

Sustainable Agricultural Growth in India: Issues and Challenges

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1. Introduction

Agriculture is the primary source of livelihood for about 58% of India's population. Gross Value Added by agriculture, forestry, and fishing was estimated at Rs.19.48 lakh crore (US\$ 276.37 billion) in FY20. As per 1st advance estimates of National Income FY22, the percentage share of GVA of Agriculture and Allied Sectors (at current prices) is 18.8% of the total GVA. Consumer spending in India will return to growth in 2021 post the pandemic-led contraction, expanding by as much as 6.6%. Agriculture and allied activities recorded a growth rate of 3.6% at constant prices in FY21.

The Indian food industry is poised for huge growth, increasing its contribution to world food trade every year due to its immense potential for value addition, particularly within the food processing industry. Indian food and grocery market is the world's sixth largest, with retail contributing 70% of the sales. The Indian food processing industry accounts for 32% of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth. The total agricultural and allied products exports stood at US\$ 41.25 billion in FY21.

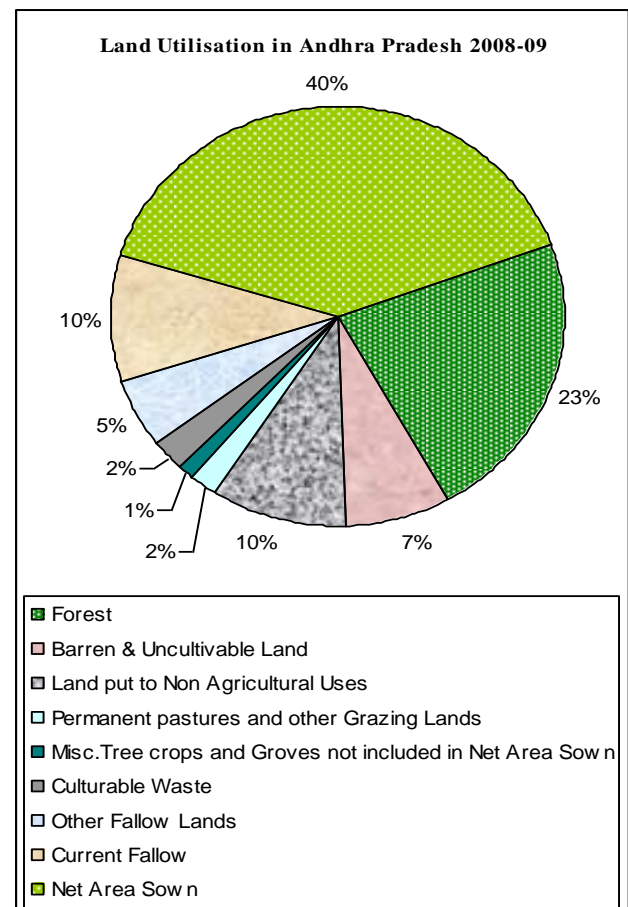
1.1 Agriculture

Agriculture continues to be the predominant source of livelihood for almost 60% of the population-both at the National level and at the State level. With the 11th Five Year Plan's target of achieving 4% growth in Agriculture during the Plan period and with the objective of shifting a sizable excess labour force from the agriculture sector to other non-farm rural sectors-especially to rural industry through skill development, the obvious choice would be improvement of productivity in the agriculture sector. Ensuring Food security and providing gainful employment to the labour force, has been the essential premise for the socio-economic development of the people.

Improving farm incomes and ensuring sustainable growth in the agriculture and allied sectors would well be the continued agenda for the state. The overwhelming priority being accorded to the irrigation sector coupled with the various farmer friendly initiatives put in place by the state in the recent past is the underlying theme for heralding agriculture renaissance in the state.

1.2 Land Utilisation

The total Geographical area of the State is 275.04 lakh hectares. Out of the Geographical area, 39.8 percent is under Net Area Sown (109.58 lakh hectares), 22.6 percent under Forest (62.10 lakh hectares), 9.6 percent under current fallow lands (26.24 lakh hectares), 9.6 percent under Land put Non-Agricultural uses (26.52 lakh hectares), 7.5 percent under Barren and uncultivable land (20.55 lakh hectares) and remaining 10.9 percent under other fallow land, culturable waste, permanent Pastures and other grazing lands and Land under miscellaneous tree crops and groves not included in the Net Area Sown (30.05 lakh hectares). The land utilization particulars from 1955-56 to 2008-09 are given Annexure 5.1. The pattern of Land Utilisation in the state is depicted in the following diagram.



1.3 Rainfall

The rainfall received during the South west monsoon period for 2009-10 was 454 mm as against the Normal rainfall of 624 mm recording a deficit of 27 percent. During the North East monsoon 2009-10, the average rainfall received was 185 mm and it is lower than the Normal rainfall of 224 mm recording a deficit of 17 per cent. The Season wise and monsoon wise rainfall are given in Annexure 5.2 and 5.3 respectively.

Area and Production: (Kharif Season)

(Advance Estimate – 2009-10 Kharif)

Our state had witnessed natural calamities of both drought and the worst ever floods during the year. While the State was reeling under severe drought, another calamity of unprecedented floods had hit the State during September-October, 2009. These floods caused large scale devastation in 13 districts including five severely affected districts of Kurnool, Mahabubnagar, Krishna, Guntur and Nalgonda. Even though the State faced the twin effect of both drought and floods, the advance estimate of the areas and production of various crops for Kharif 2009-10 are likely to be modest. In Kharif 2009-10, the estimate of the area under food grains is expected to be less than 42.73 lakh hectares in 2008-09. Similarly, the production estimate in 2009-10 Kharif under food grains is also expected to be less than 105.62 lakh tonnes in 2008-09. In Kharif 2009-10, the estimate of the area under Rice is expected to be less than 28.03 lakh hectares in 2008-09. Similarly, the production estimate in 2009-10 Kharif under Rice is also expected to be less than 83.80 lakh tonnes in 2008-09. The Production estimates of food grains from 1974-75 to 2008-09 are given in Annexure 5.4.

Cropping intensity: The cropping intensity (the ratio of gross cropped area to net cropped area) is one of the indices of assessing the efficiency of agriculture sector and for the year 2008-09 it works out to 1.27. Season-wise area, production and productivity of selected crops are given in Annexure 5.5, 5.6 and 5.7 respectively.

Gross and Net area Irrigated: The gross area irrigated in the State increased to 67.41 lakh hectares. in 2008-09 against 62.85 lakh hectares in 2007-08 showing an increase of 7.3 percent. The net area irrigated in the State increased to

48.21 lakh hectares in 2008-09 against 46.44 lakh hectares in 2007-08, showing an increase of 3.8 percent. The Source wise Gross area irrigated and Net area irrigated in the State is given in Annexure 5.8 and 5.9 respectively.

Land Holding: The data on land holdings in the State is collected from 1970-71 through a quinquennial Census of Land Holdings and the latest data relates to 2005-06. The average size of land holdings in the State has gradually declined to 1.20 hectares during 2005-06 from 1.25 hectares during 2000-01. The distribution of Land holdings and area according to size class are given in Annexure 5.10. The department of Agriculture is implementing various programmes to improve the farm incomes both in absolute terms and percentage of Gross State Domestic Product (GSDP).

1.4 Size of the Market

The Economic Survey of India 2020-21 report stated that in FY20, the total food grain production in the country was recorded at 296.65 million tonnes-up by 11.44 million tonnes compared with 285.21 million tonnes in FY19. The government has set a target to buy 42.74 million tonnes from the central pool in FY21; this is 10% more than the quantity purchased in FY20. For FY22, the government has set a record target for farmers to raise food grain production by 2% with 307.31 million tonnes of food grains. In FY21, production was recorded at 303.34 million tonnes against a target of 301 million tonnes.

Production of horticulture crops in India reached a record 331.05 million metric tonnes (MMT) in 2020-21 (as per 3rd advance estimate), an increase of 10.5 million metric tonnes over FY20. India has the largest livestock population of around 535.78 million, which translates to around 31% of the world population. Milk production in the country is expected to increase to 208 MT in FY21 from 198 MT in FY20, registering a growth of 10% y-o-y. Area under horticulture is projected to rise by 2.7% in FY21. Sugar production in India reached 26.46 MT between October 2019 and May 2020 sugar season according to Indian Sugar Mills Association (ISMA). India is among the 15 leading exporters of agricultural products in the world. Agricultural export from India reached US\$ 38.54 billion in FY19 and US\$ 35.09 billion in FY20.

Agricultural Exports from India (US\$ billion)



According to Inc42, the Indian agricultural sector is predicted to increase to US\$ 24 billion by 2025. The private sector's share in seed production increased from 57.28% in 2017 to 64.46% in FY21. India is the world's second-largest producer of rice, wheat, sugarcane, cotton, groundnuts and fruits & vegetables. It also produced 25% of the world's pulses, as of last decade, until 2019. The organic food segment in India is expected to grow at a CAGR of 10% during 2015–25 and is estimated to reach Rs.75, 000 crore (US\$ 10.73 billion) by 2025 from Rs.2, 700 crore (US\$ 386.32 million) in 2015.

The processed food market in India is expected to grow to Rs.3, 451, 352.5 crore (US\$ 470 billion) by 2025, from Rs.1, 931, 288.7 crore (US\$ 263 billion) in FY20 on the back of government initiatives such as planned infrastructure worth US\$ 1 trillion and Pradhan Mantri Kisan Sampada Yojna. The food processing industry employs about 1.77 million people. The sector allows 100% FDI under the automatic route. The sector has also recorded a sharp increase in investments with cumulative FDI inflow of US\$ 10.94 billion between April 2000-December 2021. India exported key processed food products such as pulses, processed vegetables, processed fruits and juices, groundnuts, guar gum, cereal preparations, milled products, alcoholic beverages and oil meals. The Comprehensive Economic Partnership Agreement (CEPA) between India and the UAE will strengthen India's food processing industry.

1.4 Investment

According to the Department for Promotion of Industry and Internal Trade (DPIIT), the Indian food processing industry has cumulatively attracted Foreign Direct Investment (FDI) equity inflow of about US\$ 10.43 billion between April 2000 and June 2021.

Some major investments and developments in agriculture are as follows:

- From 2017 to 2020, India received ~US\$ 1 billion in agritech funding. With significant interest from the investors, India ranks third in terms of agritech funding and number of agritech start-ups. By 2025, Indian agritech companies are likely to witness investments worth US\$ 30-35 billion.
- In March 2020, Fact, the oldest large-scale fertilizer manufacturer in the country, crossed one million production and sales mark.
- Nestle India will invest Rs.700 crore (US\$ 100.16 million) in construction of its ninth factory in Gujarat.
- In November 2019, Haldiram entered into an agreement for Amazon's global selling program to E-tail its delicacies in the United States.
- In November 2019, Coca-Cola launched 'Rani Float' fruit juices to step out of its trademark fizzy drinks.
- Two diagnostic kits developed by Indian Council of Agricultural Research (ICAR)-Indian Veterinary Research Institute (IVRI) and the Japanese Encephalitis IgM ELISA were launched in October 2019.
- Investment worth Rs.8, 500 crore (US\$ 1.19 billion) have been announced in India for ethanol production.

1.5 Government Initiatives

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

- The Ministry of Agriculture and Farmers Welfare's budget has been enhanced from Rs.1.25 lakh crore (US\$ 16.20 billion) in 2020-21 to Rs.1.32 lakh crore (US\$ 17.28 billion) in 2021-22.
- NABARD will assist the creation of a blended capital fund with a focus on the agricultural start-up ecosystem which will be used to fund agriculture and rural

enterprise startups that are related to the farm product value chain.

- The government is promoting the use of drones in agriculture by providing financial assistance through the 'Sub-Mission on Agriculture Mechanization.'
- A network of 729 Krishi Vigyan Kendras has been established at the district level across the country to ensure that newer technologies such as improved variety seeds of crops, new breeds/ strains of livestock and fish, and improved production and protection technologies reach farmers.
- In October 2021, the Union Minister of Home Affairs and Cooperation launched the 'Dairy Sahakar' scheme in Anand, Gujarat.
- Ministry of Civil Aviation launched the Krishi UDAN 2.0 scheme in October 2021. The scheme proposes assistance and incentive for movement of agri-produce by air transport. The Krishi UDAN 2.0 will be implemented at 53 airports across the country, largely focusing on Northeast and tribal regions, and is expected to benefit farmers, freight forwarders and airlines.
- In October 2021, Agricultural and Processed Food Products Export Development Authority (APEDA) signed a Memorandum of Understanding (MoU) with ICAR-Central Citrus Research Institute (ICAR-CCRI), Nagpur, for boosting exports of citrus and its value-added products.
- In October 2021, the Union Ministry of Agriculture and Farmers Welfare announced that 820, 600 seed mini-kits will be distributed free of cost in 343 identified districts across 15 major producing states under a special programme. This programme is likely to boost production and productivity by speeding up the seed replacement rate and subsequently, help in increasing farmer's income.
- In September 2021, Prime Minister Mr. Narendra Modi launched 35 crop varieties with special traits such as climate resilience and higher nutrient content.
- Prime Minister of India launched the Pradhan Mantri Kisan Samman Nidhi Yojana (PM-Kisan) and transferred Rs.2, 021 crore (US\$ 284.48 million) to bank accounts of more than 10 million beneficiaries on February 24, 2019. As per the Union Budget 2021-22, Rs.65, 000 crore (US\$ 8.9 billion) was allocated to Pradhan Mantri Kisan Samman Nidhi (PM-Kisan).
- The Indian government has initiated Digital Agriculture Mission for 2021-25 for agriculture projects based on new technologies such as artificial intelligence, block chain, remote sensing and GIS technology, drones, robots and others.
- In September 2021, the Union Ministry of Agriculture and Farmers' Welfare signed five MoUs with CISCO, Ninjacart, Jio Platforms Limited, ITC Limited and NCDEX e-Markets Limited. This MoU will have five pilot projects, which will help farmers make decisions on the kind of crops to grow, variety of seeds to use and best practices to adopt to maximise yield.
- With a budget of US\$ 1.46 billion, the 'Production-Linked Incentive Scheme for Food Processing Industry (PLISFPI)' has been approved to develop global food manufacturing champions commensurate with India's

natural resource endowment and to support Indian food brands in international markets.

- As per Union Budget 2021-22, Rs.4, 000 crore (US\$ 551.08 million) was allocated towards implementing Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-PDMC).
- The Ministry of Food Processing has been allocated Rs.1, 308.66 crore (US\$ 180.26 million) in the Union Budget 2021-22.
- Under Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PM FME), an outlay of Rs.10, 000 crore (US\$ 1.34 billion) over a period of five years from FY21 to FY25 has been sanctioned.
- To boost farmer incomes and growth of the agricultural economy, the Indian government released funds in June 2021 for farm mechanisation such as establishment of custom hiring centres, farm machinery bank and high-tech hubs in different states.
- In April 2021, the Government of India approved a PLI scheme for the food processing sector with an incentive outlay of Rs 10, 900 crore (US\$ 1, 484 million) over a period of six years starting from FY22.
- The Government of India came out with Transport and Marketing Assistance (TMA) scheme to provide financial assistance for transport and marketing of agriculture products in order to boost agriculture exports.
- The Agriculture Export Policy, 2018 was approved by the Government of India in December 2018. The new policy aimed to increase India's agricultural export to US\$ 60 billion by 2022 and US\$ 100 billion in the next few years with a stable trade policy regime.
- The Government of India is going to provide Rs.2, 000 crore (US\$ 306.29 million) for computerization of Primary Agricultural Credit Society (PACS) to ensure cooperatives are benefitted through digital technology.

1.6 Achievements in the Sector

- As of October 27, 2021, the total rabi area stood at 0.53 lakh hectares.
- As per first advance estimates released by the Ministry of Agriculture and Farmers Welfare, record foodgrain production of 150.50 million tonnes is likely in the 2021-22 kharif season.
- As per first advance estimates released by the Ministry of Agriculture and Farmers Welfare, production of rice was estimated at 102.36 million tonnes (MT), while production of food grains was estimated at 144.52 MT in the crop year 2020-21.
- In July 2021, the first commercial consignment of Kashmir's Mishri cherry was shipped to Dubai, paving the way to boost horticulture crop exports.
- In June 2021, India exported 24 metric tonnes of groundnuts to Nepal from West Bengal, boosting groundnut exports from Eastern India.
- In FY21, India exported 1.91 lakh tonnes of banana worth Rs.619 crore (US\$ 82.90 million).
- Paddy procurement in Kharif Marketing Season (KMS) 2020-21 until January 10, 2020, reached over 534.44 lakh metric tonnes (LMT), an increase of 26.24% against the last year corresponding purchase of 423.35 LMT.

- In November 2020, the planting of winter crops exceeded by 10% compared with the last year and witnessed 28% increase in area under pulses. The total area acreage under pulses increased to 8.25 million hectares from 6.45 million hectares last year.
- Out of the total 37 mega food parks that were sanctioned, 22 mega food parks are operational, as of January 2021.
- In November 2020, Minister of Consumer Affairs, Food and Public Distribution, Mr. Piyush Goyal announced that the Food Cooperation of India and state agencies are set to procure a record quantity of 742 LMT (lakh metric tonnes) paddy during the ongoing Kharif crop season as against 627 LMT paddy last year.
- The Electronic National Agriculture Market (e-NAM) was launched in April 2016 to create a unified national market for agricultural commodities by networking existing APMCs. It had 16.9 million farmers and 157, 778 traders registered on its platform until February 2021. Over 1, 000 mandis in India are already linked to e-NAM and 22, 000 additional mandis are expected to be linked by 2021-22.
- Sale of tractors in the country stood at 880, 048 units in 2020 with the export of 77, 378 units.
- The principal commodities that posted significant positive growth in exports between FY20 and FY21 were the following:
 - Wheat and Other Cereals: 727% from Rs.3, 708 crore (US\$ 505 million) to Rs.5, 860 crore (US\$ 799 million)
 - Non-Basmati Rice: 132% from Rs.13, 130 crore (US\$ 1, 789) to Rs.30, 277 crore (US\$ 4, 126 million)
 - Soya Meal: 132% from Rs.3, 087 crore (US\$ 421 million) to Rs.7, 224 crore (US\$ 984 million)
 - Raw Cotton: 68% from Rs.6, 771 crore (US\$ 923 million) to Rs.11, 373 crore (US\$ 1, 550 million)
 - Sugar: 39.6% from Rs.12, 226 crore (US\$ 1, 666 million) to Rs.17, 072 crore (US\$ 2, 327 million)
 - Spices: 11.5% from Rs.23, 562 crore (US\$ 3, 211 million) to Rs.26, 257 crore (US\$ 3, 578 million)
- During FY20 (till February 2020), tea export stood at US\$ 709.28 million.
- Coffee export stood at US\$ 742.05 million in FY20.

1.7 India Growth Achievement

India is expected to achieve the ambitious goal of doubling farm income by 2022. The agriculture sector in India is expected to generate better momentum in the next few years due to increased investment in agricultural infrastructure such as irrigation facilities, warehousing and cold storage. Furthermore, the growing use of genetically modified crops will likely improve the yield for Indian farmers. India is expected to be self-sufficient in pulses in the coming few years due to concerted effort of scientists to get early maturing varieties of pulses and the increase in minimum support price.

In the next five years, the central government will aim US\$ 9 billion in investments in the fisheries sector under PM Matsya Sampada Yojana. The government is targeting to raise fish production to 220 lakh tonnes by 2024-25.

Going forward, the adoption of food safety and quality assurance mechanisms such as Total Quality Management (TQM) including ISO 9000, ISO 22000, Hazard Analysis and Critical Control Points (HACCP), Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) by the food processing industry will offer several benefits. The agri export from India is likely to reach the target of US\$ 60 billion by the year 2022.

1.8 Make in India

Make in India is a major national programme of the Government of India designed to facilitate investment, foster innovation, enhance skill development, protect intellectual property and build best in class manufacturing infrastructure in the country. The primary objective of this initiative is to attract investments from across the globe and strengthen India's manufacturing sector. It is being led by the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India. The Make in India programme is very important for the economic growth of India as it aims at utilising the existing Indian talent base, creating additional employment opportunities and empowering secondary and tertiary sector. The programme also aims at improving India's rank on the Ease of Doing Business index by eliminating the unnecessary laws and regulations, making bureaucratic processes easier, making the government more transparent, responsive and accountable.

"I want to tell the people of the whole world: Come, make in India. Come and manufacture in India. Go and sell in any country of the world, but manufacture here. We have skill, talent, discipline and the desire to do something. We want to give the world an opportunity that come make in India," Prime Minister of India, Mr Narendra Modi said while introducing the programme in his maiden Independence Day speech from the ramparts of the Red Fort on August 15, 2014. The initiative was formally introduced on September 25, 2014 by Mr Modi at Vigyan Bhawan, New Delhi, in the presence of business giants from India.

The focus of Make in India programme is on 25 sectors. These include: automobiles, automobile components, aviation, biotechnology, chemicals, construction, defence manufacturing electrical machinery, electronic systems, food processing, IT & BPM, leather, media and entertainment, mining, oil and gas, pharmaceuticals, ports and shipping, railways, renewable energy, roads and highways, space, textile and garments, thermal power, tourism and hospitality and wellness.

The dedicated website for this initiative (www.makeinindia.com) not only showcases the 25 sectors but also puts focus on opportunities, policies and Ease of Doing Business. The Investor Desk is an integral part of this website, which aims at providing all information/data analysis to investors across sectors.

2 Conclusion and Policy Suggestions

The Indian food industry is poised for huge growth, increasing its contribution to world food trade every year

due to its immense potential for value addition, particularly within the food processing industry. Indian food and grocery market is the world's sixth largest, with retail contributing 70% of the sales. The Indian food processing industry accounts for 32% of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth. The total agricultural and allied products exports stood at US\$ 41.25 billion in FY21.

The contributions of agriculture in the Indian economy have been increasing over the years. According to the economic survey, the share of agriculture in gross domestic product (GDP) reached almost 20% for the first time in 17 years, making a sole bright spot in performance during financial year 2020–2021. Modern farms and agriculture operations have changed over the years primarily because of advancements in technology, including sensors, devices, machines, and information technology. Personalized e-commerce stores and market places have brought farming products like fertilizers, seeds, machines and equipment that help farmers grow quality products. Educational portals let farmers know innovative things about farming that increase the contributions of agriculture to the economy,

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Note: Conversion rate used in November 2021, Rs.1 = US\$ 0.01336
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