

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION

RAJYA SABHA
UNSTARRED QUESTION NO. 1128
TO BE ANSWERED ON 27/07/2018

STUDY TO ASSESS IMPACT OF CLIMATE CHANGE ON AGRICULTURE

1128. **SHRI NARAYAN LAL PANCHARIYA:**

Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

- (a) Whether Government has conducted any study to find out the impact of climate change on agriculture in the country;
- (b) If so, the details thereof and if not, the reasons therefor;
- (c) whether Government has taken any initiative to conduct research to enhance resilience of Indian agriculture to climate change; and
- (d) if so, the details thereof and if not, the reasons therefor?

ANSWER

THE MINISTER OF AGRICULTURE AND FARMERS WELFARE

(SHRI RADHA MOHAN SINGH)

- (a) Yes, Sir.
- (b) Recognizing the likely impact of climate change on agriculture and allied sectors, Government through Indian Council of Agricultural Research (ICAR) has initiated a network project, National Initiative on Climate Resilient Agriculture (NICRA) during 2010-11. It encompasses multi-pronged strategic research, technology development, capacity building of stakeholders and technology demonstrations at farmers' fields.

The studies indicate that there is an increasing frequency and intensity of extremes in rainfall and rise in temperature during the last 40-50 years resulting in adverse effects on agriculture. Further, decline in wheat yield in Eastern and Central India due to terminal heat stress and unseasonal windy rainfall during February-March; damage to horticultural crops such as mango, guava, papaya, brinjal, tomato, potato due to cold waves; damage to horticultural crops due to hailstorms in Maharashtra, upward shift in apple production zones in Himachal Pradesh etc. have been experienced in the recent past.

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This may lead to projected average reduction of yield by 6% in wheat, 4-6% in rice, 18% in maize, 2.5% in sorghum, 2% in mustard and 2.5% in potato. The yield of crops was projected to be more vulnerable in Central and East India for wheat; Punjab, Haryana and Rajasthan for irrigated rice, Maharashtra, Odisha, Chhattisgarh and Assam for rainfed rice; Central India for mustard and Punjab, Bihar, Jharkhand, Uttar Pradesh and West Bengal for potato.

The impact of climate change is also expected in economic viability and production of livestock systems through poor availability of quality feed and fodder, decreased reproductive performance and decline in milk production. Further, ICAR-CRIDA has also mapped 572 districts of the country for their vulnerability to extreme events due to climate change.

(c) Yes, Sir.

(d) The Government has taken several initiatives to reduce GHG emissions and improve agricultural productivity through promoting rice cultivation under System of Rice Intensification (SRI) and Direct Seeded Rice (DSR), Neem coated urea, judicious use of water and fertilizers, water saving technologies and shifting area from transplanted rice to other cereals, pulses and oilseeds especially in Punjab, Haryana and western Uttar Pradesh. Further, location and crop specific efficient management practices for conservation agriculture (CA), resource conservation technology (RCT), broad bed furrow (BBF) method of sowing, micro irrigation has been developed by ICAR institutes, which reduce GHG emission from crops and have been demonstrated through Front Line Demonstrations (FLDs).

Under Technology Demonstration Component of NICRA, the climate resilient interventions are implemented by taking one representative village in 151 climatically vulnerable districts of the country. Major interventions implemented under the scheme for climate resilient agriculture include efficient management of natural resources, adoption of resilient agronomic practices, adoption of stress tolerant varieties, efficient management of livestock, poultry and fisheries and strengthening local institutions.

Government is also addressing the issues of climate change through National Mission on Sustainable Agriculture (NMSA). The NMSA as pragmatic intervention aims at adopting location specific, integrated/ composite farming system; soil and moisture conservation measures; comprehensive soil health management, efficient water management practices and mainstream rainfed technologies. Besides, climate resilient interventions have been embedded and mainstreamed into Missions/Programmes/Schemes of Department of Agriculture, Cooperation & Farmers Welfare (DAC & FW) through a process of restructuring and convergence.
