

1st Draft Document (April)

India's Agriculture and Food Systems

The Economics of Ecosystem and Biodiversity (TEEB): Promoting a Sustainable Agriculture and Food Sector

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India's Agriculture and Food System

With a population of over 1 billion and significant share of that population employed in agriculture and related activities, the size of the agriculture sector in India is bigger than that in most countries in the world. Unlike, the services and manufacturing sector of India, which contribute the most to the national income of the country, the agriculture sector's contribution is very less, not more than 20%, which is significantly less compared to the size of labour force employed in it, that is almost 50% of the total working population. A part of the explanation for this can be found in structural reasons for instance, the service economy oriented Indian economy, but several explanations can also be found in the intertwined problems of the agriculture sector itself. To address some of these concerns, the Government of India is proactively engaged, as can be seen in the commitments made for this sector in annual budget announcements. Thus, there is no dearth of policies and schemes, both new schemes as well as improved versions of old schemes, rolled out from time to time, to benefit this sector.

However, despite this, the agriculture sector continues to remain one of the most vulnerable, both the farming community and the related ecosystems, pointing towards the fact that more work needs to be done in developing holistic solutions to address the multifaceted problems of this sector. Through this report, an attempt is made to undertake in this direction, a background and policy mapping exercise in the agriculture and food sector of India is prepared. The objective of the report is to understand better the multifaceted problem in agri-food sector of India through an ecosystem perspective and thereby identify ways to contribute towards the solution.

India in the Global Food System

India has the second largest population in the world, next only to China and it has largest number of people living in rural areas. As agriculture is the main source of livelihood of people in rural areas of the country, it is not incorrect to infer that changes and vulnerabilities in this sector can have direct or indirect effects on 857 million people classified by the national statistics organization as living in rural areas of India.

Yet, it is not just that humongous domestic population, that this sector sustains. India plays a significant role in the global food system. The underlying resources that keep the sector going are hence under no insignificant pressure. The total geographical area of India is 328 Mha, a mere 0.02 of the total world area. Out of that less than half of the land area is arable. However, this small land area is a major producer of several commodities that sustain not just the domestic population but also a large section of the global population. Figure 1 highlights these trends and the vital importance of India in the global food system. India is the top producer of onions, potatoes, milk, in the world contributing to almost one-fifth of the total world production of these commodities. It contributes to over half of the world production of pulses. Out of all commodities, cereals have a special place because of the absolute weight of this group of crops, stood at 295 million tonnes in 2014, which was significantly higher than the production of all other commodities. India is the third largest producer cereals in the world, after China and United States.

Comparison of Agriculture in India and the World, 2014					
Item	India	Total (World)	Share in Total (%)	Rank	Next to
	<i>Land Area (Million Hectares)</i>				
Geographical Area	329	13,467	0.02	Seventh	Russian Federation, Canada, USA, China, Brazil, Australia
Arable Land	156	1,417	11	Second	USA
	<i>Population (Million)</i>				
Total	1,295	7,266	17.8	Second	China
Rural	857	3,364	25.5	First	-
	<i>Crop Production (Million Tonnes)</i>				
Total Cereals	295	2,819	10.5	Third	China, USA
Wheat	96	729	13.1	Second	China
Rice	157	741	21.2	Second	China
Pulses	20	78	25.8	First	-
Jute	2.07	3.65	56.8	First	-
Cotton (lint)	6.19	26.16	23.7	Second	China
	<i>Fruits and Vegetables (Million Tonnes)</i>				
Vegetables and Melons	127	1,169	10.8	Second	China
Fruits excluding Melons	88	690	12.8	Second	China
Potatoes	46	382	12.1	Second	China
Onion (Dry)	19	89	21.9	Second	China
	<i>Livestock (Million Heads)</i>				
Cattle	187	1,475	12.7	Second	Brazil
Buffaloes	110	194	56.6	First	-
Goats	133	1,011	13.2	Second	China
	<i>Dairy (000' Million Tonnes)</i>				
Milk	1,46,314	8,01,649	18.3	First	-
<i>(Adpated from MOSPI Food and Security Analysis Report, 2019)</i>					

Table 1 India and the World

Regional Contours of the Agri-Food system in India

An understanding of the regional contours of the agriculture landscape of India is important to get valuable insights into the intricacies of this system. Thus, in this section factors like area under different crops, production, the cost of growing crops in different regions and their yields are analysed using data available in the Indian Statistical Yearbook of the Ministry of Statistics and Programme Implementation which is compiled based on data with Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare.

Figure 1 shows that rice, wheat, pulses, coarse cereals stand out among the crops most commonly grown in the arable land of India.

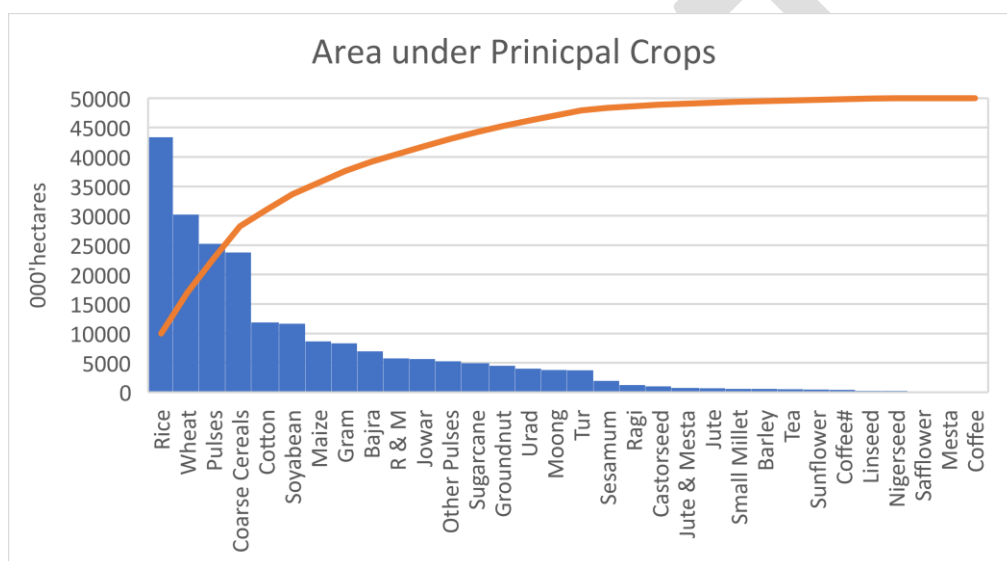


Figure 1 Area under principal crops

A 15 year change in the area under these principal crops, shows that maize in food grains, castor seeds in oil seeds and cotton in cash crops have experienced a significant increase in the amount of production.

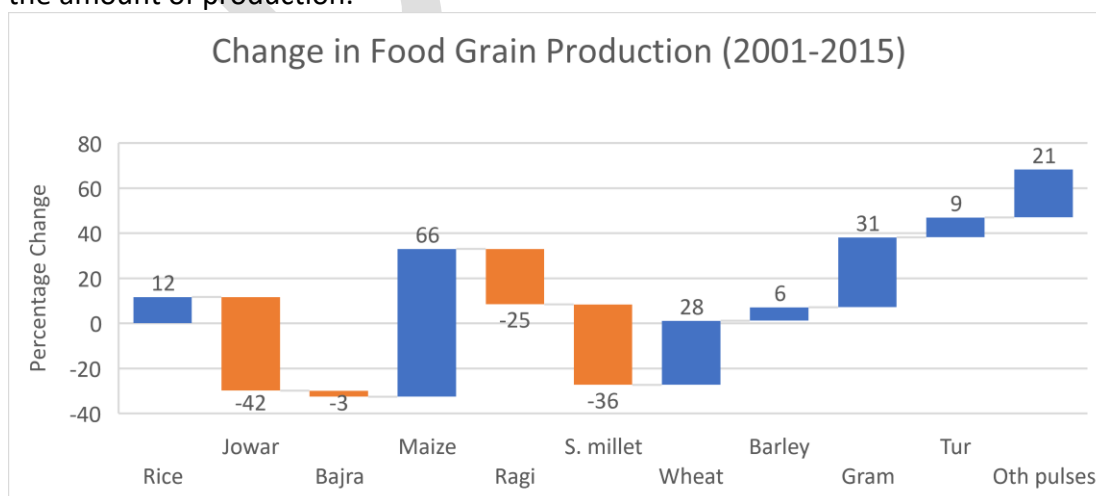
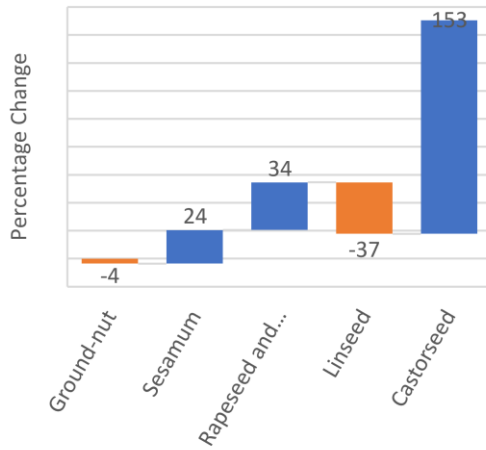


Figure 2 Change in Food Grain Production (2001-2015)

Change in Oil Seeds Production
(2001 to 2015)



Change in Cash Crop Production
(2001-2015)

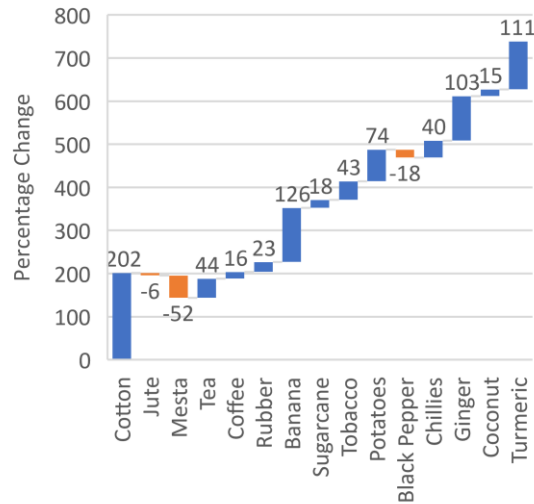


Figure 3 Change in Oil seeds and Cash Crop Production (2001-2015)

Most of the rice production in India is concentrated in the states of West Bengal, Uttar Pradesh (UP), Punjab, and Tamil Nadu, states in ascending order. Together these 4 states account for almost 50% of total production of rice in India.

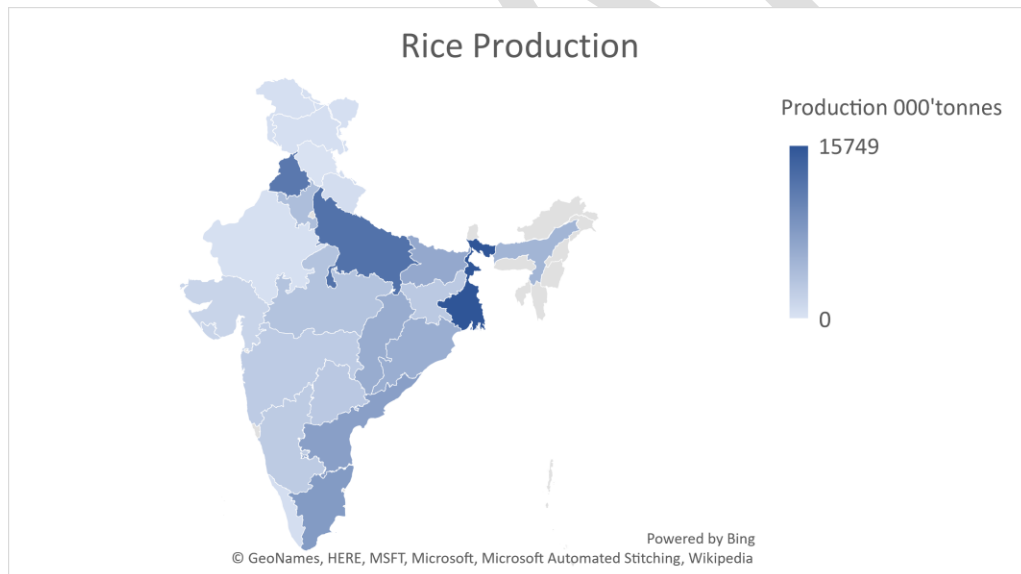


Figure 4 Regional Rice Production

Wheat production is concentrated in the northern states of India. Punjab, UP and Madhya Pradesh and these three states together account for 65% of total wheat production of the country.

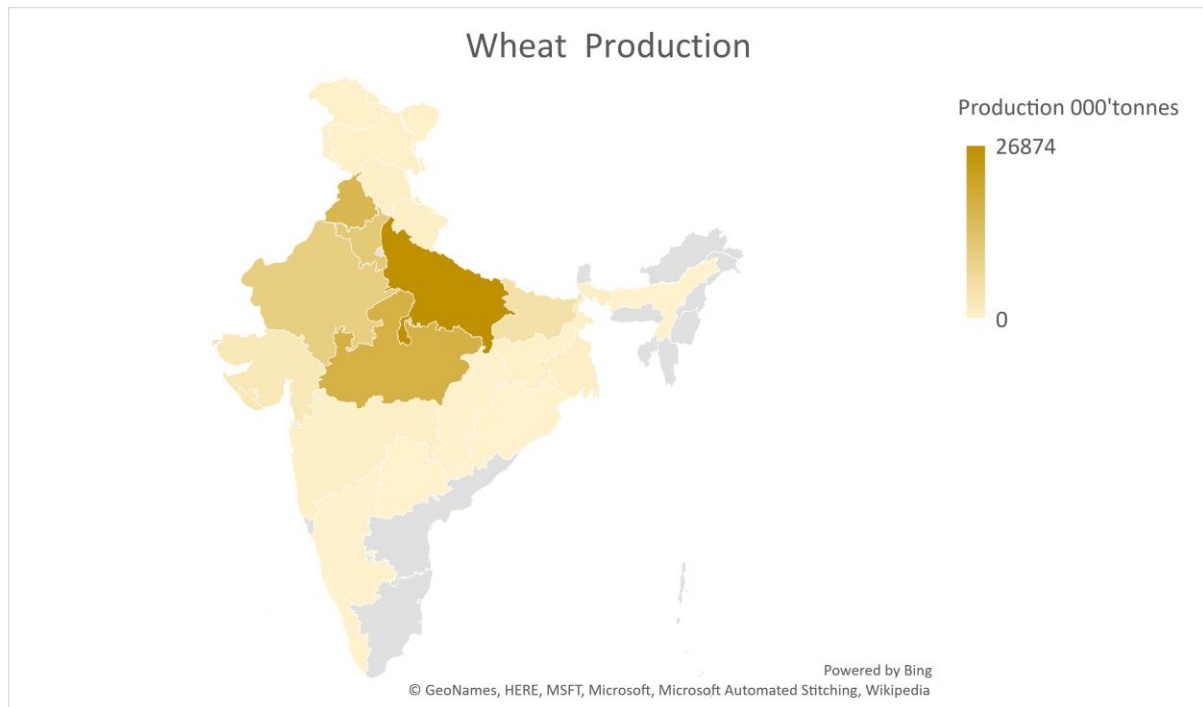


Figure 5 Regional Wheat Production

Madhya Pradesh stands out as the major producer of pulses in India, accounting for 40% of total production of pulses in the country.

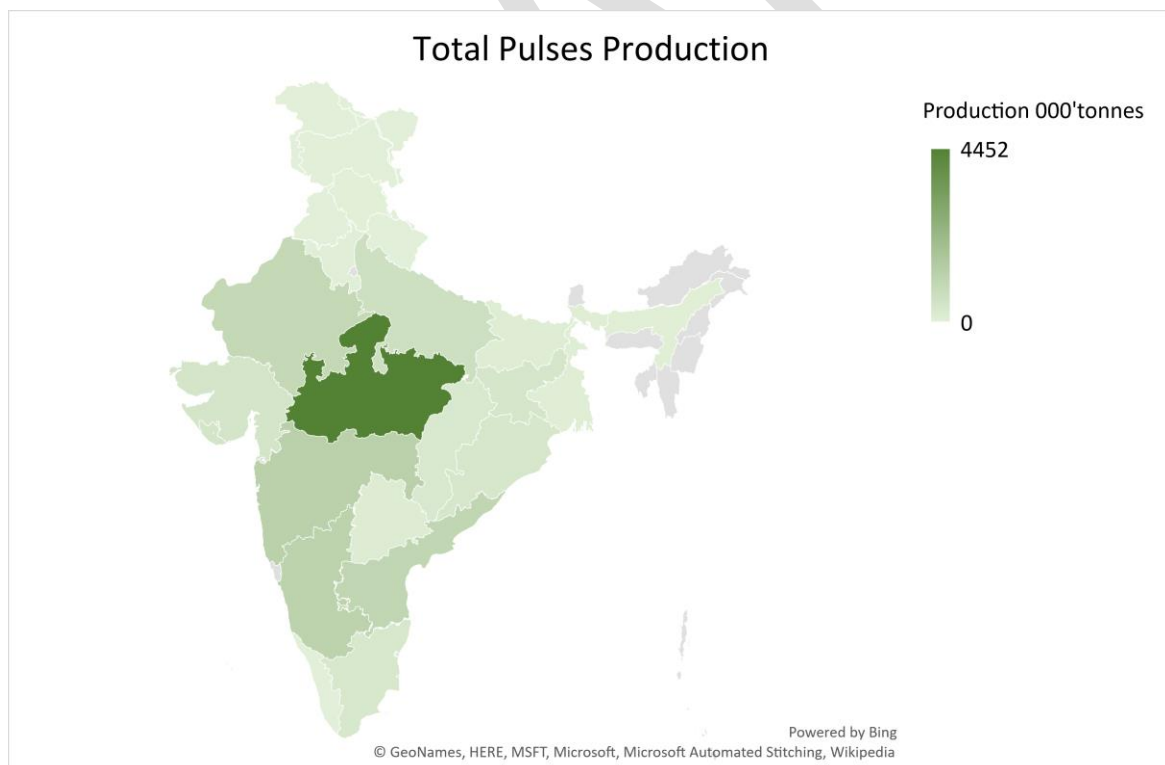


Figure 6 Regional Pulses Production

The western part of India has a major share in total oil seeds production, including Gujarat, Rajasthan and Madhya Pradesh.

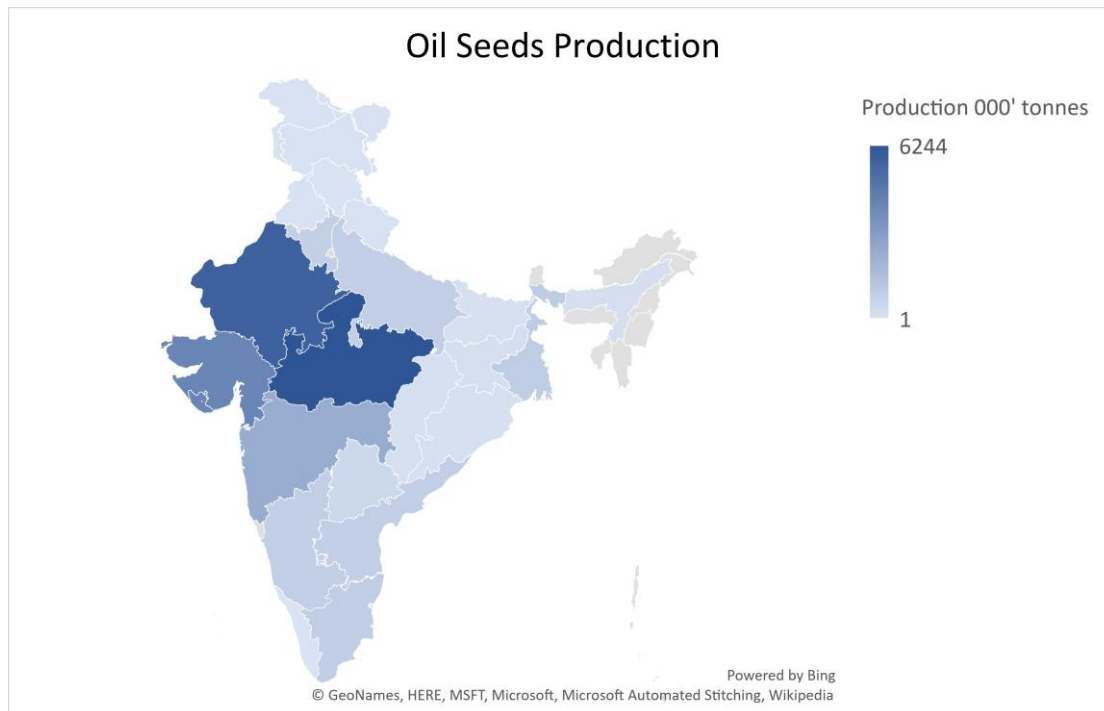


Figure 7 Regional Oil Seeds Production

Production of cash crops is concentrated in the states of Maharashtra and Uttar Pradesh. Sugarcane and cotton are the dominant varieties of cash crops grown in this region.

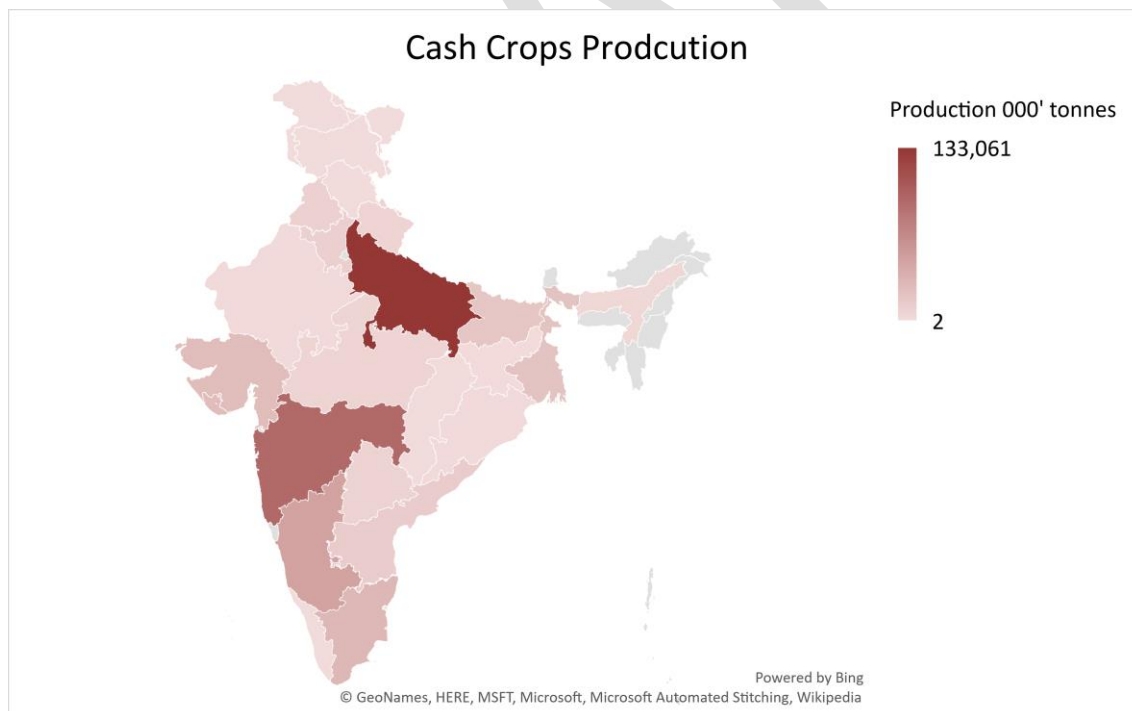


Figure 8 regional Cash Crop Production

- * Cotton- Thousand bales of 170 kgs each.
- ** Jute and Mesta- Thousand Bales of 180 kgs each.

Cost Estimate of principal crops In five states shows that there is no direct relation between cost of cultivation and area under crop. One would assume that there would be an inverse relationship between cost of cultivation and the area under that crop in the region. However, this is not evident in the case of India. Although West Bengal is the top producer of rice, the cost of cultivation in this state is not the lowest in comparison to other four states¹. This indicates there are other factors that play a crucial role in determining the selection of a region for growing a particular crop, like proximity of region to major consumer base that consumes that crop.

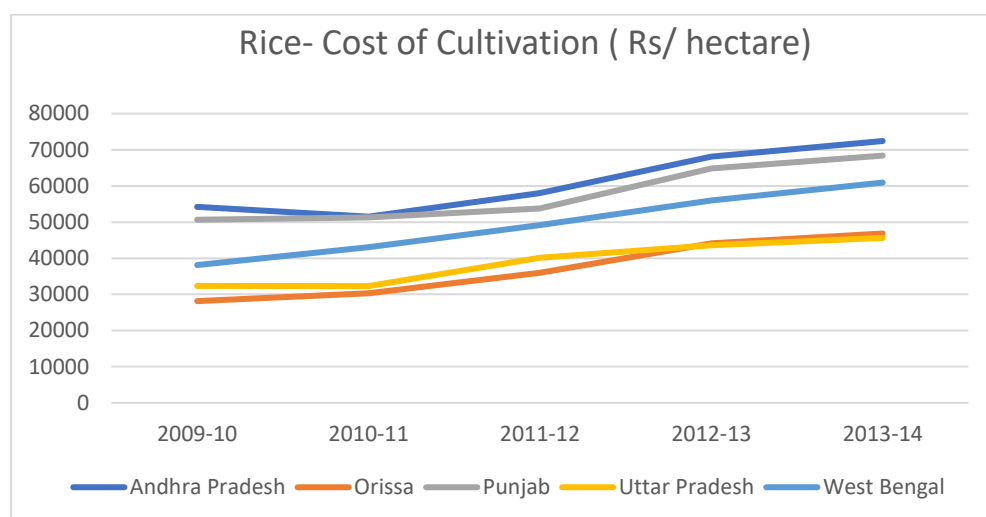


Figure 9 Rice - Cost of Production in Top 5 states

In the case of wheat, the production is highest in Punjab, UP and Madhya Pradesh. While the cost of cultivation is low in Madhya Pradesh, there is significant variation in the cost between the cost of cultivation of Punjab and UP. Haryana and UP have high cost of cultivation compared to other states.

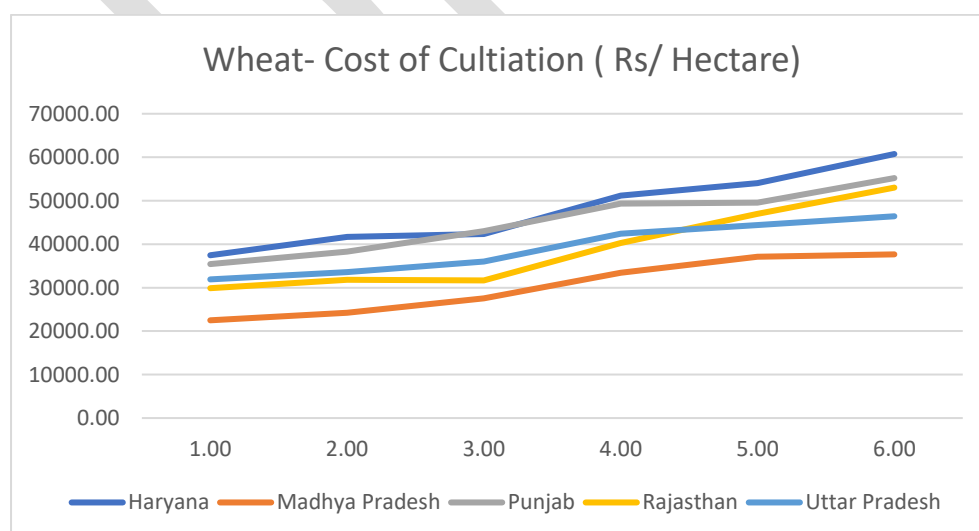
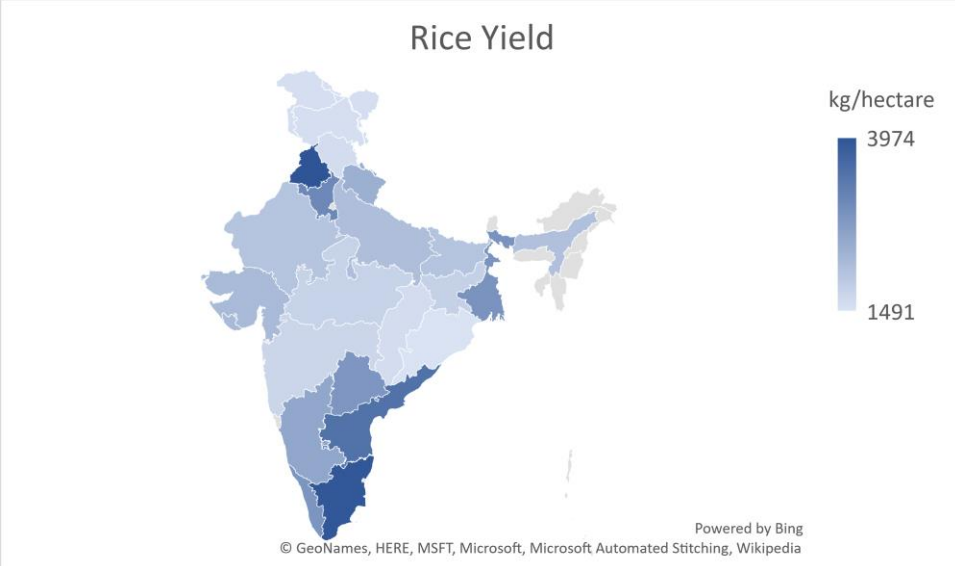


Figure 10 Wheat - Cost of Production in Top 5 states

¹ Cost of Cultivation here means the C2 estimate of MOSPI. 2. Cost C2 includes all actual expenses in cash & kind incurred in production by owner, interest on value of owned fixed capital assets (excluding land), rental value of owned land (net of land revenue), rent paid for leased-in land and imputed value of family labour.



Punjab- 3974 kg/ hectare
Tamil nadu: 3918 kg/ hectare

State-Wise Fourth Advance Estimates of Yield Of Commercial Crops During 2015-16

Figure 11 Rice Regional Yield Of Crops During 2015-16

There is regional variation in the yields of crops. Even though the production of crops is highest in West Bengal, the yield of rice is highest in Tamil Nadu and Punjab. In both these states, the yield of rice is over 3000 kg/ hectare. The yield in West Bengal is 2883 kg/hectare. This shows that it is not necessarily the case that production will be concentrated in states with the highest yield.

Similaryl, wheat yield is the highest in Punjab and Haryana around 4500 kg/ hectare in both states. Even though the yield is highest here, most of the production in the country takes place in the two states of Madhya Pradesh and Uttar Pradesh, probably for the reason that these two states are larges in arable land area compared to the smaller states of Punjab and Haryana.

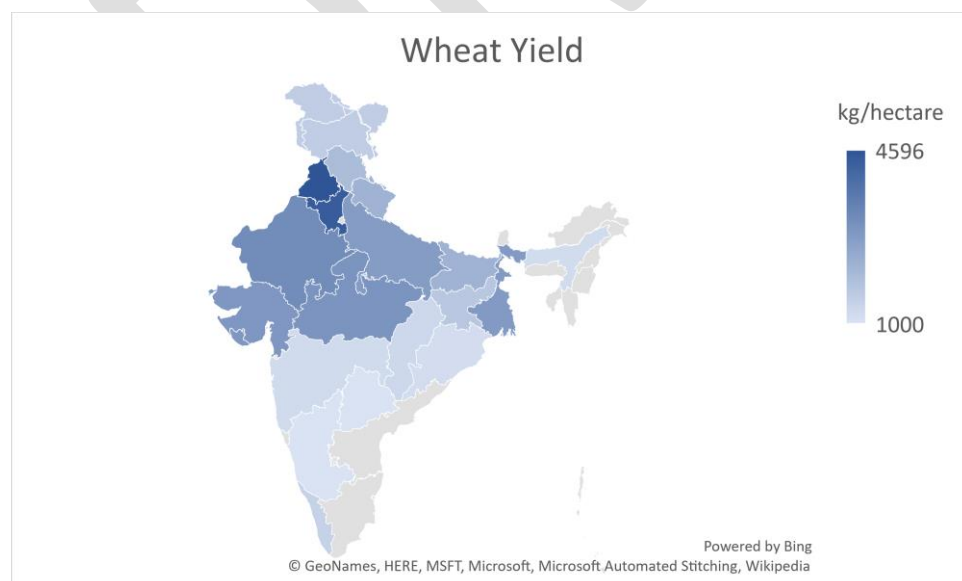


Figure 12 Wheat Regional Yield Of Crops During 2015-16

Balancing yields and Sustainable Development Goals

A yield only approach to improving productivity could mean adverse effects for ecosystem services which could adversely affect meeting other SDG targets.

The yield rates have not been a steady increasing trend in the case of rice. Although the yield rate of Rice is highest in Punjab as can be seen in the extreme left graph. The middle graph shows there was dip in yield in the 3rd year, falling from 4000 to 3750 kg/hectare. Across the 5 year period considered, from 2009 to 2014, Punjab witnessed a decrease in yield rates by 1%.

In the case of wheat, all the five states experiences increase in yields. With yield rate increasing significantly in Madhya Pradesh by 20% and in Punjab by 17%. It remains to be examined whether the significant increases in wheat yields rates were brought about due to sustainable agricultural practices.

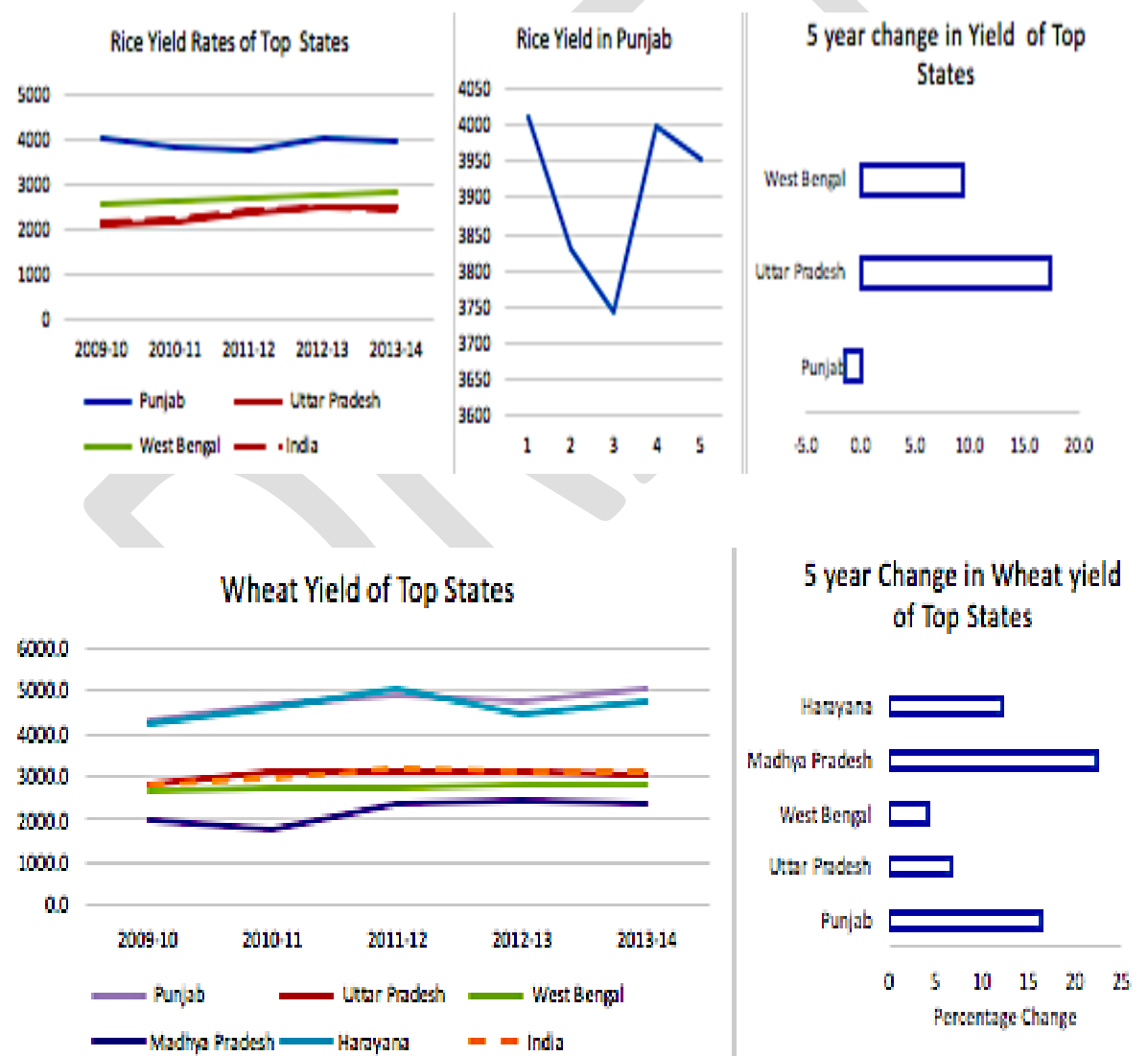


Figure 13 Yields over time for select states

NITI Aayog, the central policy think tank of the country, in 2018 set a policy target, which was released as a part of the SDG Baseline Report, a domestic targets in synch with the international SDG target. The target states that with respect to SDG Global Target 2.4, India will aim to double its agricultural productivity. In this context the national target of Rice, wheat and coarse cereals produced annually per unit area (kg/ hectare) has been fixed at 5018.44.

Table 1 shows that if productivity improves at the current rate, it is unlikely the national target will be met. For the productivity to increase significantly, almost double in the next five years, drastic measure would have to be taken, which can be from a ecosystem and biodiversity perspective. Thus, a productivity centered approach to agriculture is questionable. It is important to consider the adverse effects this could have on the entire ecosystem.

	All India- Rice	All India- Wheat
2010-11	2130	2839
2011-12	2239	2989
2012-13	2393	3177
2013-14	2461	3117
2015-16	2416	3145
2020	2390	2750
2025	2451	2807
2030	2514	2865
CAGR (2010 to 2015)	2.6%	2.1%

Values for 2025 and 2030 are estimated based on 5 year CAGR

Table 2 Yield Rate of Two Major Crops (kg/ hectare)

Agriculture Exports

Among most traded agriculture export items of India are rice (basmati and non-basmati) , fruits, groundnut and pulses. This is true for trade in both quantify and price. Although Wheat is traded but in terms of both price and quantity, it's weight is relatively less when compared to other commodities.

No study has been conducted to assess the long term impact of exports on the agricultural and horticultural sector, as per the Department of Commerce. However, it is believed that exports not only provide better market opportunities to the growers but also generally help in increasing their income².

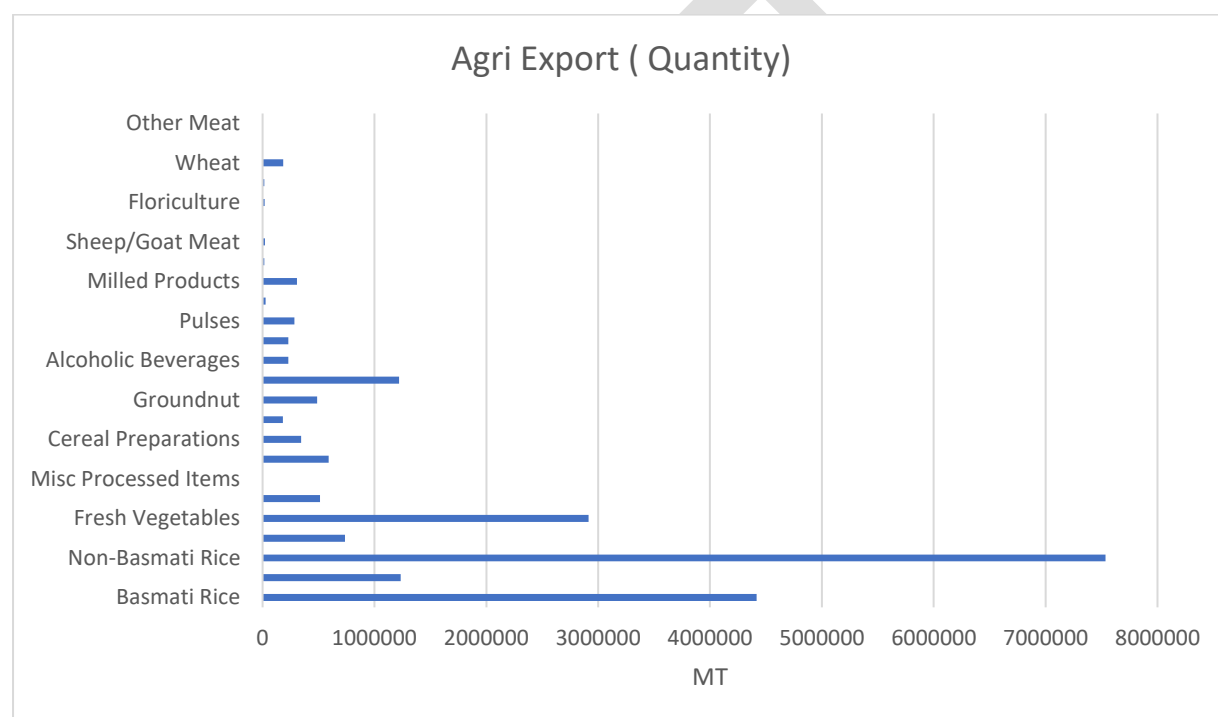


Figure 14 Agri Export - Quantity

<http://agriexchange.apeda.gov.in> (Data for 2018-19)

² <https://pib.gov.in/newsite/PrintRelease.aspx?relid=191170>

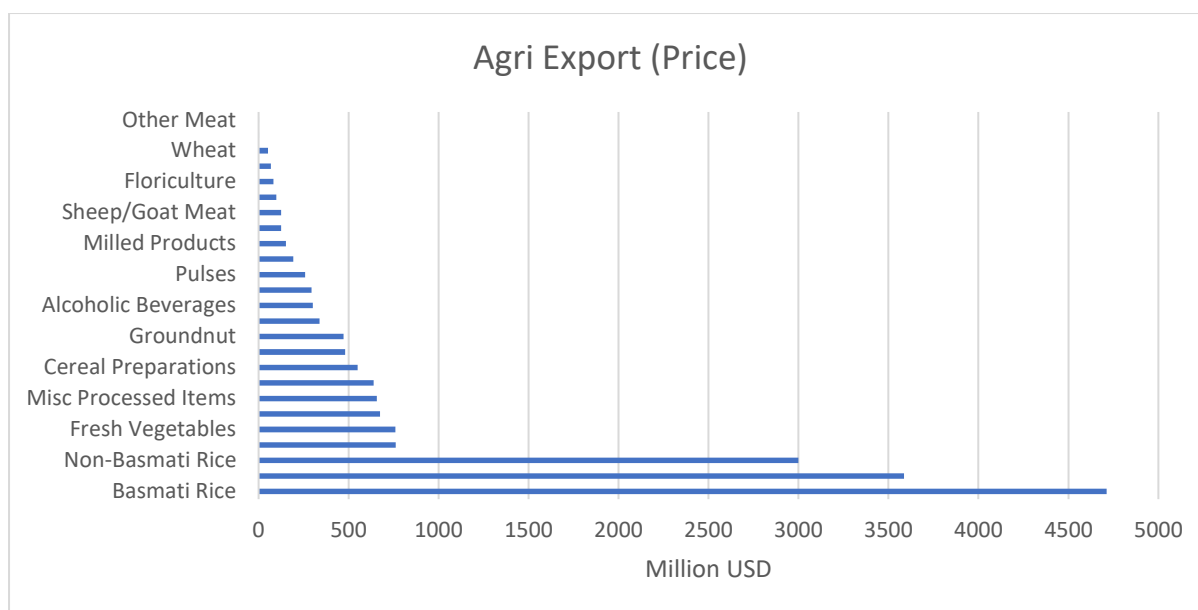


Figure 15 Agri Export- Price

Source : <http://agriexchange.apeda.gov.in> (Data for 2018-19)

To promote the agricultural exports, the Government has introduced a comprehensive Agriculture Export Policy³ with the following vision of harnessing export potential of Indian agriculture, through suitable policy instruments, to make India a global power in agriculture, and raise farmers' income.

The objectives of the Agriculture Export policy are:

- i. To diversify our export basket, destinations and boost high value and value added agricultural exports, including focus on perishables.
- ii. To promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports.
- iii. To provide an institutional mechanism for pursuing market access, tackling barriers and dealing with sanitary and phytosanitary issues.
- iv. To strive to double India's share in world agri exports by integrating with global value chains.
- v. Enable farmers to get benefit of export opportunities in overseas market.

³https://commerce.gov.in/writereaddata/uploadedfile/MOC_636802088572767848_AGR_EXPORT_POLICY.pdf

Tracking budgetary shifts to map policy priorities

The network of India's agriculture and food system is difficult to fathom simply, as it involves a network of institutions and policies interwoven with each other in more than one way. To begin to understand the working requires removing the layers of this interconnectedness, one by one. The objective of this section is to identify the broad policy direction of agriculture sector by undertaking a step by step policy analysis of relevant ministries of Government of India. To do this, as a research methodology, a case by case analysis of different ministries was undertaken. A list of total ministries/ departments of Government of India was prepared. ((The complete list can be found in the annexes). Out of the total 100 Ministries/ departments of the Government of India, a list of 20 ministries relevant to the scope of work of EUPI funded, TEEB Agri- Food Project was prepared. (The complete list can be found in the annexes). These 20 ministries (including departments) were loosely identified to be within the scope of work of TEEB agrifood Project. The key schemes of these ministries were studied along with their budgets to understand and identify key policy priorities and based on that get a clear idea about the value addition of the TEEB agrifood project in strengthening ongoing work of these ministries.

Environment, Forest and Climate Change

The key ministry that manages the above area is Ministry of Environment, Forest and Climate Change. Among the major schemes, with MoEFCC, Integrated Development of Wildlife habitat received the largest share in the total budget over three years, standing at slightly over 500 Rs INR Crore. However, in terms of the share in increase between 2018-19 and 2020-21, National Green India Mission witnessed the maximum increase among all schemes, an increase of 76 INR Crore.

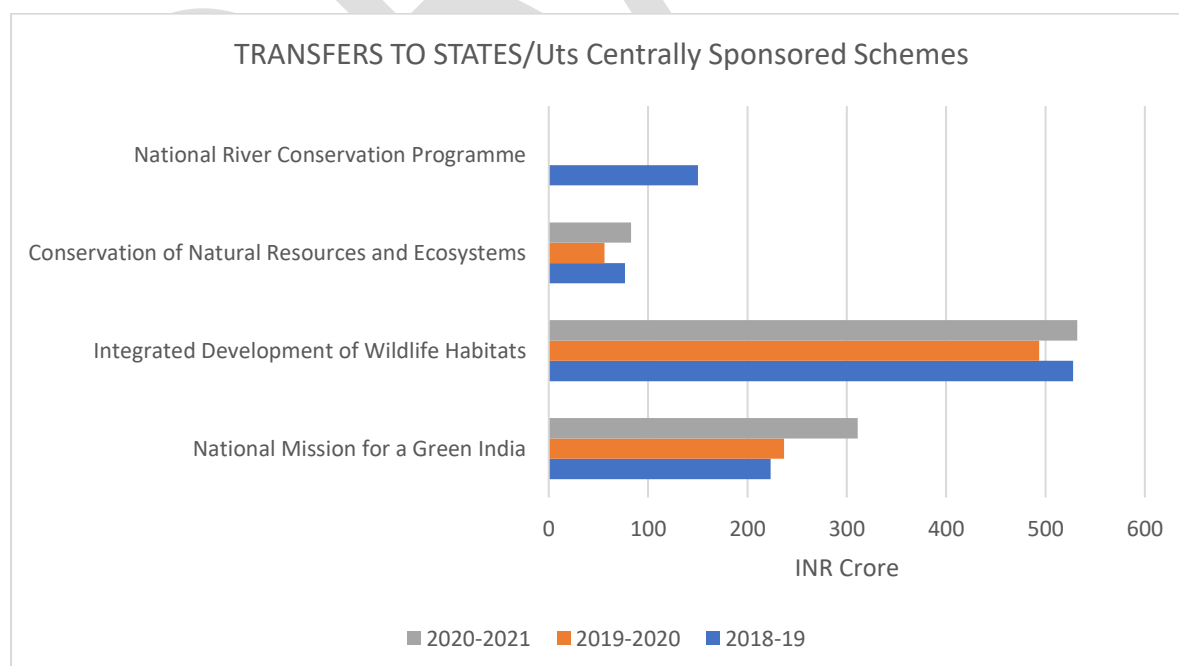


Figure 16 Key Schemes of Ministry of Environment Forest and Climate Change

Source: Analysis based on data of Ministry of Finance, Government of India

Control for pollution received a substantial boost in budgetary allocation in the backdrop of the crop residue burning problem in the region of Delhi- NCR.

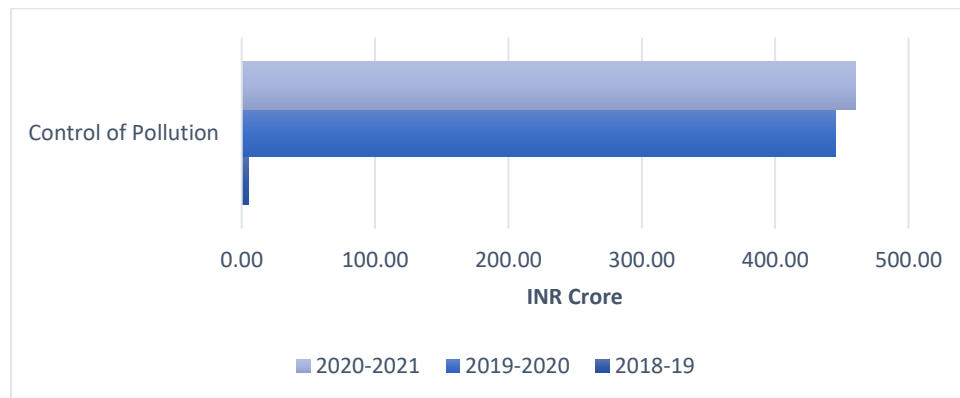


Figure 17 Share of Pollution in MoEFCC Budget

Source: Analysis based on data of Ministry of Finance, Government of India

There was significant improvement in allocation for Environmental Awareness, Policy, Planning and Outcome Evaluation. The gain in the sub head on Environmental Education, Awareness and Training being the maximum.

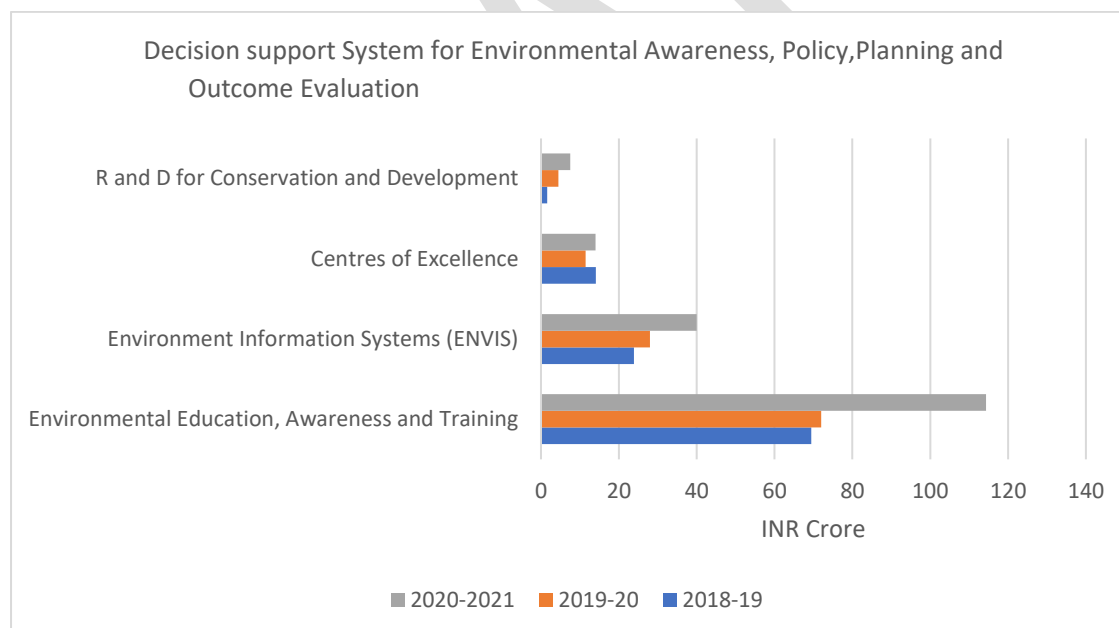


Figure 18 Budget allocation for Decision Support- MoEFCC

Source: Analysis based on data of Ministry of Finance, Government of India

The National Adaptation fund witnessed an almost 30% decline in allocated expenditure as compared to 2018. It fell from Rs 109.78 INR crore to Rs. 40.00 INR Crore between 2018-19 to 2019-20 and increasing slightly thereafter. Highlighting the adaptation component in the TEEB agrifood could chip in for this decrease in funding.

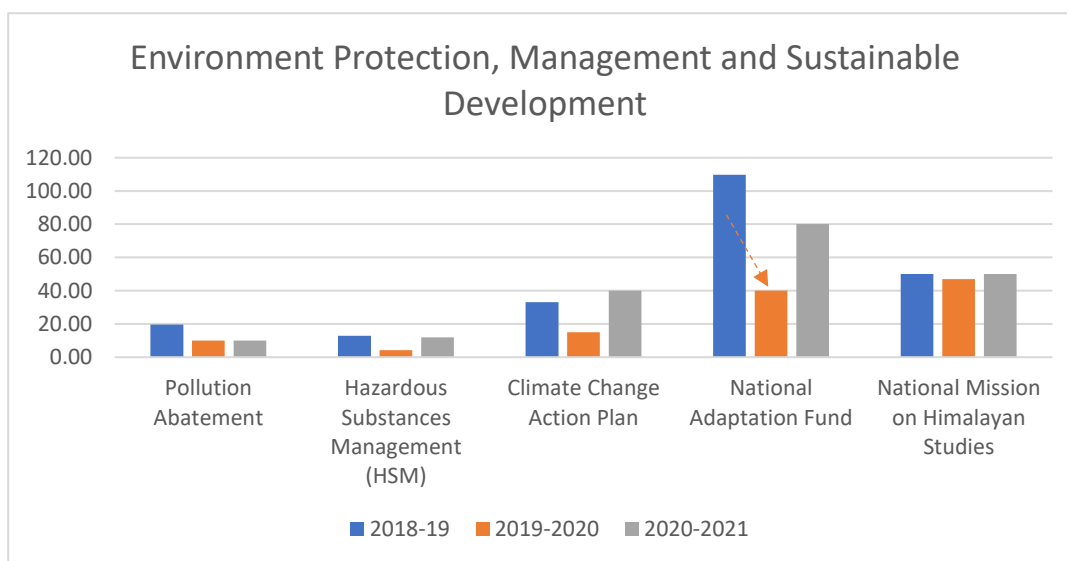


Figure 19 Budget Support for Environment Protection and Management- MoEFCC

Source: Analysis based on data of Ministry of Finance, Government of India

Among the autonomous institutes under MoEFCC, weight of ICFRE was the highest, as can be seen from the budgetary allocation. Therefore, involvement of ICFRE in TEEB Agrifood will be beneficial.

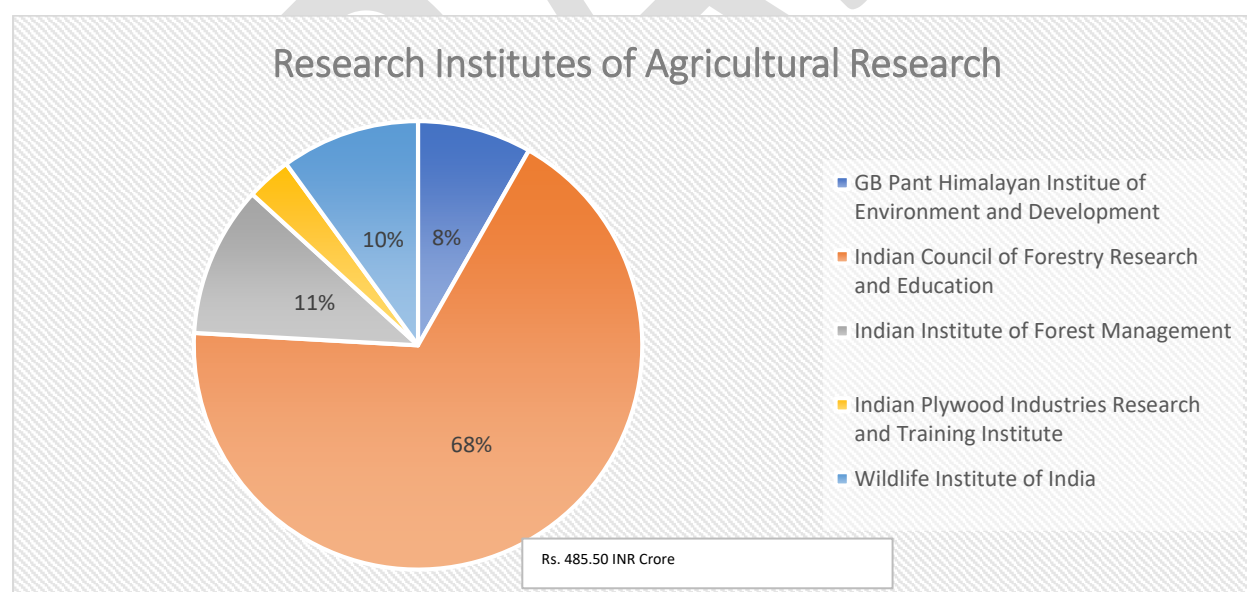


Figure 20 Research institutes of Agriculture research

Source: Analysis based on data of Ministry of Finance, Government of India

Agriculture and Farmer's Welfare

Ministry of Agriculture and Farmer's Welfare is the ministry that administers this area. PM Kisan is a priority scheme in the agriculture sector accounting for 56% of the total budget allocation, as can be seen in the pie chart below.

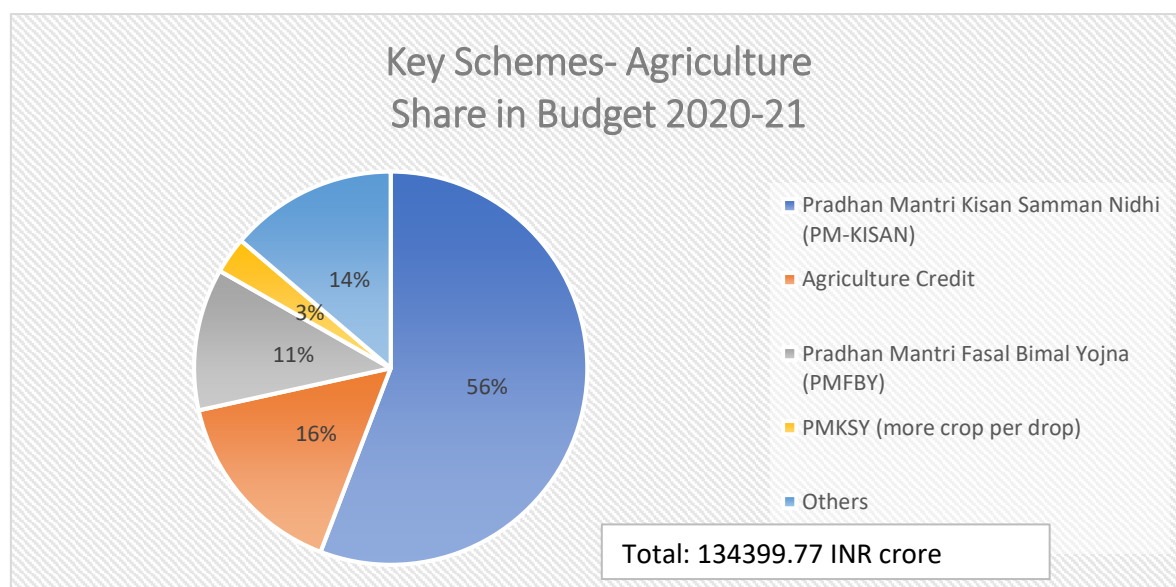


Figure 21 Key Schemes of Agriculture

Source: Analysis based on data of Ministry of Finance, Government of India

Three schemes stand out when we consider the increase in budget allocation between 2018-19 and 2020-21, PM Kisan received an increase of almost 5000 INR crore. Although in terms of weight, the National Project on Organic Farming (NPOF) is relatively small scheme when compared to PM KISAN, however it is worthwhile to note that there was a significant jump in allocation towards this scheme, as can be seen below.

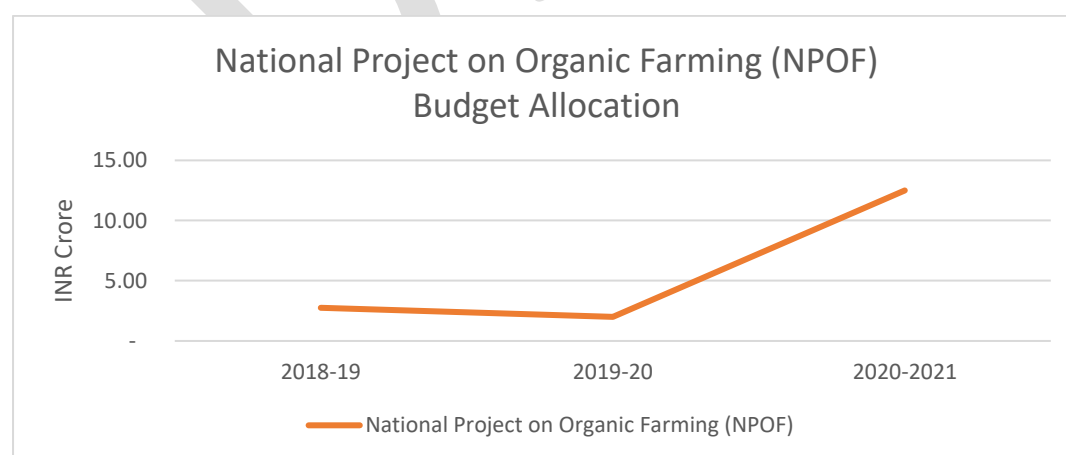


Figure 22 Increase in Share of Organic Farming

Source: Analysis based on data of Ministry of Finance, Government of India

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The PMKSY(Per Drop More Crop - PDMC) has a relatively small component in the budget of the Ministry of Agriculture but in the following sections, the importance of the scheme to Government of India, comes to light. The scheme has an inter-ministerial implementation plan. Department of Agriculture, Cooperation & Farmers Welfare manages the PDMC. This essentially involves, precision irrigation systems, efficient water conveyance & application, micro level storage structures, topping up of input cost beyond Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) permissible limits, secondary storage, water lifting devices, extension activities, coordination & management etc.

There are three other components of the PMKSY 1) Accelerated Irrigation Benefit Programme(AIBP) implemented by Ministry of Water Resources, RD & GR. To focus on faster completion of ongoing Major and Medium Irrigation including National Projects. 2) PMKSY (Har Khet ko Pani) implemented by Ministry of Water Resources, RD & GR. Ridge area treatment, drainage line treatment, soil and moisture conservation, rainwater harvesting and other watershed interventions. 3) PMKSY (Watershed) implemented by Department of Land Resources. Details of these sub-components are discussed in the following sections.

Crop sciences receives the maximum priority among all areas of research. The increase in funding between 2018-19 and 2020-21, hence was maximum in this field. That was followed by increase in budget for animal science, horticulture and agriculture extension.

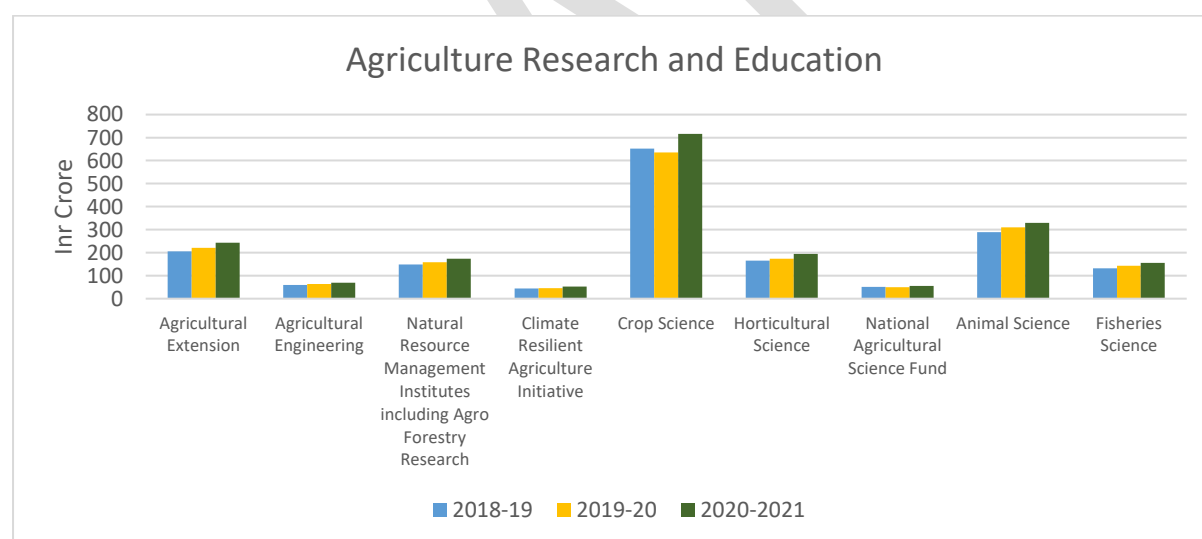


Figure 23 Agriculture and Education

Source: Analysis based on data of Ministry of Finance, Government of India

Health

Out of the total expenditure allotted for centrally sponsored schemes (transferred to states) in the area of health, almost 70% goes for the rural health scheme. As agriculture is the dominate source of livelihood for the rural sector, this scheme directly links to the health of the farmer and hence connects to the outputs and outcomes of TEEB Agri-food. Ministry of Health administers this sector.

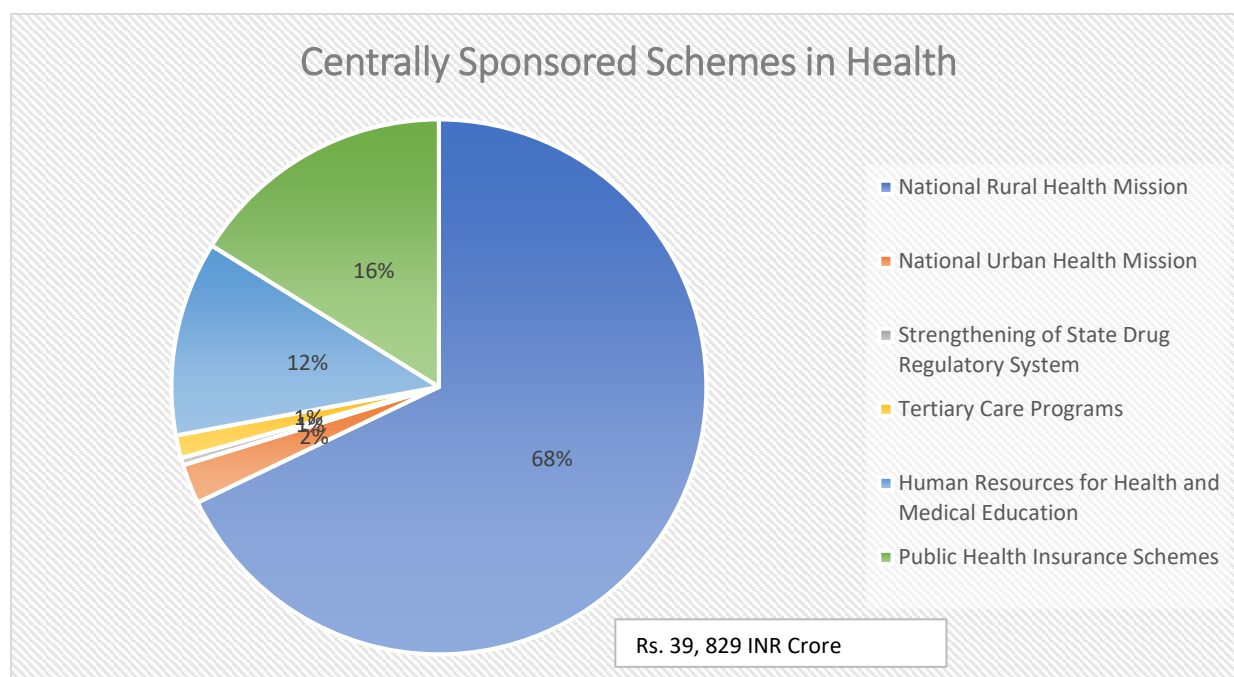


Figure 24 Key Schemes in Health

Source: Analysis based on data of Ministry of Finance, Government of India

Water

In this sector, Ministry of Jal Shakti has the sole role in administration. Three schemes stand out among all the schemes in the water sector, as together they accounted for almost 75% of the entire budget for this sector. Out of those schemes, PMKSY is a priority scheme.

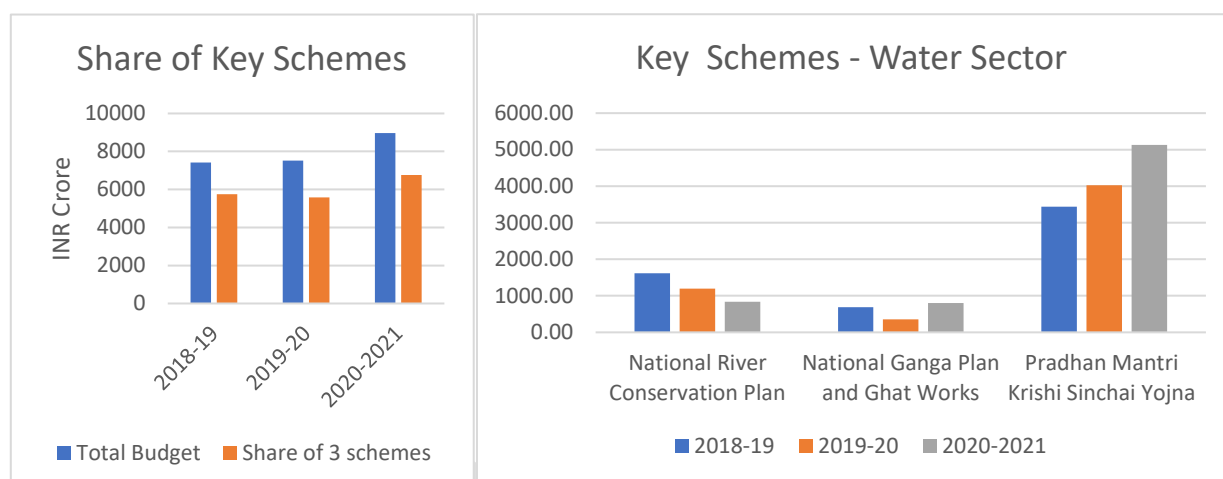


Figure 25 Key Schemes of Water

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has been operationalised from 1st July, 2015 with the objective of enhancing irrigation coverage and improving the delivery system at farm level. The programme aims at end-to-end solutions in irrigation supply chain, viz. water sources, distribution network and farm level applications. All the States and Union Territories are covered under the programme. The scheme envisages decentralized state level planning and projectised execution, allowing the states to draw their irrigation development plans based on district/blocks plans with a horizon of 5 to 7 years. The details about the 3 other sub component of the PMKSY were discussed in the first section on Agriculture.

A break down of PMKSY component under the Ministry of Jal Shakti, shows the importance given to irrigation through the scheme Har Khet ko Pani loosely translated as 'water to every field'. Har Khet Ko Pani (HKKP) supports creation of new water sources through minor irrigation (both surface and ground water); repair, restoration & renovation of traditional water bodies; command area development; strengthening and creation of distribution network from sources to the farm etc.

It is important to note that a new and a new scheme gained importance last year. Atal bhujaal yojana, gives emphasis to ground water. Atal Bhujaal has been designed with the principal objective of strengthening the institutional framework for participatory groundwater management and bringing about behavioural changes at the community level for sustainable groundwater resource management in seven States, viz. Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. Implementation of the scheme is expected to benefit nearly 8350 Gram Panchayats in 78 districts in these States. The scheme will promote panchayat led ground water management and behavioural change with primary focus on demand side management

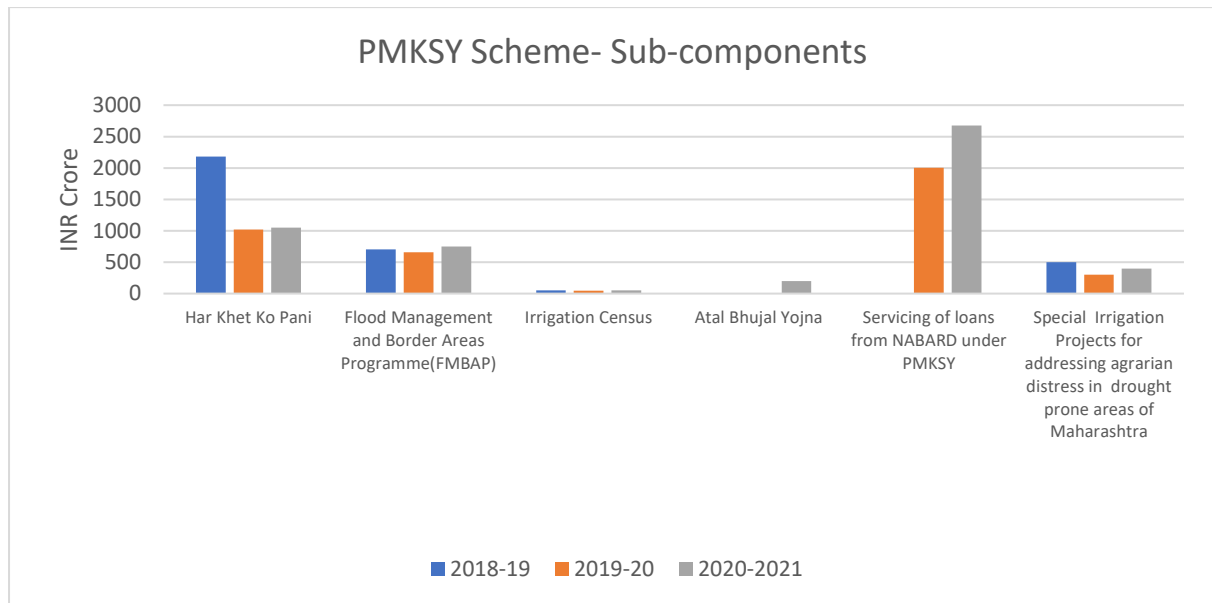


Figure 26 PMKSY Scheme- Sub-components- under Ministry of Jal Shakti

Figure 27 PMKSY Scheme- Sub-components- under Ministry of Jal Shakti

Rural Development and Land

Ministry of Rural Development looks after rural development in a holistic manner. Livelihood and housing together account for almost 75% of total budget for rural development.

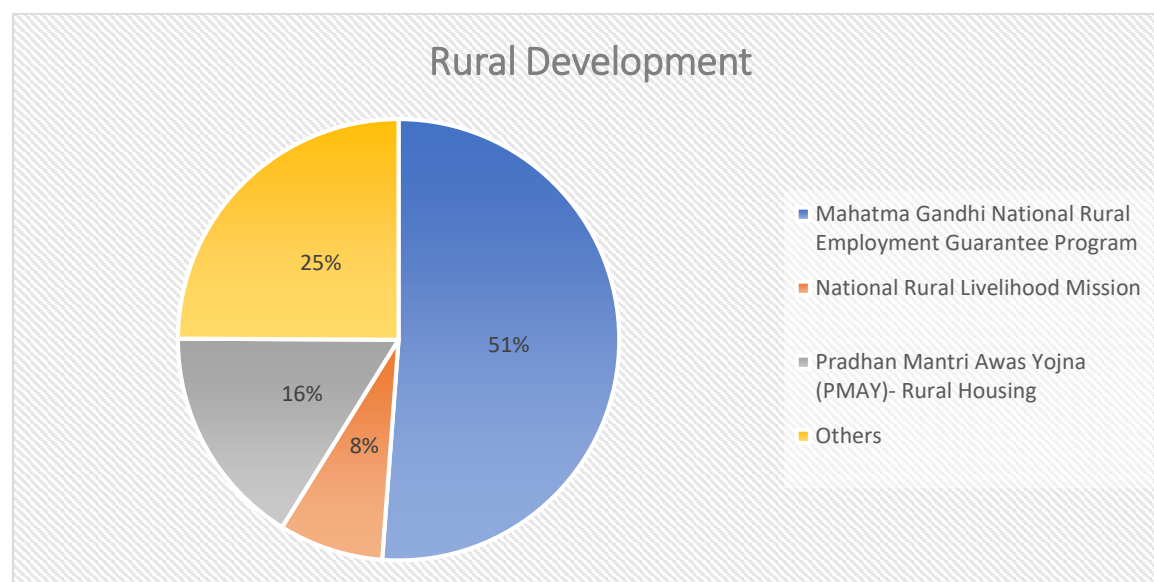


Figure 28 Key Schemes of Rural Development

Under the Ministry of Rural Development falls the Department of Land Resources, which is the major organization dealing with matters related to the land. The Integrated Watershed Management Programme (IWMP) is one of the Flagship programme of under implementation by the Department of Land Resources. The main aims of IWMP are harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water; prevention of soil run-off; rain water harvesting and recharging of the ground water table; increasing the productivity of crops; introduction of multi-cropping and diverse agro-based activities; promoting sustainable livelihoods and increasing the household incomes. The major activities taken up under IWMP inter-alia include ridge area treatment, drainage line treatment, soil and moisture conservation, rain water harvesting, nursery raising, afforestation, horticulture, pasture development, livelihoods for asset less persons.

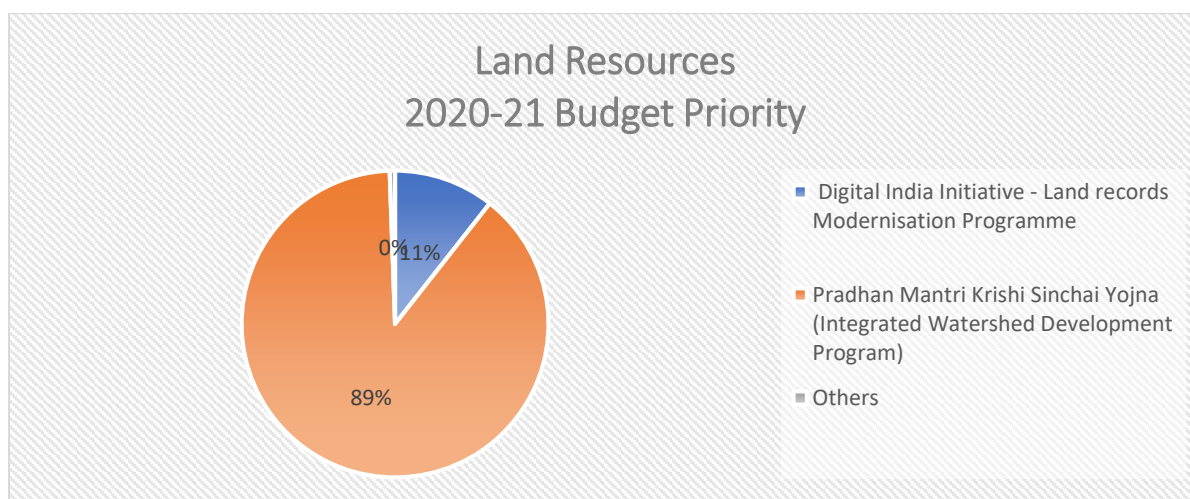


Figure 29 Key Schemes of Land sector

Micro, Small and Medium Enterprises

Agriculture is intrinsically linked to Micro, Small and Medium Enterprises for extension services in different parts of the value chain. Traditional industries like Khadi and Coir industries has received a fair priority in the budget for small and medium enterprises (Khadi is handspun and handwoven cloth). Prime Minister's Employment Generation Programme (PMEGP) is a credit linked subsidy programme administered by the Ministry of Micro, Small and Medium Enterprises, Government of India. Khadi & Village Industries Commission (KVIC), is the nodal agency at national level for implementation of the scheme.

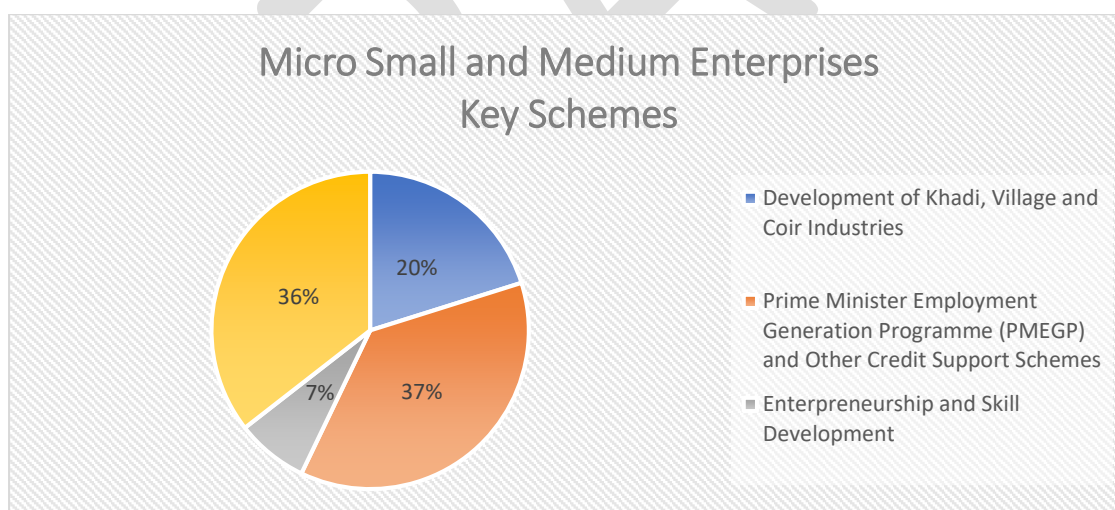


Figure 30 Key MSME schemes relevant for Food

The areas relevant to agri-food system, which showed the maximum positive percentage change in allocation of funds between 2018-19 and 2020-21, were entrepreneurship and research.

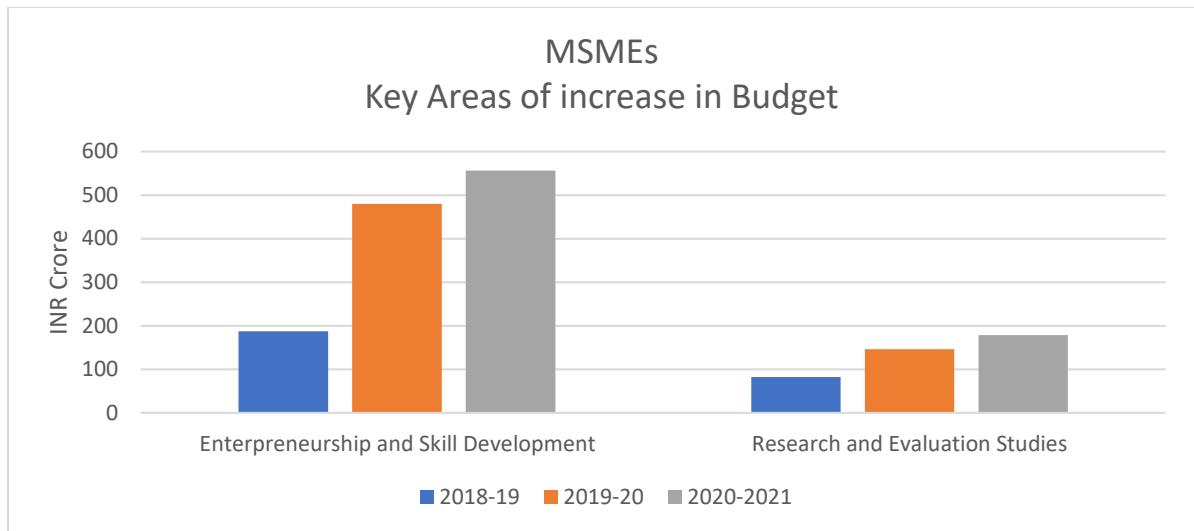


Figure 31 Key areas of increase in budget of MSMEs

Conclusion and Way Forward

- India plays a significant role in both the domestic and the global food system
- There is significant variation in area under crops, production and yield rates in different parts of India, a factor that becomes extremely important in selecting the pilot studies for the project.
- Area under these principal crops, maize in food grains, castor seeds in oil seeds and cotton in cash crops have experienced a significant increase, showing greater crop diversification.
- There is no direct straightforward relation between cost of cultivation and area under crops, indicating that there are other factors besides cost of cultivation that play a crucial role in determining the selection of a region for growing a particular crop.
- The National Adaptation fund witnessed an almost 30% decline in allocated expenditure as compared to 2018. This highlights that there is scope for emphasizing on the adaptation component in the TEEB agrifood to compensate for this decrease in funding.
- Almost 70% of expenditure of health, goes for the rural health scheme. As agriculture is the dominate source of livelihood for the rural sector, the scheme directly links to the health of the farmers and hence connects to the outputs and outcomes of TEEB Agri-food.
- Among the autonomous institutes under MoEFCC, weight of ICFRE was the highest, as can be seen from the budgetary allocation. Among institutes of MoAFW, ICAR has the greatest weight, Therefore, involvement of these institutes in TEEB Agrifood will be beneficial.
- Agriculture Export policy of the Department of Commerce can be linked to TEEB Agrifood project, as an opportunity area for impact.
- NITI Aayog central policy think tank set a yield only focussed domestic target for SDG. This provides an opportunity to create awareness about the work of TEEB.
- PM kisan is a key policy in the agriculture sector but it's implementation is inter-ministerial with administration spread between Ministry of Water, Ministry of Agriculture and Ministry of Rural Development. Involvement all these ministries in TEEB Agrifood Project therefore will be crucial.

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ANNEX 1: List of 100 Ministries/ Departments

	Name of Ministry/ Department
1	Ministry of Agriculture & Farmers Welfare
2	Department of Agricultural Research and Education
3	Department of Agriculture, Cooperation & Farmers Welfare
4	Ministry of Animal Husbandry, Dairying and Fisheries
5	Department of Fisheries
6	Department of Atomic Energy
7	Ministry of Ayush
8	Ministry of Chemicals and Fertilizers
9	Department of Chemicals and Petrochemicals
10	Department of Fertilizers
11	Department of Pharmaceuticals
12	Ministry of Civil Aviation
13	Ministry of Coal
14	Ministry of Commerce & Industry
15	Department of Commerce
16	Department of Department for Promotion of Industry and Internal Trade
17	Ministry of Communications
18	Department of Posts
19	Department of Telecommunications
20	Ministry of Consumer Affairs, Food and Public Distribution
21	Department of Consumer Affairs
22	Department of Food and Public Distribution
23	Ministry of Corporate Affairs
24	Ministry of Culture
25	Ministry of Defence
26	Department of Defence
27	Department of Defence Finance
28	Department of Defence Production
29	Department of Defence Research & Development
30	Department of Ex-Servicemen Welfare
31	Ministry of Development of North Eastern Region
32	Ministry of Drinking Water & Sanitation
33	Ministry of Earth Sciences
34	Ministry of Electronics and Information Technology
35	Ministry of Environment, Forests & Climate Change
36	Ministry of External Affairs
37	Ministry of Finance
38	Department of Economic Affairs
39	Department of Expenditure

40	Department of Financial Services
41	Department of Revenue
42	Ministry of Food Processing Industries
43	Ministry of Health & Family Welfare
44	Department of Aids Control
45	Department of Health & Family Welfare
46	Department of Health Research
47	Ministry of Heavy Industries and Public Enterprises
48	Department of Heavy Industry
49	Department of Public Enterprises
50	Ministry of Home Affairs
51	Department of Home
52	Department of Inter State Council Secretariat
53	Department of Official Languages
54	Ministry of Housing and Urban Affairs
55	Ministry of Human Resource Development
56	Department of Higher Education
57	Department of School Education & Literacy
58	Ministry of Information and Broadcasting
59	Ministry of Investment & Public Asset Management
60	Department of Investment & Public Asset Management
61	Ministry of Jal Shakti
62	Ministry of Labour and Employment
63	Ministry of Law and Justice
64	Department of Justice
65	Department of Legal Affairs
66	Legislative Department
67	Ministry of Micro, Small & Medium Enterprises
68	Ministry of Mines
69	Ministry of Minority Affairs
70	Ministry of New & Renewable Energy
71	Ministry of Panchayati Raj
72	Ministry of Parliamentary Affairs
73	Ministry of Personnel, Public Grievances and Pensions
74	Department of Administrative Reforms and Public Grievances (DARP)
75	Department of Pension & Pensioner's Welfare
76	Department of Personnel and Training
77	Ministry of Petroleum & Natural Gas
78	Ministry of Power
79	Ministry of Railways
80	Ministry of Road Transport and Highways
81	Ministry of Rural Development

82	<u>Department of Land Resources (DLR)</u>
83	<u>Department of Rural Development (DRD)</u>
84	<u>Ministry of Science and Technology</u>
85	<u>Department of Biotechnology</u>
86	<u>Department of Science & Technology,</u>
87	<u>Department of Scientific & Industrial Research</u>
88	<u>Ministry of Shipping</u>
89	<u>Ministry of Skill Development & Entrepreneurship</u>
90	<u>Ministry of Social Justice & Empowerment</u>
91	<u>Department of Disability Affairs</u>
92	<u>Department of Space</u>
93	<u>Ministry of Statistics and Programme Implementation</u>
94	<u>Ministry of Steel</u>
95	<u>Ministry of Textiles</u>
96	<u>Ministry of Tourism</u>
97	<u>Ministry of Tribal Affairs</u>
98	<u>Ministry of Women and Child Development</u>
99	<u>Ministry of Youth Affairs and Sports</u>
100	<u>Department of Sports</u>
101	<u>Department of Youth Affairs</u>

ANNEX 2 : Shortlisted List of 20 Ministries/ Departments

S.No.	Name of Ministry/ Department
1	Ministry of Agriculture & Farmers Welfare
a	Department of Agricultural Research and Education
b	Department of Agriculture, Cooperation & Farmers Welfare
2	Ministry of Animal Husbandry, Dairying and Fisheries
3	Ministry of Chemicals and Fertilizers
a	Department of Chemicals and Petrochemicals
b	Department of Fertilizers
4	Ministry of Civil Aviation
5	Ministry of Commerce & Industry
6	Department of Department for Promotion of Industry and Internal Trade
7	Ministry of Consumer Affairs, Food and Public Distribution
8	Department of Food and Public Distribution
9	Ministry of Drinking Water & Sanitation
10	Ministry of Environment, Forests & Climate Change
11	Ministry of Health & Family Welfare
12	Ministry of Jal Shakti
a	Department of Water Resources, River Development and Ganga Rejuvenation
b	Department of Water Resources, River Development and Ganga Rejuvenation
13	Ministry of Micro. Small & Medium Enterprises
14	Ministry of Panchayati Raj
15	Ministry of Rural Development
a	Department of Land Resources (DLR)
b	Department of Rural Development (DRD)
16	Ministry of Skill Development & Entrepreneurship
17	Ministry of Development of North Eastern Region
18	Ministry of Food Processing Industries
19	Ministry of Earth Sciences
20	Ministry of Ayush