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

LOK SABHA
STARRED QUESTION NO. 251
TO BE ANSWERED ON 18TH MARCH, 2025

IMPACT OF CLIMATE CHANGE ON AGRICULTURAL SECTOR

*251. SHRI DHARAMBIR SINGH**:**

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

(a) whether the Government has conducted any recent studies on the impact of climate change on our country's agricultural sector, particularly in terms of soil degradation, rainfall patterns and crop yield fluctuations;

(b) if so, the key findings of these studies and their implications for food security;

(c) the measures taken by the Government to promote climate-resilient farming techniques and drought-resistant crops;

(d) whether any financial assistance or subsidies are provided to farmers for adopting sustainable agricultural practices and if so, the details thereof; and

(e) the role of State Governments in implementing climate adaptation strategies in the agricultural sector?

ANSWER

THE MINISTER OF AGRICULTURE AND FARMERS WELFARE
कृषि और किसान कल्याण मंत्री (SHRI SHIVRAJ SINGH CHOUHAN)

(a) to (e): A Statement is laid on the Table of the House.

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STATEMENT IN RESPECT OF PARTS (a) to (e) OF LOK SABHA STARRED QUESTION NO. 251 TO BE ANSWERED ON 18TH MARCH, 2025 REGARDING "IMPACT OF CLIMATE CHANGE ON AGRICULTURAL SECTOR"

(a): Yes, Indian Council of Agricultural Research (ICAR) has conducted simulation modelling studies to assess the impact of climate change on soil degradation, rainfall pattern projection and crop yields.

(b): The study revealed that the *kharif* rainfall is projected to increase in the range of 4.9-10.1% and 5.5-18.9% by 2050 and 2080, respectively. *Rabi* rainfall is projected to increase in the range of 12-17% and 13-26% by 2050 and 2080, respectively. This increase in rainfall would result into soil loss of 10 tons/ha/yr from croplands by 2050. In the light of climate change, the salinity affected area is also projected to increase from 6.7 million ha to 11 million ha by 2030.

In the absence of adoption of adaptation measures, climate change is likely to reduce rainfed rice yields by 20% in 2050 and 10-47% in 2080, respectively. Irrigated rice yields reduced by 3.5% in 2050 and 5% in 2080. Wheat yield will also likely to get reduced by 19.3% in 2050 and 40% in 2080. Kharif maize yields may get reduced by 10-19% in 2050 and >20% in 2080.

(c): The Government has undertaken various measures to tackle the projected adverse effect of climate change on agricultural sector and developed various climate-resilient agricultural technologies, suitable for extreme weather situations and vulnerable districts/regions viz. promotion of climate resilient varieties, resilient cropping systems, conservation agriculture, crop diversification, agroforestry systems, zero till drill sowing, alternate methods of rice cultivation, green manuring, integrated nutrient and pest management, organic farming, site specific nutrient management, in-situ moisture conservation, supplementary irrigation, micro irrigation, sub surface drainage and soil amendments etc. ICAR has also developed 76 prototype of integrated farming system models adapted to climate change impact across the ecologies of the country. ICAR also assessed risk and vulnerability in agriculture as per Intergovernmental Panel on Climate Change (IPCC) protocol. A total of 109 districts have been categorized as very high and 201 districts as highly vulnerable. Adaptation efforts have been underway in 151 districts through Krishi Vigyan Kendras (KVKs). District Agricultural Contingency Plans (DACPs) also developed for 651 districts to tackle aberrant weather situation.

Of the total varieties developed since 2014, 2661 varieties (cereals 1258; oilseeds 368; pulses 410; fibre crops 358; forage crops 157, sugarcane 88 and other crops 22) are tolerant to one or more biotic and/or abiotic stresses, amongst which 537 varieties have been developed specially for extreme climate events viz drought.

(d) & (e): The Government is taking several steps to promote climate resilient farming techniques and drought resistant crops in the country. The National Mission for Sustainable Agriculture (NMSA) is one of the Missions within the National Action Plan on Climate Change. Under NMSA, the Per Drop More Crop scheme aims to improve on-farm water use efficiency and enhance the adoption of precision irrigation for which subsidy is provided. Rainfed Area Development scheme focuses on Integrated Farming System for enhancing productivity and minimizing risks associated with climatic variability. The Soil Health Management and Soil Health Card scheme assists states in promoting integrated nutrient management for improving soil health and its productivity. For promoting organic farming in the country, the schemes of Paramparagat Krishi Vikas Yojana and Mission Organic Value Chain Development for North Eastern Region have been implemented since 2015-16. Sub Mission on Agroforestry and National Bamboo Mission also aim to increase climate resilience. Under these schemes, financial assistance in the form of subsidies is provided to beneficiaries through the state governments.

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