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

LOK SABHA
UNSTARRED QUESTION NO. 1164
TO BE ANSWERED ON 30TH JULY, 2024

IMPACT OF CLIMATE CHANGE ON AGRICULTURE

1164. M P ABDUSSAMAD SAMADANI:

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

(a)   whether the Government is aware of the impact of climate change and irregular rainfall patterns on agriculture and other sectors in the State of Kerala;

(b)   if so, the details and the measures taken to support the farmers and agricultural activities affected by climate change related issues; and

(c)   whether the Government have any plan to address this issue by coordinating with research institutions or international organizations to develop strategies for climate resilience and sustainable agriculture in the State of Kerala?

ANSWER

MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
कृषि एवं किसान कल्याण राज्य मंत्री   (SHRI RAMNATH THAKUR)

(a) to (c):   ICAR through flagship network project 'National Innovations in Climate Resilient Agriculture' (NICRA) conducted risk and vulnerability assessment to assess the impact of climate change and irregular rainfall patterns on agriculture including Kerala. As per Intergovernmental Panel on Climate Change (IPCC) protocol, risk and vulnerability assessment has been performed for 651 predominantly agriculture districts. A total of 109 districts are categorized as very high and 201 districts as highly vulnerable. In Kerala, Kasaragod, Kozhikode, Ernakulam, Kottayam, Alappuzha, Pathanamthitta, Kollam and Thiruvanathapuram districts were categorized under 'very high' risk category and Kannur, Wayanad, Malappuram, Palakkad and Thrissur districts were categorized under 'high' risk category. Of these, five districts *viz.,* Kannur, Kottayam, Kozhikode, Palakkad and Wayanad one village from each of these districts were selected for technology adoption. The climate resilient technologies demonstrated in these districts include, vermicomposting, husk burial

and application of coir pith compost in coconut basin, composting of aquatic weeds using effective microorganisms solution that enhance carbon sequestration, mat nursery and drum seeding in rice, varieties suitable for rainy and summer fallows, modified rain shelter, pseudostem support system for banana, adopting : integrated practices for soil moisture conservation, acidity correction and nutrient management in coconut farming, sustainable integrated fish farming and improved goat shelters.

The Government is implementing National Mission for Sustainable Agriculture (NMSA) to support the farmers and agricultural activities affected by climate change. The NMSA is one of the Missions within the National Action Plan on Climate Change (NAPCC) which aims to evolve and implement strategies to make Indian agriculture more resilient to the changing climate. Under NMSA the Per Drop More Crop aims to improve on-farm water use efficiency, enhance the adoption of precision irrigation and other water saving technologies and enhance recharge of aquifers. The Pradhan Mantri Fasal Bhima Yojana (PMFBY) provides full insured amount on crop losses due to natural calamities. In addition, programs like Paramparagat Krishi VikasYojana (PKVY) aims to improvement agriculture biodiversity as well as soil health. The scheme Bharatiya Prakritik Krishi Paddhati Programme (BPKP) aims to promote traditional indigenous practices and to create awareness of farmers. National Mission for Integrated Development of Horticulture (MIDH), Agroforestry & National Bamboo Mission also aim to increase climate resilience.

The Indian Council of Agricultural Research (ICAR) under Ministry of Agriculture and Farmers Welfare, Government of India has launched a flagship network project namely National Innovations in Climate Resilient Agriculture (NICRA). The project aims to study the impact of climate change on agriculture including crops, livestock, horticulture and fisheries and to develop and promote climate resilient technologies in agriculture which will address vulnerable areas of the country and the outputs of the project help the districts and regions prone to extreme weather conditions like droughts, floods, frost, heat waves, etc. to cope with such extremes. The salient achievements of ICAR are as follows:

- During last 10 years (2014-2024), a total of 2593 varieties have been released by ICAR, out of these 2177 varieties have been found tolerant to one or more biotic and/or abiotic stresses.

- Risk and vulnerability assessment of agriculture to climate change is carried out at district-level for 651 predominantly agricultural districts as per Intergovernmental Panel on Climate Change (IPCC) protocols. A total of 109 districts are categorized as 'very high' and 201 districts as 'highly' vulnerable.

- District Agriculture Contingency Plans (DACPs) for these 651 districts have been prepared for weather aberrations like drought, floods, unseasonal rains and extreme weather events such as heat wave, cold wave, frost, hailstorm, cyclone etc. and recommending location specific climate resilient crops and varieties and management practices for use by the State departments of agriculture and farmers.

- Enhancing resilience and adaptive capacity of farmers to climate variability, the Concept of "Climate Resilient Villages" (CRVs) has been initiated under NICRA.

- Location-specific climate resilient technologies demonstrated in 448 CRVs of 151 climatically vulnerable districts for adoption by the farmers.

- ICAR through its NICRA project, creates awareness about impact of climate change in agriculture among farmers. Capacity building programmes are being conducted to educate the farmers on various aspects of climate change for wider adoption of climate resilient technologies. The Climate Resilient Agriculture (CRA) Technology is implemented in 448 CRVs across 151 districts of 28 states/UTs.

Under NICRA project, ICAR- Central Marine Fisheries Research Institute (CMFRI), Cochin also conducted studies on estimation of carbon footprint of marine fisheries in Indian coastal states, use of artificial intelligence (drones) for mapping of blue carbon systems, developing new climate resilient technologies such as Integrated Mangrove Aquaculture Farming System (IMAFS) and Aqua-silviculture and assessment of climate change risk and vulnerability of coastal districts (76) was conducted considering 5 significant hazards for vulnerability (Cyclone Proneness, Flood Proneness, Shoreline change, Sea Level Rise and Heatwave) and developed a multi-hazards index. ICAR-Indian Institute of Spices Research (IISR), Kozhikode has taken up study to identify the climate analogues sites so that crop cultivation can be taken up in those regions to maintain the production and productivity of the crop.

*****