07 CHAPTER

Agriculture and Food Management

"Since nature has the most sustainable ecosystem and since ultimately agriculture comes out of nature, our standard for a sustainable world should be nature's own ecosystem"

-Wes Jackson[1]

Agriculture remains the pre-dominant occupation in India for vast sections of the population. Over the years, several new challenges have emerged before the sector. With fragmentation of agricultural holdings and depletion of water resources, the adoption of a resource-efficient, ICT based climate-smart agriculture can enhance agricultural productivity and sustainability. Smallholder farming can be a lucrative livelihood opportunity with the application of appropriate technologies and adoption of natural, organic and Zero Budget Natural Farming. To transform the rural economy, greater emphasis should be given to allied sectors with a major focus on dairy, poultry, fisheries and rearing of small ruminants. The rationalisation of food subsidy and greater use of technology in food management will ensure food security for all.

INTRODUCTION

7.1 Agriculture and allied sectors are critical in terms of employment and livelihoods for the small and marginal farmers, who dominate the agriculture ecosystem in India. To attain the Sustainable Development Goals (SDGs) of ending poverty and bringing in inclusive growth, activities related to agriculture need to be closely integrated with the SDG targets. With decline in the size of landholdings in agriculture, India has to focus on resource efficiency in smallholder farming to meet the SDG targets and also to attain sustainability in agriculture. A combination of resource efficient methods, dynamic cropping patterns, farming that is responsive to climate change and intensive use of ICTs should be the backbone of smallholder farming in India. For a safe and food secure future, the agriculture landscape has to undergo tremendous transformation and shift

[1] Co-founder of The Land Institute and a prominent leader of the international sustainable agriculture movement.

from the philosophy of '*green revolution led'* productivity to '*green methods'* led *sustainability* in agriculture.

OVERVIEW OF AGRICULTURE AND ALLIED SECTORS

Gross Value Added in Agriculture

7.2 Agriculture sector in India typically goes through cyclical movement in terms of its growth. The Gross Value Added (GVA) in agriculture improved from a negative 0.2 per cent in 2014-15 to 6.3 per cent in 2016-17 only to decelerate to 2.9 per cent in 2018-19. While the crops, livestock and forestry sector showed fluctuating growth rates over the period from 2014-15 to 2017-18, the fisheries sector has shown a rapid growth from 4.9 per cent in 2012-13 to 11.9 per cent in 2017-18. (Table 1 and Figure 1).

Table 1 : Growth of GVA in Agriculture & Allied Sectors at 2011-12 prices

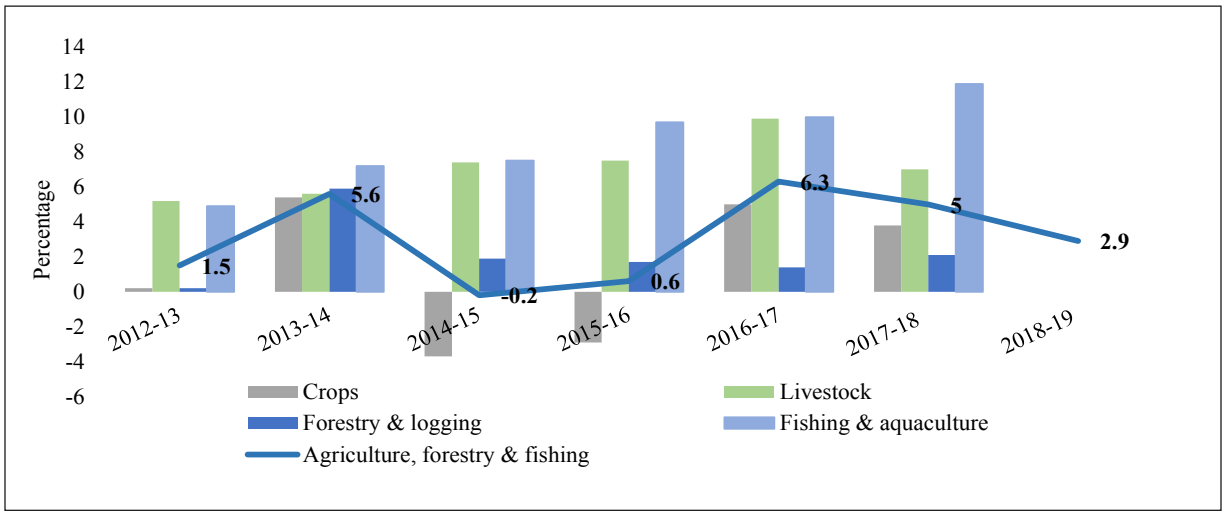
Item	2012-13	2013-14	2014-15	2015-16* (3RE)	2016-17 (2RE)#	2017-18 (1RE)@	2018-19 PE**
Total GVA at basic prices	5.4	6.1	7.2	8.0	7.9	6.9	6.6
Agriculture, forestry & fishing	1.5	5.6	-0.2	0.6	6.3	5.0	2.9
Crops	0.2	5.4	-3.7	-2.9	5.0	3.8	na
Livestock	5.2	5.6	7.4	7.5	9.9	7.0	na
Forestry & logging	0.2	5.9	1.9	1.7	1.4	2.1	na
Fishing & aquaculture	4.9	7.2	7.5	9.7	10.0	11.9	na

Source: Central Statistics Office, Ministry of Statistics & Programme Implementation (MoSPI)

Note-* Third Revised Estimate, # Second Revised Estimate, @ First Revised Estimate

**As per the press note on Provisional Estimates of Annual National Income 2018-19 and Quarterly Estimates of Gross Domestic Product for the Fourth Quarter (Q4) of 2018-19 released by CSO on 31st May 2019

Figure 1: Growth Rate of GVA in Agriculture & Allied Sectors (2011-12 prices)



Source: Central Statistics Office, Ministry of Statistics & Programme Implementation (MoSPI)

7.3 Average annual growth rate in real terms in agricultural & allied sectors has remained at around 2.88 per cent during 2014-15 to 2018-19. However, the volatility of output growth as measured by the coefficient of variation has declined from 2.7 in the period of 1961-1988 to 1.6 during 1989-2004 and further to 0.8 during 2005 to 2018[2].

Share of Agriculture Sector in GVA

7.4 The share of agriculture, forestry & fishing sector in GVA has seen a steady decrease over the years from 15.4 per cent in 2015-16 to 14.4 per cent in 2018-19.The decline was mainly due to decline in the share of crops in GVA from 9.2 per cent in 2015-16 to 8.7 per cent in 2017-18. The share of the fisheries in GVA has increased by 0.1 per cent points during the three years from 0.8 per cent in 2014-15 to 0.9 per cent in 2017-18. The share of the livestock in GVA has remained around 4 per cent from 2012-13 to 2017-18. The share of forestry & logging was 1.2 per cent in 2017-18. (Table 2)

Table 2: Share of Agriculture, Forestry & Fishing at 2011-12 Prices (in per cent)

Item	2012-13	2013-14	2014-15	2015-16*	2016-17#	2017-18 @	2018-19 **
Agriculture, forestry & fishing	17.8	17.8	16.5	15.4	15.2	14.9	14.4
Crops	11.5	11.4	10.3	9.2	9.0	8.7	NA
Livestock	4.0	4.0	4.0	4.0	4.1	4.1	NA
Forestry & logging	1.5	1.5	1.4	1.3	1.2	1.2	NA
Fishing & aquaculture	0.8	0.8	0.8	0.9	0.9	0.9	NA

Source: Central Statistics Office, Ministry of Statistics & Programme Implementation (MoSPI).

Note-* Third Revised Estimate,# Second Revised Estimate, @ First Revised Estimate

**As per the press note on Provisional Estimates of Annual National Income 2018-19 and Quarterly Estimates of Gross Domestic Product for the Fourth Quarter (Q4) of 2018-19 released by CSO on 31st May 2019

Gross Capital Formation in Agriculture & Allied Sector

7.5 Gross Capital Formation (GCF) in agriculture and allied sectors as a percentage of GVA saw a rise to 17.7 per cent in 2013-14 but declined thereafter to 15.2 per cent in 2017-18. The GCF in agriculture and allied sectors in absolute terms increased from ₹2,51,094 crore in 2012-13 to ₹2,73,755 crore in 2017-18 at 2011-12 prices.

[2] Dev, SM (2018), Transformation of Indian Agriculture? Growth, Inclusiveness and Sustainability.

Table 3: Gross Capital Formation in Agriculture & Allied Sectors

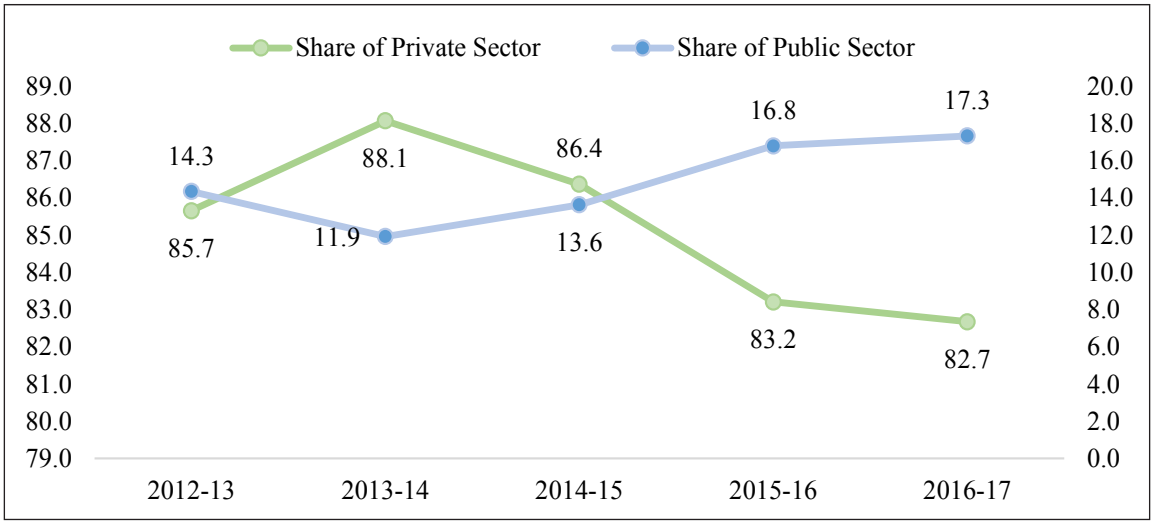
Period	Gross Capital formation in Agriculture and Allied sector (in ₹ crore) at 2011-12 prices			GVA in Agriculture & Allied Sector (at 2011-12 prices)	GCF in Agriculture & Allied Sector as percentage of GVA of Agriculture & Allied Sector		
	Public	Private	Total		Public	Private	Total
2012-13	36019	215075	251094	1524288	2.4	14.1	16.5
2013-14	33925	250499	284424	1609198	2.1	15.6	17.7
2014-15	37172	235491	272663	1605715	2.3	14.7	17.0
2015-16	39105	193734	232839	1616146*	2.4	12.0	14.7
2016-17	45981	219371	265352	1717467#	2.7	12.8	15.6
2017-18	NA	NA	273755	1803039@	NA	NA	15.2

Source: Central Statistics Office, Ministry of Statistics & Programme Implementation (MoSPI)

Note:* Third Revised Estimate,# second revised estimate, @ first revised estimate.

7.6 A comparison of the share of public and private investment in GCF in agriculture and allied sectors shows that while the share of public investment in agriculture and allied sectors registers an increase from 2014-15 and maintains an upward trend till 2016-17, the share of private investment in GCF shows a decline during this period (Figure 2).

Figure 2: Share of Public and Private Sector in Total GCF in Agriculture & Allied Sector (in per cent)



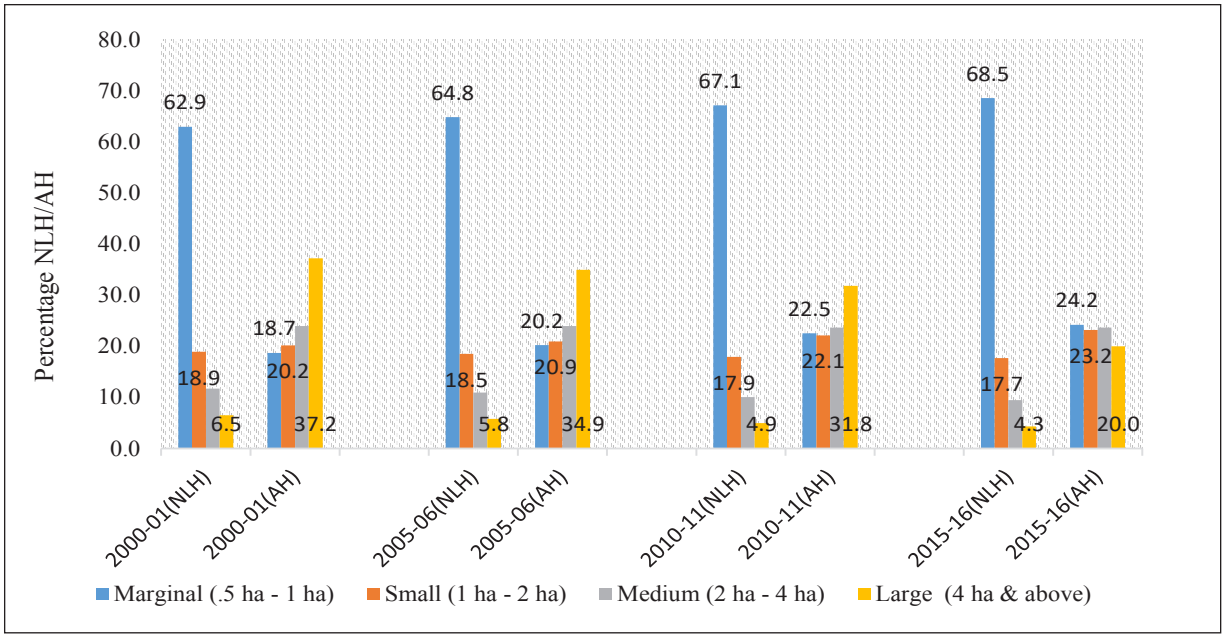
Source: Central Statistics Office, Ministry of Statistics & Programme Implementation (MoSPI)

PATTERN OF AGRICULTURAL LAND HOLDINGS IN INDIA

7.7 As per Phase-I results of the Agriculture Census, 2015-16, the number of operational holdings, i.e. land put to agricultural use, has increased to 14.6 crore in 2015-16 from 13.8 crore in 2010-11, thereby registering an increase of 5.3 per cent. The share of

marginal holdings (less than 1 ha) in total operational holdings increased from 62.9 per cent in 2000-01 to 68.5 per cent in 2015-16, while the share of small holdings (1 ha to 2 ha) decreased from 18.9 per cent to 17.7 per cent during this period. Large holdings (above 4 ha) decreased from 6.5 per cent to 4.3 percent. The area operated by the marginal and small holdings increased from 38.9 per cent in 2000-01 to 47.4 per cent in 2015-16, while that of the large holdings decreased from 37.2 per cent to 20 per cent during this period (Figure 3).

Figure 3: Operational Land Holdings (Number & Area Operated in Ha)



Source: Agriculture Census 2015-16.

Note: NLH: Number of Operational Land Holdings, AH: Area Operated by Operational Land Holdings.

Growing Number of Women Farmers

7.8 Women play a significant and crucial role in agriculture including crop production, livestock production, horticulture, post-harvest operations, agro/social forestry, fisheries, etc. The share of operational holdings cultivated by women has increased from 11.7 per cent in 2005-06 to 13.9 per cent in 2015-16. The marginal and small holdings operated by women farmers together constitute 27.9 per cent of total operational holdings cultivated by women (Table 4).

Table 4: Operational Land Holdings Operated by Women (in percent)

Size Group	2005-06	2010-11	2015-16*
Marginal (below 1.00 ha.)	12.6	13.6	**14.6**
Small (1.00-2.00 ha.)	11.1	12.2	**13.3**
Semi-Medium (2.00-4.00 ha.)	9.6	10.5	11.5
Medium (4.00-10.00 ha.)	7.8	8.5	9.6
Large (10.00 ha. & above)	6.0	6.8	7.7
All Size Groups	**11.7**	**12.8**	**13.9**

Source: Agriculture Census 2015-16; * - provisional results

BRINGING RESOURCE EFFICIENCY IN SMALLHOLDER AGRICULTURE

7.9 The pattern of agricultural holdings reflects pre-dominance (85 per cent) of small and marginal farmers in agriculture sector. The development strategy for agriculture should prioritise smallholder agriculture in order to promote sustainable livelihoods and for reduction of poverty in India. The productivity of a farm depends on the use of inputs like fertiliser, access to irrigation, technology, crop intensity and choice of crops (crop pattern) grown at the farm. One of the key aspects which can improve productivity of small farm holdings is improving resource use efficiency (one of the sources of income growth identified by the Committee on Doubling Farmers' Income. See Annexure 1), be they, natural resources like water or other resources/inputs like fertilisers, pesticides etc.

7.10 The following section examines the key factors which will bring resource efficiency in smallholder agriculture in India and lays out the main policy changes that are required to bring about resource efficiency.

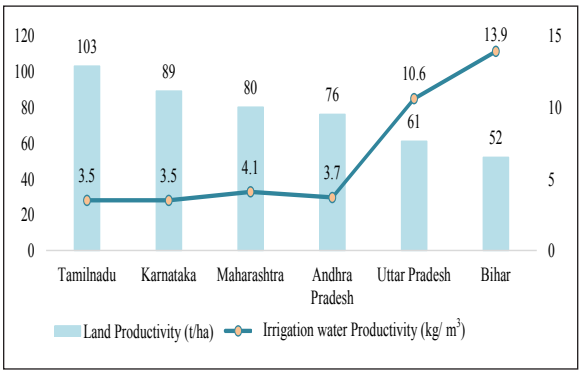
Increasing Irrigation Water Productivity (IWP) in Agriculture

7.11 In India, according to the Asian Water Development Outlook, 2016, almost 89 per cent of groundwater extracted is for irrigation. There is a major concern whether the present practice of groundwater use can be sustained as the depth of the groundwater level continues to drop. By 2050, India will be in the global hot spot for 'water insecurity[3]'. Agriculture remains the predominant occupation in terms of number of people employed. Also, agriculture is dependent highly on water. So, appropriate mechanism needs to be framed for economical use of water among small and marginal farmers.

7.12 The cropping pattern in India is highly skewed towards crops that are water intensive. The incentive structures like MSP, heavily subsidized electricity, water and fertilizers have played a significant role in the misalignment of crop patterns in the country. 'The water guzzlers, paddy and sugarcane, consume more than 60 per cent of irrigation water available in the country, thereby reducing water availability for other crops'[4].

7.13 Figure 4 highlights the divergence between land productivity and irrigation water productivity in the major sugarcane producing States in India reflecting the urgent need to focus on irrigation water productivity[5] to raise agricultural productivity. The States like Tamil Nadu, Karnataka, Maharashtra and Andhra Pradesh which have high land productivity tend to have very low irrigation water productivity, reflecting inefficient use of water and the need to re-calibrate the cropping pattern.

Figure 4: Comparison of Land Productivity and Irrigation Water Productivity across the Major Sugarcane Growing States



Source: NABARD and ICRIER, 2018.

[3] India's water insecurity index shows that the resilience score of India is also very low.

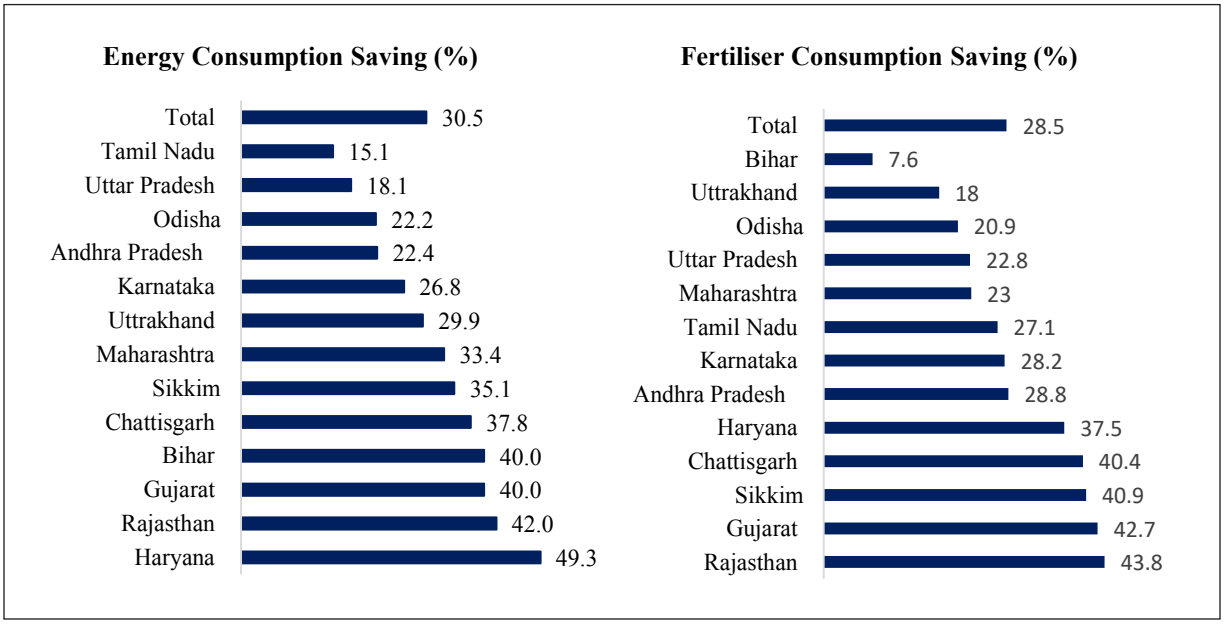
[4] Water Productivity Mapping of Major Indian Crops, NABARD AND ICRIER Study, April 2018.

[5] Irrigation water productivity is defined as ratio of the crop output to the irrigation water applied by the farmer/ irrigation system either through surface canals, tank, pond or the well and tubewell during the crop growth. Thus irrigation is an economic activity and the farmer has to incur certain expenditure to apply the water (kg/m^3).This is a practical indicator which helps in estimating the crop output obtained with respect to the actual irrigation water applied by the farmer.

7.14 Adopting improved methods of irrigation and irrigation technologies will have a critical role in increasing irrigation water productivity along with re-calibrating the cropping patterns. While adoption of micro-irrigation systems (MI) is one of the possible ways to improve water use efficiency, it can be seen that the States with penetration of MI systems and improved adoption of micro irrigation systems have almost 40 to 50 per cent savings in energy and fertiliser consumption (Figure 5). *Though, the costs of installation of MI systems can be a disincentive unless subsidies are given by the government to small and marginal farmers, it needs to be examined whether the procurement supported systems which are resource inefficient in terms of subsidies and water use, can be replaced with MI supported cropping patterns and systems which will maximise irrigation productivity and resource use efficiency.* A study[6] has found that there are 'bright spots' which can be models for sustainable water use in agriculture.

7.15 A combination of measures which suit the local agro-economic context need to be applied to improve irrigation productivity in agriculture which will reflect sustainable water use in agriculture. In this regard, focus in agriculture should shift from 'land productivity' to 'irrigation water productivity'. Therefore, devising policies to incentivise farmers to adopt efficient ways of water use should become a national priority to avert the looming water crisis.

Figure 5. Energy Consumption and Fertilizer Consumption Savings from Micro Irrigation, 2015



Source: Indian Council of Food and Agriculture, Micro Irrigation: Market Update.

Economizing the Use of Fertilizers and Pesticides

7.16 For the small and marginal farmers, the costs of fertilizers are key determinants of profitability of farming. Since 2002, the fertilizer consumption in India has continually increased till 2011. However, the fertiliser consumption has been declining since then.

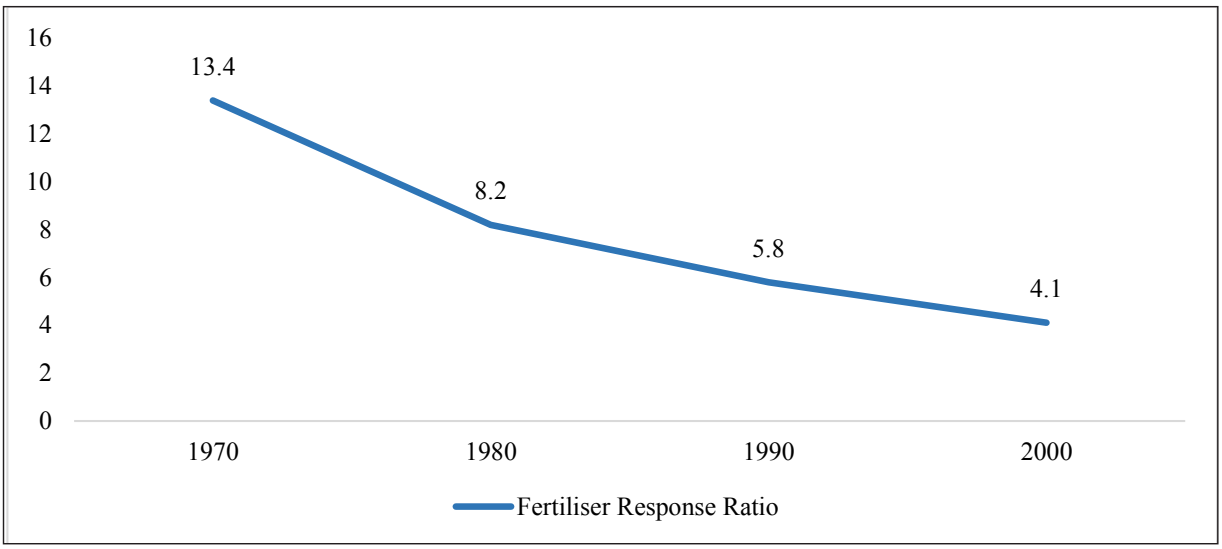
[6] Water Productivity Mapping of Major Indian Crops, NABARD and ICRIER, 2018

7.17 Further, the fertilizer response ratio is showing a declining trend (Figure 6). The declining fertilizer response ratio is an indicator of declining responsiveness of soil fertility to fertiliser application.

7.18 According to Department of Fertilisers, the declining fertilizer response ratio in Indian agriculture is due to inadequacy and imbalance in fertiliser use, increasing multi-nutrient deficiency, lack of farmers awareness about balanced plant nutrition and poor crop management.

7.19 The improvement in fertilizer use efficiency[7] requires farmers' knowledge regarding the right product, dosage, time and method of application. Some of the suggested measures are the use of optimal dose based on soil health status, promotion of neem-coated urea, promotion of micronutrients, promotion of organic fertilizers, and promotion of water-soluble fertilizers.

Figure 6: Declining Fertilizer Response Ratio



Source: Department of Fertilizers.

Increasing Sustainability in Agriculture - Turning to Organic and Natural Farming

7.20 The main objective of the National Mission for Sustainable Agriculture (NMSA) is to make agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific integrated/composite farming systems and to conserve natural resources through appropriate soil and moisture conservation measures.

7.21 The Government has been promoting organic farming in the country through the schemes such as Paramparagat Krishi Vikas Yojana (PKVY) and Rashtriya Krishi Vikas Yojana (RKVY). In the revised guidelines of PKVY scheme during the year 2018, various organic farming models like Natural Farming, Vedic Farming, Cow Farming, Homa Farming, Zero Budget Natural Farming

[7] Yield per unit of fertilizer input

[8] "Zero Budget" primarily means without using any credit, and without spending any money on purchased inputs. ''Natural farming'' means farming with nature and without chemicals.

(ZBNF)[8] etc. have been included wherein flexibility lies with the States to adopt any model of Organic Farming depending on the farmer's choice. Under the RKVY scheme, organic farming/natural farming project components are considered by the respective State Level Sanctioning Committee (SLSC) according to their priority/choice.

7.22 The main aim of Zero Budget Natural Farming (ZBNF) is elimination of chemical pesticides and promotion of good agronomic practices. ZBNF also aims to sustain agriculture production with eco-friendly processes in tune with nature to produce agricultural produce free of chemicals. Soil fertility & soil organic matter is restored by pursuing ZBNF. Less water is required under ZBNF and it is a climate friendly agriculture system.The programme is being implemented in 131 clusters covering 704 villages under RKVY and 1300 clusters covering 268 villages under PKVY. So far, 1,63,034 farmers are practicing ZBNF. Organic farming is also being promoted through the scheme Mission Organic Value Chain Development for North Eastern Region (MOVCDNER) under National Mission for Sustainable Agriculture (NMSA).

7.23 Some of the States which are progressively practicing ZBNF are Karnataka, Himachal Pradesh and Andhra Pradesh. After ZBNF, Andhra Pradesh has witnessed a sharp decline in input costs and improvement in yields (Government of Telangana, 2017).

Adopting Appropriate Technologies for Smallholder Farms

7.24 In smallholder farms, resource efficiency can be brought about through adoption of appropriate technologies. However, use of technology, investment in costly farm machinery, or scaling up the existing technology may not be economically feasible for small and marginal farmers. Hence, there is need to promote use of environment-friendly automated farm machinery tools suited to small scale operations. The Custom Hiring Centers (CHCs) can be set up to promote use of high-tech machinery for the mechanization of small and marginal farm holdings, especially in difficult terrains. From 2014-15 to 2017-18, a total of 8162 CHCs were established under the Sub Mission on Agricultural Mechanization (SMAM) scheme.

7.25 To facilitate communication and reduce transaction costs, the ICT (Information and Communication Technology) applications are crucial in smallholder farming. The spread of mobile phones in rural areas has already impacted the way the small and marginal farmers get access to information about soil health, weather and prices. In the context of poor infrastructure, adoption of ICT in agriculture will promote market access, facilitate financial inclusion and contribute significantly to early warning signals that are critical for the development of smallholder community. Technology can play a critical role in bridging the information gaps that

Box 1: Coffee Board Activates Blockchain Based Marketplace in India

Coffee Board has launched blockchain based coffee e-marketplace. This is a pilot project which is likely to help integrate the farmers with markets in a transparent manner and lead to realization of fair price for the coffee producer. It will also reduce the number of layers between coffee growers and buyers and help farmers double their income.

India is the only country in the world where entire coffee is grown under shade, handpicked and sun dried. Coffee is produced in India by small coffee growers, tribal farmers adjacent to National Parks and Wildlife Sanctuaries in Western and Eastern Ghats, which are two of the major bio-

diversity hot spots in the world. Indian coffee is highly valued in the world market and sold as premium coffee. However, the share of farmers in the final returns from coffee is very meagre.

Blockchain based market place app for trading of Indian coffees is intended to bring in transparency in the trade of Indian coffee, maintain the traceability of Indian coffee from bean to cup so as consumer tastes real Indian coffee, the grower is paid fairly for his coffee produced. This initiative will reduce grower's dependency on intermediaries by providing direct access to buyers at a fair price for their produce. The initiative will also help coffee producers find exporters within the stipulated time to meet the growing demands and in building greater trust through increased transparency.

Coffee Board is in the process of developing Blockchain based marketplace application. This platform has already registered a group of 15-20 coffee farmers, exporters, importers and retailers are already registered on the platform from India and abroad. India is one of the few coffee blockchain processors for coffee in the world, after France and Ethiopia.

The stakeholders like coffee farmers, traders, exporters register on platform to make trade transactions. The coffee farmers register credentials like place where coffee is grown, details of crop, elevation etc. A block is created for each lot farmer sells. The credentials of the lot are stored on the blockchain throughout its journey and is immutable.

prevail in agricultural markets. The use of blockchain technology in the coffee market represents one such example (Box.1).

Improving Infrastructure and Access to Markets

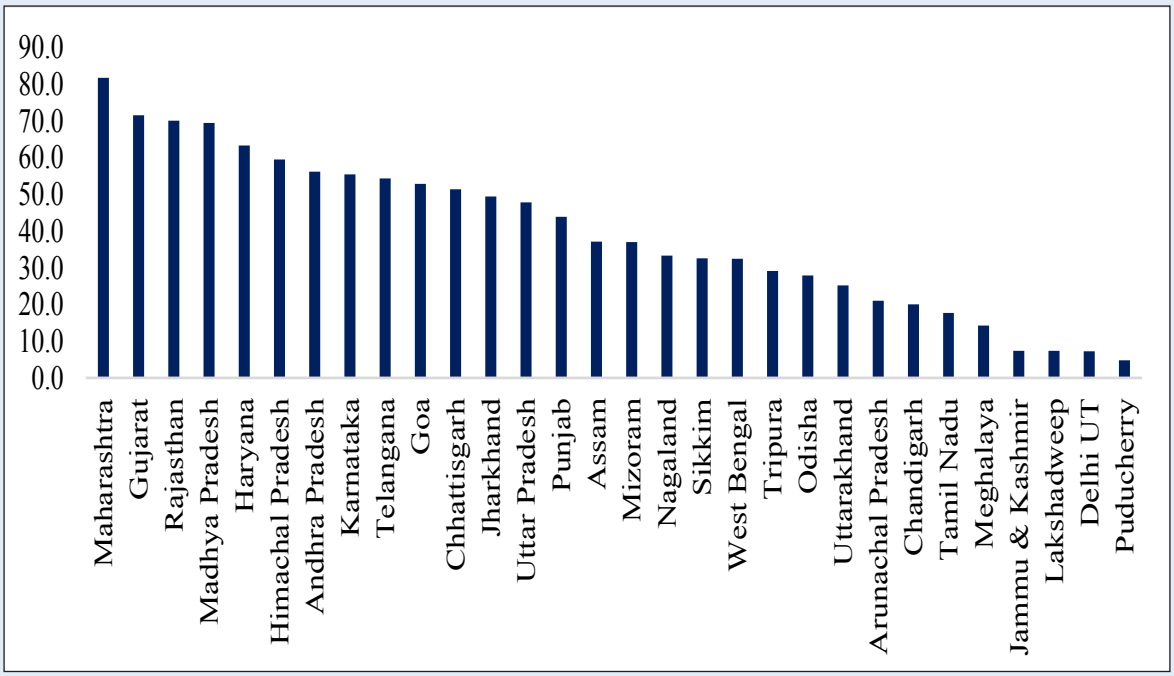
7.26 The informal actors like local traders and input dealers are more prominent in the marketing channels of the smallholder farmers. However, if farmers' access to markets are improved through better connectivity to nearby mandis, it will help farmers fetch better prices for their agricultural produce. A combination of enhancing rural infrastructure to improve connectivity, Information, Communication Technology (ICT) to provide timely information about prices, aggregation and storage facilities can help small and marginal farmers in overcoming the marketing bottlenecks.

Box 2. Agricultural Marketing and Farmer Friendly Reforms Index (AMFFRI)

NITI Aayog launched in 2016 an index to rank States and UTs based on implementation of seven provisions proposed under model APMC Act like joining e-NAM initiative, special treatment to fruits and vegetables for marketing and level of taxes in mandis. These indicators reveal ease of doing agribusiness as well as opportunities for farmers to benefit from modern trade and commerce and have wider option for sale of her/his produce. These indicators also represent competitiveness, efficiency and transparency in agri markets. The second area of reforms captured by the index include facilitation and liberalization of land lease. The third area included in the index represent freedom given to farmers for felling and transit of trees grown on private land. This represent opportunity to diversify farm business.

The Index is named as "Agricultural Marketing and Farmer Friendly Reforms Index (AMFFRI)" and it has a score that can have minimum value "0" implying no reforms and maximum value "100" implying complete reforms in the selected areas. States and UTs have been ranked using this index.

Ranking of States in terms of implementation of marketing and other farmer friendly reforms



Source: NITI Aayog Study Report on Agricultural Marketing and Farmer Friendly Reforms across Indian States and UTs, October, 2016.

Ranking of States based on AMFFRI

No state in the country has implemented the entire set of market reforms. Also, land leasing and harvest and marketing of some tree species on private farm land are subjected to various degrees of restrictions in almost all the States/UTs. The State of Maharashtra achieved first rank in implementation of various reforms. The State has implemented most of the marketing reforms and it offers best environment for doing agri-business among all the States/UTs. Gujarat ranks second with a score of 71.5 out of 100, closely followed by Rajasthan and Madhya Pradesh.

The State of Karnataka, which is considered progressive in implementing market reforms, did not figure among the top states for two reasons. It is lagging in liberalization of land lease and restrictions on felling of trees on private land. Two, it is not yet integrated with eNAM. However, the State has its own Unified Market Platform operated by ReMS, which has all the provisions as envisaged under eNAM. If this reform in the State is treated at par with eNAM, then Karnataka earns additional score of 7.4. This increases the score of the State in AMFFRI from 55.5 to 62.9 and raises its rank from 8th place to the 6th place.

Agriculturally developed State of Punjab ranks 14th with a score of 43.9. This is because of poor implementation of market reforms in the State.

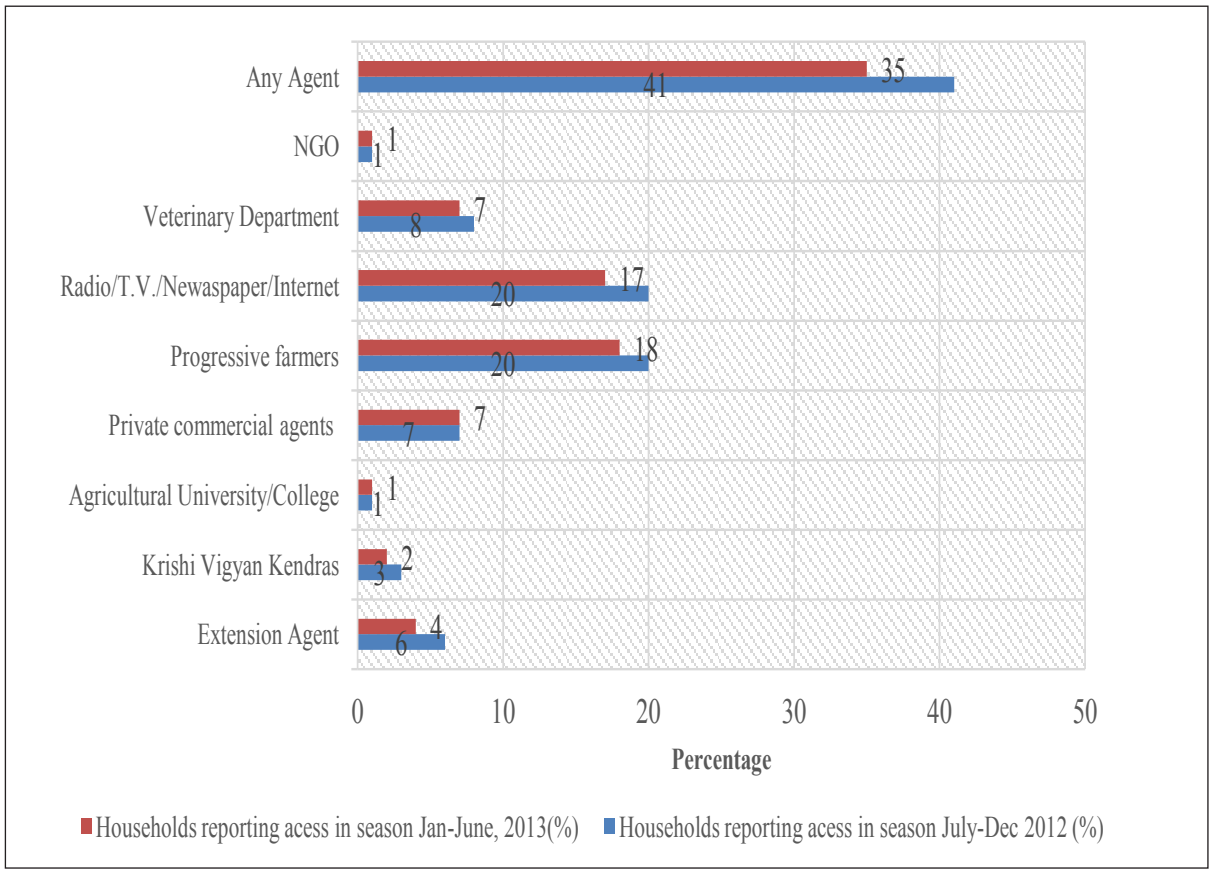
Almost two third States/UTs could not reach even halfway mark of reforms score. Major States like U.P., Punjab, West Bengal, Assam, Jharkhand, Tamil Nadu and J&K are in this group. It is also pertinent to mention that some States/UTs do not have APMC Act. It is a challenge to provide ranking to these States in market reforms.

ROLE OF EXTENSION SERVICES

7.27 Agricultural extension plays a key role in boosting agricultural productivity, enhancing food security, improving rural livelihoods and changing farmers' preferences and farming practices positively (for example, adoption of better quality seeds and cutting down loss by getting their crops insured). A Report on Review of Agricultural Extension in India, 2010 by IFPRI had highlighted the increasing need to share knowledge and skills in order to provide locally relevant services that meet the information needs of small and marginal farmers. Secondly, the report highlighted the need to bring small and marginal farmers within the framework of extension services.

7.28 As per the latest '*NSSO Report on Some Aspects of Farming in India, 2012-13'* reflects results of the survey that collected information regarding the agricultural household's access to technical advices specific to the crops they harvested during the two halves of the agricultural year July 2012- June 2013.

Figure 7: Distribution of Agricultural Households by Source of Accessing Technical Advice



Source: NSS Report No. 573: Some Aspects of Farming in India, 2012-13.

7.29 The farmers tend to access technical advice more during the second half of the year i.e., during January-June (Figure 7). About 41 per cent of the agricultural households engaged in crop production during the period July-December 2012 accessed technical advice on agriculture from some of the listed sources (Any agent). 'Progressive farmer' and 'radio/ TV/newspaper/internet' were the two

most accessed sources for technical advice by the agricultural households during this period; 20 per cent of the agricultural households reported accessing technical advice from these two sources. There is thus greater scope to improve services by Krishi Vigyan Kendras (KVKs) and agricultural universities in agriculture advisory services.

Adoption of Accessed Advice and Its Usefulness

7.30 The adoption of technical advice was highest among the agricultural households that received advice from veterinary department and progressive farmers during both the halves of the agricultural year and was the least for the source radio/TV/ newspaper/internet.

Table 5: Accessing Agricultural Households Who Adopted Technical Advice

Sources	Accessing households who adopted advice during the season Jan-June, 2013 (per cent)	Adopting households who reported the advice as useful during the season Jan-June, 2013 (per cent)
Extension Agent	86	94
Krishi Vigyan Kendra	79	98
Agricultural university /college	81	93
Private commercial agents (including drilling contractor)	87	96
Progressive farmer	92	97
Radio/t.v./newspaper/internet	64	95
Veterinary department	92	98
NGO	85	99
Any agent	85	NA

Source: NSS Report No. 573: Some Aspects of farming in India, 2012-13.

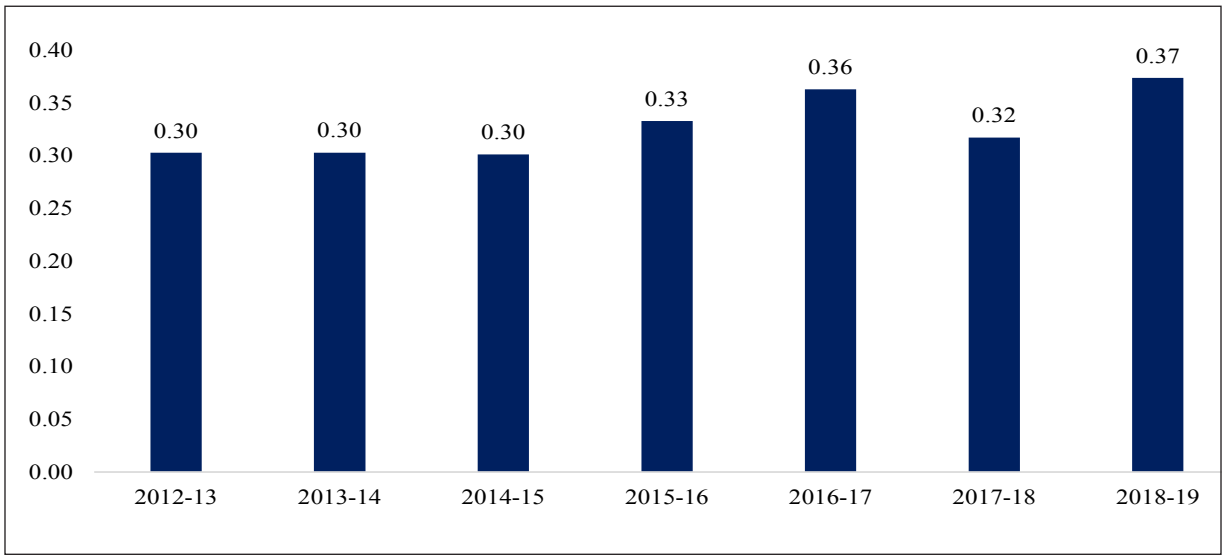
NA: Data not available.

7.31 Among the households that had adopted the received technical advice, majority of them found the advice to be beneficial which reflects the significance of extension services in agriculture.

Trend of Expenditure on Agriculture Research & Education

7.32 There has been an increasing trend in the expenditure on agricultural research and education as a percentage of total agricultural GVA with an exception of 2017-18.

Figure 8: Share of Expenditure on Agriculture Research & Education in Agricultural GVA (in per cent)

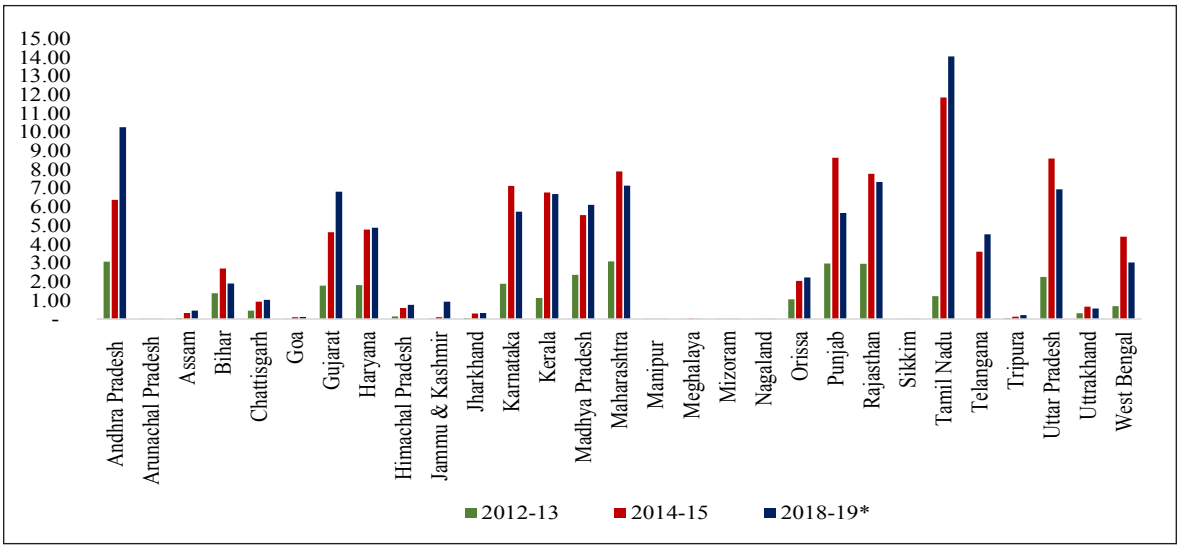


Source: Expenditure Budget

AGRICULTURAL CREDIT

7.33 The access to timely credit or finance is a critical determinant of profitability of agriculture. If credit is not available to purchase seeds at the time of sowing, or if lack of credit delays the administering of fertilizers, it can severely impact agricultural productivity. The regional distribution of agricultural credit in India (Figure 9) shows that the distribution of credit is highly skewed. It is seen that the distribution of agricultural credit is low in North Eastern, Hilly and Eastern States. The share of North Eastern States has been less than one per cent in total agricultural credit disbursement.

Figure 9: Percentage of Agricultural Credit Disbursement



Source: Department of Agriculture Cooperation and Farmers Welfare.

*As on September 2018

7.34 The financial inclusion in the eastern and north eastern India is relatively less as compared to the South and West (Crisil, 2018)[9]. The small and marginal holdings constitute majority (more than 85 per cent) of total operational holdings in the eastern region, north-eastern region and central region, which warrants greater distribution of agricultural credit disbursement to this region.

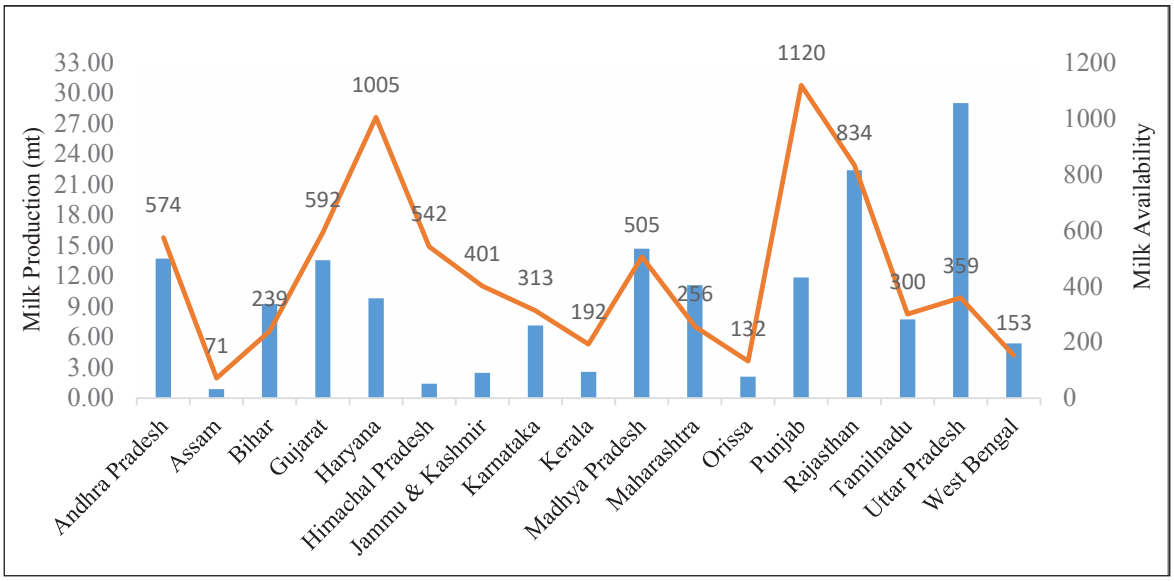
ALLIED SECTORS: ANIMAL HUSBANDRY, DAIRYING AND FISHERIES

7.35 Livestock, poultry, dairying and fisheries is a sub-sector of agriculture that provides livelihood to agricultural households during phases of seasonal unemployment. According to the 19th Livestock Census, India has vast resource of livestock comprising about 300 million bovines, 65.1 million sheep, 135.2 million goats and 10.3 million pigs. Livestock farming in India is part of a composite farming system characterized by crop-livestock interactions. The by-products from several of the crops (crop residues, hay and straw) are used as input for dairy production, in addition to other inputs for which they have to directly incur costs (cattle feed, veterinary medicines and artificial insemination). Animal dung and urine are used as inputs (bio-fertilizers and bio pesticides) by farmers to improve soil fertility.

Animal Husbandry and Dairying

7.36 India ranks first in milk production, accounting for 20 per cent of world production. Milk production in India has been increasing steadily over the years from 55.6 million tonnes in 1991-92 to 176.3 million tonnes in 2017-18, at an average annual growth rate of 4.5 percent. But there exists wide inter-state variability in milk production (Figure 10). The per capita availability of milk is determined by the production of milk in the State. While the All India per capita availability of milk is 375 grams per day, it varies between 71 grams per day in Assam to 1120 grams per day in Punjab.

Figure 10: Inter-State Variability in Milk Production & Per Capita Availability



Source: National Dairy Development Board.

[9] Crisil Inclusix, Februray,2018

Domestic Demand and Price of Milk

7.37 An analysis of the data on production of milk and its wholesale price index shows that though production of milk has been rising at an increasing rate, the change in its price shows a fluctuating trend. After rising 9 per cent in 2014-15, it increased only by 2.91 per cent in 2016-17 (Table 6). There are three key drivers of increasing milk demand viz; (i) population growth (ii) urbanization and (iii) income growth which leads to an increase in the price of milk[10].

Table 6: Milk Production and WPI of Milk

Year	Milk Production	Wholesale Price Index (WPI) of Milk	% Change in Production	% Change in Price
2012-13	132.4	107.6	-	-
2013-14	137.7	116	4.00	7.81
2014-15	146.3	126.6	6.25	9.14
2015-16	155.5	130.5	6.29	3.08
2016-17	165.4	134.3	6.37	2.91
2017-18	176.3	139.7	6.59	4.02

Source: National Dairy Development Board and Price Data from O/o Economic Adviser

7.38 Of the total milk produced in rural areas around 52 per cent is the marketable surplus. Of this surplus less than half of the milk sold is handled by the organized sector comprising of dairy cooperatives and private dairy companies and the rest by the unorganized sector.

Small Ruminant Sector

7.39 As per the 70th round of NSSO, livestock rearing was the principal source of income to about 3.7 per cent of the agricultural households. Sheep and goat are collectively known as small ruminants. India supports 16.1 per cent of the world's goat population and 6.4 per cent of its sheep (Food & Agriculture Organisation). Nationally, total livestock population is 512.1 million, of which goat and sheep population stands at 200 million (39 per cent of the country's total livestock population). Sheep/Goat rearing is practiced mainly by resource-poor families and is a supplementary source of income for farmers during lean seasons especially for marginal, women and landless farmers.

7.40 Small ruminants have higher survival rates under drought conditions compared to large ruminants. Moreover, because of their higher reproductive rates and smaller reproductive cycle flock numbers can be restored more rapidly. With regard to goats, water economy is also an important biological feature. Due to their short reproductive cycles (short kidding interval) and high incidence of multiple births, there is potential for a higher annual off take of goats than seen with cattle & buffaloes. This allows farmers/producers a quick interval of selling part of their flock and generating cash income. Sheep/goats can also efficiently survive on available shrubs and trees in adverse harsh environment in low fertility lands where no other crop or animals can survive except some rare exceptions like camel.

[10] Vision 2022, Dairy Development by Department of Animal Husbandry and Dairying.

Box 3: Schemes/Initiatives to Improve Productivity of Livestock and Dairy Sector

Rashtriya Gokul Mission (RGM): To undertake breed improvement programme for indigenous breeds so as to improve the genetic makeup and increase the stock. Indigenous cattle are well known for their quality of heat tolerance and ability to withstand extreme climatic conditions.

E Pashu Haat Portal: Under the scheme National Mission on Bovine Productivity, E Pashudhan Haat portal was developed for connecting breeders and farmers regarding availability of quality bovine germplasm. Through the portal, breeders/farmers can sell or purchase their breeding stock. Information on all forms of germplasm including semen embryos and live animals with all the agencies and stakeholders in the country has been uploaded on the portal.

National Livestock Mission: National Livestock Mission ensures intensive development of livestock, especially small livestock (sheep/goat, poultry rearing etc.) along with adequate availability of quality feed and fodder.

Livestock Health & Disease Control Scheme: Assistance provided under the Scheme for prevention and control of animal diseases like Foot and Mouth Disease (FMD), Peste des Petits Ruminants, (PPR), Brucellosis, Classical Swine Fever etc. In order to strengthen and expand the trained veterinary manpower, the number of recognized veterinary colleges has been increased.

Dairy Development: The Government is making efforts for strengthening infrastructure for production of quality milk, procurement, processing and marketing of milk and milk products through the following dairy development schemes viz; National Programme for Dairy Development, National Dairy Plan (Phase-I), Dairy Entrepreneurship Development Scheme, Dairy Processing and Infrastructure Development Fund (DIDF).

Fisheries Sector

7.41 Fisheries is a fast-growing sector in India, which provides nutrition and food security to a large population of the country besides providing income and employment to more than 14.5 million people. India is the second largest fish producer in the world with a total production of 13.7 million metric tonnes in 2018-19 of which 65 per cent was from inland sector. Almost 50 per cent of inland fish production is from culture fisheries, which constitutes 6.5 per cent of global fish production. The sector has been showing a steady growth in the total gross value added and accounts for 5.23 per cent share of agricultural GDP. Fish and fish product exports emerged as the largest group in agricultural exports and in value terms accounted for ₹47,620 crore in 2018-19.

7.42 Foreseeing the vast resource potential and possibilities in the fisheries sector, a separate Department of Fisheries was created in February 2019. The Government has merged all the schemes of fisheries Sector into an umbrella scheme of 'Blue Revolution: Integrated Development and Management of Fisheries' focusing on increasing fish production and productivity from aquaculture and fisheries resources, both inland and marine. Towards realization of these objectives the creation of the Fisheries and Aquaculture Infrastructure Development Fund (FIDF) was approved with a total fund size of ₹7522.48 crore.

7.43 While enhancing incomes through livestock development and fisheries sector, it is significant to integrate the SDGs of ensuring incomes and livelihoods for the poor. This must be undertaken without compromising the needs of the future generation by over exploiting/depleting marine resources.

Box 4: Draft National Inland Fisheries and Aquaculture Policy (NIFAP), 2019

Although inland fisheries and aquaculture have grown in absolute terms, the development in terms of its potential is yet to be realized. The unutilized and underutilized vast and varied resources, in the form of 191,024 km of rivers and canals, 1.2 million hectares of floodplain lakes, 2.36 million hectares of ponds and tanks, 3.54 million hectares of reservoirs and 1.24 million hectares of brackish water resources offer great opportunities for livelihood development and ushering economic prosperity. As the sector is extremely diverse and dynamic, there is a need to streamline policies and programmes, infuse public and private investments, and take R&D benefits to the farmers and fishers. These will help to bring optimal resource utilization and development of the sector as an instrument of growth.

Major Policy Recommendations in the NIFAP, 2019

Inland fisheries: The policy measures recommended for inland fisheries include: (i) conserving indigenous resources, and restoring natural ecosystem of rivers, (ii) transferring management of fisheries in manmade reservoirs to the state fisheries departments for scientific enhancement and efficient governance, (iii) conserving and restoring ecosystem in natural wetlands, and (iv) bringing policies, law, and conservation programmes for development of fisheries in the Himalayan and north-eastern states.

Aquaculture: Measures recommended for development of aquaculture include: (i) developing state and area-specific action plans, (ii) redefining land use categories to include fisheries and aquaculture as components of agriculture, (iii) developing separate programmes for small farmers, (iv) simplifying requirements for registration and leasing of farms, (v) encouraging private sector in production of seed, feed and other aquaculture inputs, and (vi) developing the required regulatory frameworks.

Other policy measures include: (i) making registration of all aquaculture inputs compulsory, (ii) regulating exotic species, (iii) improving disease surveillance, (iv) diversifying species, (v) developing post-harvest and marketing infrastructure, (vi) strengthening fisheries cooperatives, (vii) strengthening of current welfare and social protection programmes in convergence with other similar schemes to enhance fishers and farmers' welfare, (viii) Strengthening of inland fisheries and aquaculture database through census at regular intervals covering inland fisheries and aquaculture and (ix) gender equity through empowerment of women and strengthening their organization and leadership capabilities.

FOOD SECURITY AND FOOD MANAGEMENT IN INDIA

7.44 Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences to ensure an active and healthy life (FAO, 2018). The timely availability and affordability of food are critical for a developing country like India.

Food Security

7.45 The Global Food Security Index (GFSI), 2018 considered four core issues of food security across 113 countries: (i) affordability, (ii) availability, (iii) quality & safety and (iv) natural resources and resilience. The GFSI ranks countries on a score of 0-100 based on the first three categories while natural resources and resilience is used as an adjustment factor. A rank of 100 is considered most favourable. GFSI's major goal is to assess in a timely manner which countries are most and least vulnerable to food insecurity (Table 7).

Table 7: India's Food Security Score, 2018

Category	India (Score)	Score of All Countries (average)	India's Rank out of 113 Countries
OVERALL	**50.1**	**58.4**	**76**
1) Affordability	46.4	56.3	73
2) Availability	54.1	60.3	70
3) Quality and Safety	48.2	58.2	79
1) AFFORDABILITY			
1.1) Food consumption as a share of household expenditure	53.5	55.6	61
1.2) Proportion of population under global poverty line	66.0	80.9	87
1.3) Gross domestic product per capita (US$ PPP)	5.0	16.7	73
1.4) Agricultural import tariffs	46.4	75.4	108
1.5) Presence of food safety net programmes	50.0	65.5	66
1.6) Access to financing for farmers	75.0	62.6	43
2) AVAILABILITY			
2.1) Sufficiency of supply	27.4	56.8	100
2.2) Public expenditure on agricultural R&D*	0.0	15.6	62
2.3) Agricultural infrastructure	41.7	58.7	78
2.4) Volatility of agricultural production	93.5	86.4	39
2.5) Political stability risk	70.6	46.8	18
2.6) Corruption	25.0	37.6	49
2.7) Urban absorption capacity	94.8	76.9	3
2.8) Food loss	86.4	84.9	70
3) QUALITY AND SAFETY			
3.1) Diet diversification	39.7	56.0	81
3.2) Nutritional standards	100.0	80.1	1
3.3) Micronutrient availability	26.5	43.9	98
3.4) Protein quality**	18.5	47.2	98
3.5) Food safety	91.3	80.3	70

Source: Global Food Security Index, 2018, Economic Intelligence Unit, The Economist
Note: * It is a measure of govt spending on R&D taken as a per cent of GDP. Taken from OECD and Agricultural Science & Technology Indicators. ** measures the amount of high-quality protein in the average national diet.

7.46 India's food security challenges lie in the areas of low GDP per capita, sufficiency of supply, public expenditure on R&D and protein quality (Table 7). India ranks No.1 in Nutritional standards. India's overall Food Security Score is 50.1 out of 100 which ranks India 76 out of 113 countries. This reflects the need for India to further improve the management of food supply in various aspects.

7.47 The Central Government takes several steps to prudently manage foodgrain stock, to ensure adequate availability of wheat and rice in the Central pool, to keep a check on the open market prices, to augment the domestic availability of wheat and rice, and to ensure food security. The Government specifically undertakes the following measures:

(i) Announcing Minimum Support Prices and Central Issue Price

(ii) Undertake procurement of food grains through FCI and decentralised procurement by State Agencies

(iii) Maintain buffer stocks; and

(iv) Open market sale of wheat and rice to check inflation.

MSP and Foodgrains Procurement

7.48 The Minimum Support Price (MSP) is announced for 22 crops before the sowing season. The objective is to give guaranteed prices and assured market to the farmers and protect them from price fluctuations. In 2018-19, the government raised the MSP of both kharif and rabi crops to ensure a return of at least 50 per cent above the cost of production to enhance farmers' income. An increase in MSP leads to increase in production, but only about one-third of the total production of foodgrains are procured. The rest of the foodgrains are sold in the open market (Table 8).

Table 8: Foodgrains Production, Procurement & Offtake (In million tonnes)

Years	Foodgrains Production minus pulses	Foodgrains Procurement	Procurement (% share in Production)	Offtake (TPDS + Welfare schemes	Balance stock as of 1st July
2015-16	235.22	64.91	27.6	53.73	54.72
2016-17	251.98	61.14	24.3	56.45	49.85
2017-18	259.60	69.10	26.6	57.85	53.48
2018-19	257.36	75.28	29.3	56.40	65.14

Source: Foodgrain Bulletin, DFPD.

7.49 In States like Punjab, Haryana, Chhattisgarh, Uttar Pradesh, Madhya Pradesh etc. where MSP procurement is well established, there arise problems in storage of foodgrains. The procurement from these States exceeds the buffer stock norms fixed by the Government in 2015 (Table 8). While the offtake of food grains from the Central Pool for TPDS and other welfare schemes varies between 53-58 million tonnes, the stock of food grains in the Central Pool continues to be in excess of the prescribed buffer stock norms. As on 1st July, 2018, the Central stock was 65 million tonnes against the norm of 41 million tonnes. The government tries to liquidate excess stocks through open market sale to bulk buyers above the reserve price, which equals the MSP plus the procurement cost. Bulk buyers prefer wheat over rice

and in 2018-19 about nine million tonnes was sold in the open market of which 8.2 million tonnes was wheat. Exports of food grains by FCI at prices lower than the reserve price would effectively imply and export subsidy. Moreover, this would expose India to disputes in the multilateral trade framework. Exports of food grains by FCI either as aid or commercial sale has been less than 1 million tonnes.

Table 9: Foodgrains Stocking Norms for Central Pool from January, 2015

(in million tonnes)

Date	Rice			Wheat			Total food grains
	Operational stocks	Strategic Reserve	Total	Operational stocks	Strategic Reserve	Total	
1st April	11.58	2.00	13.58	4.46	3.00	7.46	21.04
1st July	11.54	2.00	13.54	24.58	3.00	27.58	41.12
1st October	8.25	2.00	10.25	17.52	3.00	20.52	30.77
1st January	5.61	2.00	7.61	10.8	3.00	13.80	21.41

Source: Department of Food and Public Distribution.

7.50 According to an Evaluation Study on Minimum Support Price conducted by Development Monitoring & Evaluation Office (DMEO), NITI Aayog (January 2016), in majority of the sample states, farmers are unaware of the MSP announcement before the sowing season. In Eastern India, in States such as Assam, West Bengal, the poor impact of the scheme could be judged from the fact that none of the selected farmers were even aware of the existence of such a scheme. In certain cases, though aware of the MSP, the absence of procurement centres in the villages, transportation costs, reluctance of mill owners to buy small quantities from the farmers remain stumbling blocks.

Food Subsidy

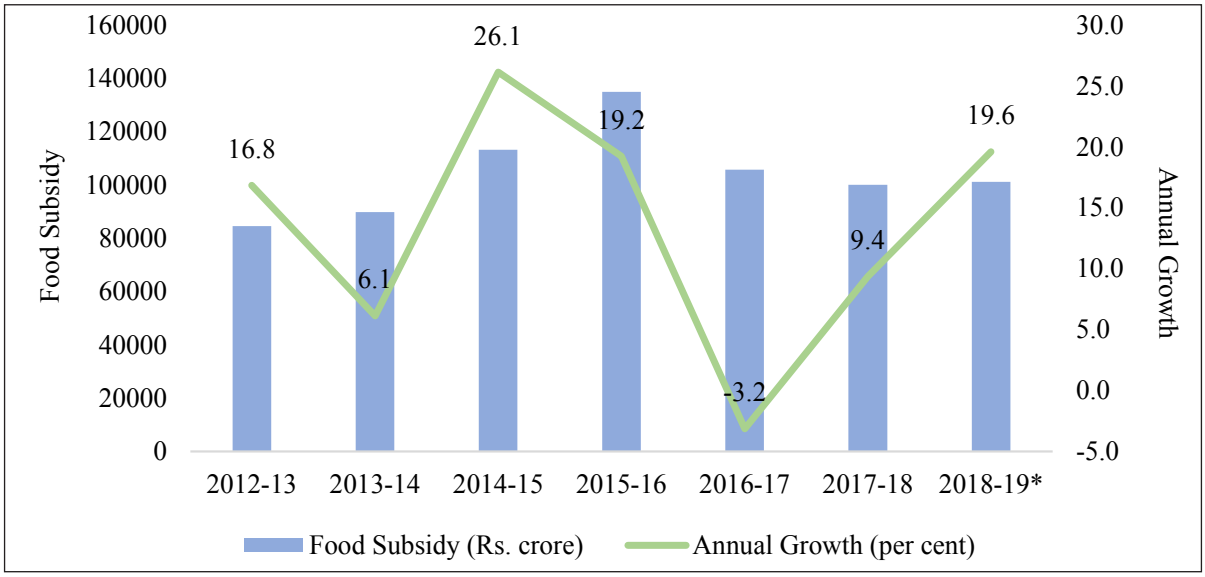
7.51 Food subsidy comprises of two main components. The first component includes subsidy provided to the Food Corporation of India (FCI) for procurement and distribution of wheat and rice under the National Food Security Act (NFSA), 2013 and other welfare schemes and for maintaining the buffer stock of food grains as a measure of food security. The second component comprises subsidy provided to States undertaking decentralized procurement. The acquisition and distribution costs of procuring food grains for the central pool constitute the economic cost. The difference between the per quintal economic cost and the per quintal Central Issue Price (CIP) gives the quantum of per quintal consumer subsidy.

7.52 The economic cost of wheat for FCI operations has increased from ₹1908.32 per quintal in 2013-14 to ₹2435.23 per quintal in 2018-19. Similarly, the economic cost of rice has increased from ₹2615.51 per quintal in 2013-14 to ₹3472.94 per quintal in 2018-19. However, the CIP of wheat and rice for NFSA beneficiaries has not been revised from ₹200 per quintal in case of wheat and ₹300 per quintal in case of rice. These rates were fixed under the National Food Security Act, 2013 initially for a period of three years from the date of commencement of the Act (July 13, 2013). Thereafter, they were to be fixed by the Central Government from time to time, while not exceeding the minimum support price.

7.53 In order to ensure food security to the vulnerable sections, Government continues with the subsidized pricing under NFSA. This has resulted in widening of the gap between the economic cost and CIP and the per quintal food subsidy incurred by the Government has risen substantially over the years. The subsidized CIPs of ₹3/2/1 per kg for rice, wheat and coarse grains respectively under NFSA were earlier applicable only to the Antyodaya Anna Yojana Families *(which constitute about 2.5 crore poorest of the poor households)* under the Targeted Public Distribution System (TPDS). The BPL/APL categories were required to pay higher CIPs.

7.54 The NFSA provides a wider coverage than the erstwhile TPDS. It also made the Antyodaya CIPs uniformly applicable to all NFSA beneficiaries. APL/BPL categorization was done away with under NFSA. The wider coverage provided under the Act together with lower CIPs have obvious implications for the food subsidy bill. The trend in the amount of food subsidy released by the Government of India since 2012-13 may be seen in Figure 11.

Figure 11: Expenditure on Food Subsidy (₹ Crore) & Annual Growth Rate (%)



Source: Department of Food & Public Distribution.

*As on 05.03.2019

For sustainability of food security operations, the issue of burgeoning food subsidy bill needs to be addressed.

Computerization of Targeted Public Distribution System

7.55 The Targeted Public Distribution System (TPDS) is operated under the joint responsibility of the Central and State/UT Governments. The Central Government is responsible for procurement, allocation and transportation of food grains upto the designated depots of the FCI. The State Governments are responsible for allocation and distribution of food grains involving identification of eligible beneficiaries/ families, issuance of ration cards to them and supervision and monitoring of functioning of Fair Price Shops (FPSs).

7.56 Instructions have been issued to States/UTs and Food Corporation of India (FCI) to ensure supply of good quality food grains under PDS. Therefore, as and when complaints are received by the Government

from individuals and organizations as well as through press reports, they are sent to State/UT Governments concerned for inquiry and appropriate action. An offence committed in violation of the provisions of TPDS (Control) Order, 2015 is liable for penal action under the Essential Commodities Act, 1955. Thus, the Order empowers State/UT Governments to take punitive action in case of contravention of relevant provisions of these Orders.

Table 10: Achievements of TPDS Computerisation

Scheme Components	Achievement
Digitization of ration cards/ beneficiary's data	Completed in all States/UTs
Online allocation of food grains	Completed in all States/UTs except UTs of Chandigarh & Puducherry, which have adopted DBT/Cash transfer scheme
Computerization of supply chain management	Completed in 25 States/UTs and the work is in progress in the remaining States/UTs
Transparency portals	Set up in all States/UTs
Intra-State portability of ration cards to enable purchase from any FPS in the State	Operational in 11 States
Grievance redressal facilities	Toll-free helplines/online registration facility is available in all States/UTs

Source: Department of Food & Public Distribution.

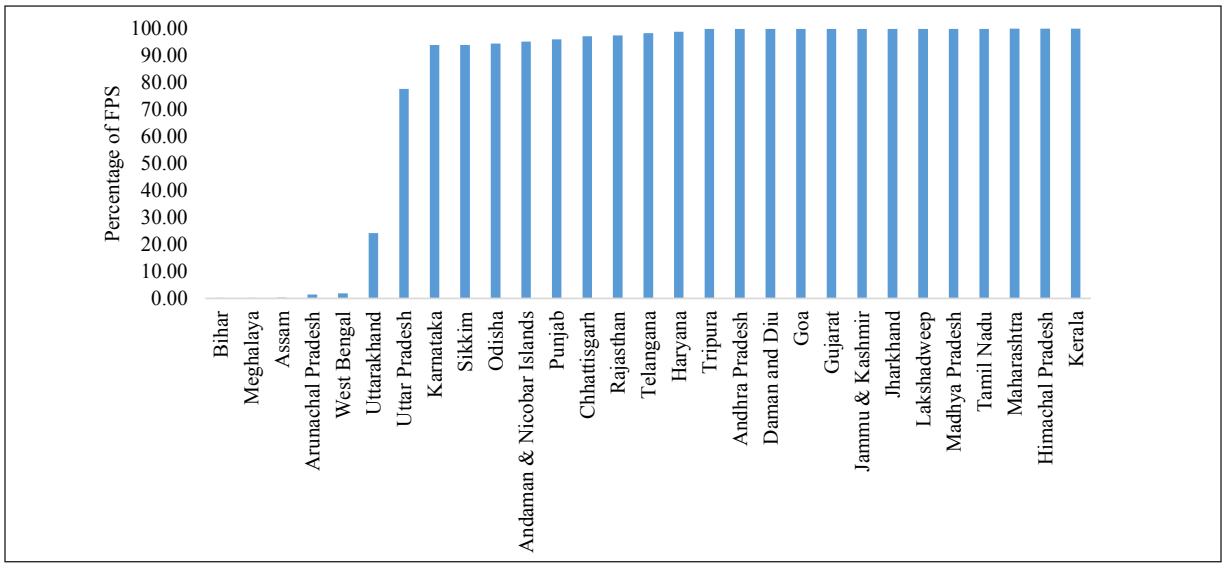
7.57 To modernize and bring about transparency in the TPDS operations, the Central Government is implementing the Scheme 'End-to-end Computerisation of TPDS Operations'[11] on cost sharing basis with the States/UTs. The validity of the scheme was extended upto March 2019. The scheme provides for digitization of ration cards and beneficiary records, computerization of supply chain management, setting up of transparency portal and grievance redressal mechanisms. The outcomes of the scheme are given at Table 10.

7.58 Through technology and digital intervention, the TPDS has become more transparent at the FPS. However, there needs to be holistic monitoring along the supply chain to completely prevent the diversions and leakages of foodgrains and also to maintain the quality of foodgrains distributed through the FPS.

7.59 There are 5.33 lakh Fair Price Shops (FPSs) and over 23 crore ration card holders in the country as on March 2019. About 3.95 lakh FPSs have been automated by installing the electronic point of sale device. However, the level of computerization of FPSs across States is not uniform (Figure 12).

[11] The Justice Wadhwa Committee Report for PDS (2011) divided computerization into two parts: a first one to prevent diversion, and a second one to enable secure identification at ration shops. The Committee has recognized Chhattisgarh as a model state for the first component, and Gujarat as a model for the second.

Figure 12: End-to end Computerization in Fair Price Shops



Source: Department of Food & Public Distribution.

CHAPTER AT A GLANCE

- Although, contribution of Agriculture's Gross Value Added (GVA) to overall GVA has been declining (14.4 per cent in 2018-19) it is still a crucial sector, as a large proportion of the population engage in agriculture. Furthermore, agriculture is critical for the country's food security. Gross Capital Formation (GCF) in agriculture as percentage of GVA declined to 15.2 per cent in 2017-18 and the role of public sector in GCF in agriculture has increased.
- The number of operational land holdings and area under operation have shifted towards small and marginal farmers. Women's participation in agriculture has increased and their concentration is highest (28 per cent) among small and marginal farmers.
- Around 89 per cent of groundwater extracted is used for irrigation and crops such as paddy and sugarcane consume more than 60 per cent of irrigation water. Focus should shift from land productivity to 'irrigation water productivity'. Therefore devising policies to incentivize farmers to improve water use should become a national priority. Thrust should be on micro-irrigation that can improve water use efficiency.
- Fertilizer response ratio has been declining over time. Organic and natural farming techniques including Zero Budget Natural Farming (ZBNF) can improve both water use efficiency and soil fertility.
- Adopting appropriate technologies through Custom Hiring Centers and implementation of ICT are critical to improve resource use efficiency among small and marginal farmers.
- Diversification of livelihoods is critical for inclusive and sustainable development in agriculture and allied sectors. Policies should focus on (i) dairying as India is the largest producer of milk;(ii) livestock rearing particularly of small ruminants; and (iii) fisheries sector, as India is the third largest producer.

ANNEXURE-1

ACTION PLAN FOR DOUBLING THE INCOME OF FARMERS

The Government has set a target of doubling of farmers' income by the year 2022. For the said purpose, the Government had constituted an Inter-Ministerial Committee to examine issues relating to Doubling of Farmers' Income (DFI) and recommend strategies. The Committee has identified seven sources of income growth viz, improvement in crop productivity; improvement in livestock productivity; resource use efficiency or savings in the cost of production; increase in the cropping intensity; diversification towards high value crops; improvement in real prices received by farmers; and shift from farm to non-farm occupations. Several initiatives have already been rolled out on the recommendations of DFI Committee which inter-alia include advocating progressive market reforms through the State Governments, Encouraging contract farming through the State Governments by promulgating of Model Contract Farming Act, Up-gradation of Gramin Haats to work as centers of aggregation and for direct purchase of agricultural commodities from the farmers, e-NAM to provide farmers an electronic online trading platform, Distribution of Soil health Cards to farmers so that the use of fertilizers can be rationalized, Increase water efficiency through Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)-" Per drop more crop", Better insurance coverage to crops for risk mitigation under Pradhan Mantri Fasal Bima Yojana (PMFBY), providing total interest subvention up to 5 per cent (inclusive of 3 per cent prompt repayment incentive) on short-term crop loans up to ₹3 lakh, thus making loan available to farmers at a reduced rate of 4 per cent per annum and extended the facility of Kisan Credit Card (KCC) for animal husbandry and fisheries related activities as well as Interest Subvention facilities to such categories of farmers.

Giving a major boost for the farmers' income, the Government has approved the increase in the Minimum Support Price (MSPs) for all Kharif & Rabi crops for 2018-19 season at a level of at least one and half times of the cost of production.

Further, with a view to provide social security net for small and marginal farmers as they have minimal or no savings to provide for old age and to support them in the event of consequent loss of livelihood, the Government has decided to implement a new Central Sector Scheme for providing old age pension of ₹3000/- to the eligible small and marginal farmers, subject to certain exclusion clauses, on attaining the age of 60 years. The scheme aims to cover around 5 crore beneficiaries in the first three years. It would be a voluntary and contributory pension scheme, with entry age of 18 to 40 years. The Government has approved a budgetary provision of ₹10774.50 crore for the scheme till March 2022.

The Government has constituted an Empowered Body on 23.01.2019 for monitoring the implementation of the recommendations of the DFI Strategy.

Source: Ministry of Agriculture & Farmers Welfare.