

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURE, COOPERATION AND FARMERS WELFARE

LOK SABHA
UNSTARRED QUESTION NO.4516
TO BE ANSWERED ON THE 8TH JANUARY, 2019

IMPACT OF CLIMATE CHANGE ON INDIAN AGRICULTURE AND FOOD SECURITY

4516. SHRI KALIKESH N. SINGH DEO:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि एवं किसान कल्याण मंत्री be pleased to state:

- (a) whether the Government has made an estimation of the likely impact of climate change on Indian agriculture and food security, if so, the details thereof;
- (b) the progress made under the National Mission on Sustainable agriculture and the initiatives being taken by the Government to promote climate resilient crop varieties;
- (c) whether the Government is taking any initiatives for encouraging Indian farmers to adopt low carbon agriculture techniques, if so, the details thereof;
- (d) the details of insurance payouts and financial assistance made to the farmers for crop loss due to climate change from 2014 to 2017, State-wise; and
- (e) whether any expert body/ committee has been appointed in advisory capacity or in any other way to make suggestions or recommendations to address the situation, if so, the details thereof?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE AND FARMERS WELFARE

कृषि एवं किसान कल्याण मंत्रालय में राज्य मंत्री (SHRI PARSHOTTAM RUPALA)

(a) & (b): Yes, Madam. Climate change is expected to impact the yield of agriculture crops in India as in other parts of the globe as well. However, in some of the regions, increase in yields is also predicted due to increase in rainfall. Adaptation and mitigation techniques have been developed by Indian Council of Agriculture Research (ICAR) and agriculture universities to minimize the adverse impacts. It is emphasised that several locations specific technologies have been developed, due to which, the country could produce the highest food grain (284.83MT) in addition to more than 305.42 MT of horticultural production in 2017-18.

The Government is implementing number of schemes for promoting climate resilient agriculture to cope with the challenges of climate change. 10 key dimensions for adaptation namely, improved crop seeds livestock and fish culture, water use efficiency, pest management, improved farm practices, improved nutrient management; agricultural insurance, credit support, markets, access to information and livelihood diversification are emphasized.

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The National Mission for Sustainable Agriculture (NMSA), one of the eight Missions under National Action Plan for Climate Change (NAPCC), includes programmatic interventions like Soil Health Card (SHC), Paramparagat Krishi Vikas Yojana (PKVY), Mission Organic Value Chain Development for North Eastern Region (MOVCD-NER), Rainfed Area Development (RAD), National Bamboo Mission (NBM) and Sub-mission on Agro Forestry (SMAF). These and other programmes including Prime Minister Krishi Sinchai Yojana (PMKSY) are ensuring judicious use of natural resources.

During XII Plan (2012-2018), more than 400 climate resilient germplasm lines have been identified and 58 genotypes characterised with high water and nutrient use efficiency. 20.44 lakh ha area has been brought under organic farming, 249.57 lakh ha area under horticulture, 32.43 lakh ha under precision irrigation and 7.81 lakh ha under System of Rice Intensification (SRI), 25.18 lakh milch animals were covered under ration balancing programme and five bypass protein feed making units (50 MT/day capacity) were set up between 2012-2018. ICAR has developed 45 models for climate resilient Integrated Farming Systems (IFS) which are replicated in Krishi Vigyan Kendras (KVKs) for demonstration. Climate resilient villages have been developed, one in each of 151 districts. Climate Vulnerability Atlas has been prepared under National Innovations in Climate Resilient Agriculture (NICRA). Assistance is provided under National Food Security Mission (NFSM) for inter alia stress tolerant/ climate resilient varieties of food grains.

(c): Soil and crop management practices advocated to reduce carbon emissions are:.

- i) Increasing the area under System of Rice Intensification (SRI) as an alternative to transplanted paddy.
- ii) Planting of trees under National Food Security Mission, Bringing Green Revolution to Eastern India (BGREI), Sub-Mission on Agroforestry (SMAF) and National Bamboo Mission (NBM).
- iii) Promotion of water use efficiency through micro irrigation under Pradhan Mantri Krishi Sinchai Yojana (PMKSY)- Per Drop More Crop.
- iv) Development of zero tillage drill machines and other residue management equipment which facilitate planting of rabi crop in the standing residues of rice crop to avoid burning of rice residues.
- v) Mandatory Neem coating of urea
- vi) Alternate wetting and drying, direct seeded rice system of rice cultivation, use of slow release nitrogen fertilizers, integrated nutrient management practices, leaf colour chart-based nitrogen application, use of urea super granules etc

(d): The State wise details of assistance given for crop loss from 2014 to 2017 as per guidelines of Pradhan Mantri Fasal Bima Yojana (PMFBY) is placed at Annexure-I

(e): The various committees set up by Government for providing strategic direction and monitoring of programs aimed at mitigation and adaption to effects of climate change on agriculture include:

- i) Prime Minister's Council on Climate Change (PMCCC) chaired by Hon'ble Prime Minister.
- ii) Executive Committee on Climate Change (ECCC) chaired by Principal Secretary to Prime Minister
- iii) National Advisory Committee for NMSA chaired by Secretary Department of Agriculture Cooperation and Farmers Welfare. Similar State and District level committees are formed which have representation from different Departments as well as experts from State Agriculture Universities and ICAR Institutes.
- iv) At the national level the Central Research Institute for Dry land Agriculture (CRIDA-ICAR), Hyderabad is the think tank for climate change issues in agriculture.

State wise Details of financial assistance to the farmers under PMFBY for crop loss from 2014 to 2017

Annexure-I

State/UTs	2014-15					2015-16					2016-17					2017-18*				
	GOI Subsidy In Premium	State Subsidy In Premium	Total Subsidy	Gross Premium	Total Claims	GOI Subsidy In Premium	State Subsidy In Premium	Total Subsidy	Gross Premium	Total Claims	GOI Subsidy In Premium	State Subsidy In Premium	Total Subsidy	Gross Premium	Total Claims	GOI Subsidy In Premium	State Subsidy In Premium	Total Subsidy	Gross Premium	Total Claims
	Rs Crore					Rs Crore					Rs Crore					Rs Crore				
A & N ISLANDS	0.03	0.13	0.16	0.16	0.06	0.10	0.10	0.20	0.20	0.01	0.00	0.01	0.01	0.02	0.15	0.01	0.01	0.02	0.03	-
Andhra Pradesh	45.72	45.72	91.43	170.85	92.26	148.59	148.59	297.18	645.90	331.15	323.11	323.11	646.23	845.50	897.10	537.01	537.01	1,074.02	1,338.43	494.63
Assam	2.02	2.02	4.04	10.25	13.40	4.05	4.05	8.11	16.41	5.52	1.84	1.84	3.67	8.65	5.15	3.52	3.52	7.03	12.34	0.54
Bihar	139.32	139.32	278.64	580.97	1,124.73	8.83	8.83	17.66	237.99	973.32	605.82	605.82	1,211.64	1,416.26	348.58	419.05	419.05	838.10	1,015.94	372.79
Chhattisgarh	84.00	84.00	168.01	340.39	185.02	1.74	6.98	8.72	82.06	698.63	94.64	94.64	189.27	325.77	159.97	121.22	121.22	242.44	382.32	1,376.26
Goa	0.00	0.00	0.00	0.01	-	0.00	0.00	0.00	0.01	0.14	0.00	0.00	0.01	0.07	0.03	0.00	0.00	0.00	0.05	0.00
Gujarat	3.11	3.11	6.22	180.01	504.24	32.07	32.07	64.15	204.82	1,796.13	987.90	1,123.42	2,111.31	2,360.71	1,261.97	1,431.53	1,431.53	2,863.06	3,261.45	1,050.66
Haryana	0.01	0.01	0.02	0.03	0.01	-	-	-	-	-	65.79	102.08	167.86	364.39	295.97	96.30	147.67	243.96	452.45	723.18
Himachal Pradesh	9.48	10.66	20.14	40.30	32.94	9.61	10.63	20.24	43.28	37.19	20.26	20.26	40.53	71.63	44.75	23.73	23.73	47.46	78.11	17.23
Jammu & Kashmir	0.12	0.12	0.23	0.46	0.54	-	-	-	-	-	-	-	-	-	-	15.99	15.99	31.98	40.98	9.68
Jharkhand	12.48	12.48	24.96	51.92	29.13	1.12	1.12	2.24	23.77	225.73	116.09	116.09	232.18	271.81	31.01	93.99	93.99	187.99	216.50	36.76
Karnataka	87.87	87.87	175.74	320.83	222.64	6.19	6.70	12.90	95.41	878.81	652.06	652.06	1,304.13	1,563.61	1,862.86	833.98	833.98	1,667.97	1,908.59	845.31
Kerala	2.79	4.77	7.55	11.47	7.20	3.28	5.90	9.18	14.68	14.11	12.97	12.97	25.93	33.15	44.55	9.85	9.85	19.70	26.10	9.65
Madhya Pradesh	22.61	22.61	45.21	528.36	741.51	32.91	32.91	65.82	642.31	4,808.16	1,559.56	1,559.56	3,119.12	3,852.24	2,000.49	2,377.57	2,377.57	4,755.14	5,685.58	5,448.33
Maharashtra	88.39	108.65	197.04	498.64	2,232.45	151.74	153.38	305.12	816.96	5,526.89	2,023.67	2,023.67	4,047.35	4,739.66	2,315.65	1,964.87	1,964.87	3,929.73	4,444.72	3,200.28
Manipur	0.01	0.01	0.02	0.43	1.85	0.02	0.02	0.04	1.13	2.70	1.43	1.43	2.85	3.59	1.96	0.60	0.60	1.19	1.94	0.50
Meghalaya	0.01	0.01	0.02	0.24	0.16	0.01	0.01	0.01	0.12	-	0.01	0.01	0.03	0.04	0.03	0.21	0.21	0.41	1.42	0.02
Mizoram	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Odisha	6.08	6.08	12.15	143.48	263.31	7.76	7.76	15.52	190.52	1,782.64	198.21	198.21	396.42	539.05	431.34	351.61	351.61	703.21	854.37	1,733.25
Puduchery	0.01	0.05	0.07	0.13	0.02	0.03	0.15	0.18	0.18	-	1.29	1.54	2.83	3.10	7.57	-	-	-	-	-
Rajasthan	329.48	329.48	658.97	1,049.31	1,190.86	263.62	263.62	527.25	1,012.43	1,787.13	1,086.65	1,086.65	2,173.30	2,539.52	1,867.76	1,034.65	1,034.65	2,069.31	2,542.78	1,576.99
Sikkim	0.00	0.00	0.00	0.01	-	0.00	0.00	0.00	0.03	-	0.00	0.00	0.00	0.01	0.11	0.00	0.00	0.00	0.06	-
Tamil Nadu	6.02	34.42	40.44	79.12	36.00	4.72	62.42	67.14	133.34	521.09	557.42	557.42	1,114.83	1,227.37	3,438.56	653.96	653.96	1,307.92	1,443.56	575.57
Telangana	29.55	29.55	59.11	193.87	169.87	21.66	21.66	43.32	234.22	399.59	89.19	89.19	178.38	291.90	178.45	234.09	234.09	468.18	649.45	455.72
Tripura	0.00	0.00	0.00	0.02	-	0.00	0.00	0.01	0.08	0.00	0.06	0.05	0.11	0.40	0.54	0.07	0.07	0.15	0.74	0.96
Uttar Pradesh	122.74	122.74	245.48	423.73	780.80	258.51	258.51	517.01	901.26	1,443.57	321.38	321.38	642.77	1,118.73	554.29	501.56	501.56	1,003.12	1,387.47	364.34
Uttarakhand	3.47	3.47	6.95	16.35	41.64	3.08	3.08	6.16	19.38	18.01	11.01	11.01	22.03	41.58	27.47	24.54	24.54	49.09	67.91	36.91
West Bengal	26.87	169.42	196.29	304.70	178.36	14.66	183.62	198.28	289.87	357.70	240.66	256.00	496.66	726.76	419.47	219.93	222.01	441.94	697.21	203.30
Grand Total	1,022.19	1,216.70	2,238.89	4,946.05	7,849.00	974.32	1,212.12	2,186.44	5,606.34	21,608.25	8,971.03	9,158.43	18,129.47	22,345.51	16,195.79	10,949.84	11,003.29	21,953.13	26,510.51	18,532.84

*Out of Rs. 18532.84 cr Claims paid in 2017-18, Rs. 17254 cr has been paid in Kharif 2017 itself. Claims for Rabi 2017-18 are provisional and under process
