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

RAJYA SABHA
UNSTARRED QUESTION NO. 655
ANSWERED ON- 03/12/2021

IMPACT OF CLIMATE CHANGE ON AGRICULTURE

655. SHRI VIJAY PAL SINGH TOMAR:
SHRI HARNATH SINGH YADAV:

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 therefore?

ANSWER

THE MINISTER OF AGRICULTURE AND FARMERS WELFARE
(SHRI NARENDRA SINGH TOMAR)

(a) & (b): Yes Sir. Indian Council of Agricultural Research (ICAR), Ministry of Agriculture and Farmer's Welfare, Government of India studied the impact of climate change on agriculture under the 'National Innovations in Climate Resilient Agriculture' (NICRA) project using integrated simulation modelling framework. The results indicate that in the absence of adoption of adaptation measures, the projected changes in climate is likely to reduce rainfed rice yields by 20% in 2050 and 47% in 2080 scenarios while, irrigated rice yields by 3.5% in 2050 and 5% in 2080 scenarios, wheat yield by 19.3% in 2050 and 40% in 2080 scenarios and *kharif* maize yields by 18 to 23% in 2050. *Kharif* groundnut yields are projected to be increased by 7% in 2050 scenario where as in 2080 scenario the yield is likely to decline by 5%. It is also found that future climates are likely to benefit chickpea with increase in productivity.

(c) & (d): To meet the challenges of sustaining domestic food production in the face of changing climate, Ministry of Agriculture & Farmers Welfare, Government of India has initiated National Innovations in Climate Resilient Agriculture (NICRA) in 2011. This scheme aims to develop and promote climate resilient technologies that help the districts and regions prone to extreme weather conditions like droughts, floods, frost, heat waves, etc., to cope with such extremes. The steps taken in this regard, inter alia, include:

(i) State of the art infrastructure facilities have been established by ICAR in the National Agricultural Research and Education and Extension System (NAREES) across the country to facilitate the climate change research. Studied the impact of elevated CO_2 and temperature on crops, livestock, fisheries, soil, water, pests and diseases using simulation models and GHG inventorization and C sequestration under predominant production systems.

(ii) Prepared district agricultural contingency plans (650 districts), updated (386 districts), validated (23 village clusters in 15 states) and sensitized State officials for preparedness through 54 State- level interface meetings.

(iii) The study on risk and vulnerability assessment of agriculture to climate change by ICAR showed that out of 573 districts, 109 were falling under very high risk prone and 201 are highly prone.

(iv) Prominent drought tolerant varieties and resilient cropping systems were demonstrated in the climate resilient villages resulting in yield advantages up to 80%.

(v) Dynamic crop-weather calendar for farm level decisions, agro-climatic atlas for Maharashtra and Bihar, and contributed to 'Meghdoot App' for accessing real-time weather information (> 2 crores users).

(vi) Over the past 10 years, 65 Climate resilient technologies have been tested and validated at 151 on-farm sites in different parts of the country representing climatically vulnerable districts.

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