 2012.

#### **NATIONAL MISSION FOR SUSTAINABLE AGRICULTURE**

Climate change poses a major challenge to agricultural production and productivity. The National Mission for Sustainable Agriculture (NMSA), under the aegis of the National Action Plan on Climate Change (NAPCC), seeks to address issues related Agriculture and Food Management to 'Sustainable Agriculture' in the context of risks associated with climate change. It hopes to achieve its objectives by devising appropriate adaptation and mitigation strategies for ensuring food security, enhancing livelihood opportunities, and contributing to economic stability at national level. The NMSA has already been accorded 'in-principle' approval by Prime Minister's Council on Climate Change . During the Twelfth Five year Plan, climate change adaptation and mitigation strategies will be operationalized by restructuring the existing programmes.

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### BRINGING GREEN REVOLUTION TO EASTERN INDIA

Bringing Green Revolution to Eastern India, initiated in 2010-11, intends to address the constraints limiting the productivity of 'rice based cropping systems' in eastern India comprising seven states, viz. Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, Eastern Uttar Pradesh, and West Bengal. ` 400 crore each was allocated for the programme during 2010-11 and 2011-12 and of ` 1000 crore during 2012-13.

### CONCLUSIONS

Indian agriculture is broadly a story of success. It has done remarkably well in terms of output growth, despite weather and price shocks in the past few years. India is the first in the world in the production of milk, pulses, jute and jute-like fibres, second in rice, wheat, sugarcane, groundnut, vegetables, fruits and cotton production, and is a leading producer of spices and plantation crops as well as livestock, fisheries and poultry. The Eleventh Five Year Plan (2007-12) witnessed an average annual growth of 3.6 per cent in the gross domestic product (GDP) from agriculture and allied sector against a target of 4.0 per cent. While it may appear that the performance of the agriculture and allied sector has fallen short of the target, production has improved remarkably, growing twice as fast as population. India's agricultural exports are booming at a time when many other leading producers are experiencing difficulties. The better agricultural performance is a result of: a) farmers' response to better prices; b) continued technology gains; and c) appropriate and timely policies coming together. Yet India is at a juncture where further reforms are urgently required to achieve greater efficiency and productivity in agriculture for sustaining growth.

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