

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

**LOK SABHA**  
**UNSTARRED QUESTION NO.3750**  
TO BE ANSWERED ON THE 16<sup>TH</sup> JULY, 2019

**EFFECT OF CLIMATE CHANGE ON AGRICULTURE SECTOR**

3750. SHRI RITESH PANDEY:  
SHRI FEROZE VARUN GANDHI:

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

- (a) whether the Government considers climate change to be an imminent and ongoing threat to the agriculture sector, if so, the details thereof;
- (b) the details of the studies conducted by the Government to measure and quantify the adverse effects of climate change on agriculture, which incorporated the projected climates of 2020, 2050 and 2080;
- (c) whether it is true that the major crops affected by the same include rice and wheat in the Indo Gangetic Plain and maize in the Southern Plateau; and
- (d) if so, the long term measures, the Government plans to take, other than the subsidies and insurance schemes already in place, to mitigate the effects of climate change on agriculture, increase land productivity and counter the spatio-temporal variations in climate?

**ANSWER**

MINISTER OF AGRICULTURE AND FARMERS WELFARE

कृषि एवं किसान कल्याण मंत्री (SHRI NARENDRA SINGH TOMAR)

(a) to (c): Yes Sir. Climate change has the potential to adversely affect agriculture globally, in a business as usual scenario. Extensive field and simulation studies were carried out in agriculture and allied sectors by several network centers such as Indian Agriculture Research Institute (IARI), New Delhi., Central Research Institute for Dry land Agriculture (CRIDA), Hyderabad., Indian Institute of Maize Research (IIMR) and State Agricultural Universities located in different parts of the country. The Climate Change impact assessment was carried out using the crop simulation models by incorporating the projected climates of 2020, 2050 & 2080. Simulation studies using integrated modeling framework showed that Rainfed rice yields in India are projected to reduce by 6% in 2020 scenario, but the decline was marginal (<2.5%) in 2050 and 2080 scenarios. On the other hand, irrigated rice yields are projected to reduce by 4% in 2020, 7% in 2050 and by 10% in 2080 scenarios. climate change is projected to reduce the irrigated kharif maize yields by 18% in 2020. scenario, **if no adaptation is followed**. Spatio-temporal variations in projected changes in temperature and rainfall are likely to lead to

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differential impacts in different regions. The major crops classified as risk prone under the impacts of Climate Change with reduced productivity are rice and wheat especially in the Indo-Gangetic Plains, Maize in mid Indo-Gangetic Plains (MIGP) and Southern Plateau (SP), Sorghum & Potato in West Bengal and Southern Plateau.

However, the productivity is expected to increase in Soybean, Groundnut, Chickpea and Potato in Punjab, Haryana & Western Uttar Pradesh, Apple in Himachal Pradesh.

(d): Indian Council of Agricultural Research (ICAR) has launched a flagship network project National Innovations in Climate Resilient Agriculture (NICRA). The project aims at strategic research on adaptation and mitigation, demonstration of technologies on farmers field and creating awareness among farmers and other stakeholders to minimize the impacts of climate change on agriculture.

Under NICRA project, large number of germplasm collected from different hotspot locations of the country are characterized as a source material for breeding programs. Attempts are made to develop heat & drought tolerant wheat, flood tolerant rice, drought tolerant pulses, water logging and high temperature tolerant tomato etc.

Government is committed to provide security to farmers. To provide claims against the crop yield losses due to natural risks/calamities, adverse weather conditions, pests & diseases etc. two major crop insurance schemes namely, Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS) are being implemented by the Government. PMFBY provides comprehensive risk coverage from pre-sowing to post harvest losses against non-preventable natural risks. The RWBCIS provides indemnification for likely crop losses due to deviation in weather indices. Further, to provide adequate risk coverage the sum insured has been equated to scale of finance at minimum uniform fixed premium rate payable by farmers i.e. maximum 2% for Kharif crops, 1.5% for Rabi Crop and 5% for annual commercial/horticultural crops, with balance of actuarial/bidder premium being shared by the Central and State Government on 50 : 50 basis; lowering of unit area of insurance to village/village panchayat level for major crops and to individual farm level for localised risks of hailstorm, landslide and inundation and post-harvest losses thereby promoting more realistic assessment of losses. In addition, assistance is also provided to farmers through other schemes namely, PM KISAN (for regular income), PM ASHA (Price support), National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) for relief due to natural calamities etc. Due to the adaptation preparedness in the country, record production has been achieved for food grains pulses and horticulture produce in the country.

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