

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

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UNSTARRED QUESTION NO. 3203
TO BE ANSWERED ON THE 20/03/2026

**ASSESSMENT OF CLIMATE LINKED RISKS TO AGRICULTURE IN CAUVERY AND
KRISHANA RIVER BASIN**

3203. SHRI MALLIKARJUN KHARGE:

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

- (a) whether the Government has conducted any recent assessment of climate-linked risks to agriculture - such as droughts, heat stress, and extreme rainfall events in the Cauvery and Krishna river basins, particularly in Karnataka; and
- (b) the steps taken to support farmers in these regions facing recurrent climate-induced crop losses, including improvements to early-warning systems, crop-insurance mechanisms, and district-level contingency planning?

ANSWER

MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
(SHRI RAMNATH THAKUR)

(a) & (b): The Government through Indian Council of Agricultural Research (ICAR) is implementing a project- National Innovations in Climate Resilient Agriculture (NICRA), that studies the impact of climate change on agriculture, conducts district level risk and vulnerability assessment of agriculture to future climate change and integrated simulation modelling studies for estimating the future projections of climate change. Under the project, risk and vulnerability assessment of agriculture to climate change has been carried out at the district level for 651 predominantly agricultural districts as per the protocols of the Intergovernmental Panel on Climate Change (IPCC). A total of 310 districts were identified as vulnerable, out of which 109 districts have been categorized as 'very high' and 201 districts as 'highly' vulnerable. In Karnataka, Gadag, Haveri and Chitradurga fall under the 'very high' risk category, while Bagalkot, Kalaburagi, Bidar, Koppal, Dharwad, Ballari, Tumakuru, Kolar, Bengaluru (Rural), Hassan, Mysuru and Chamarajanagar are categorized as 'high' risk. Under NICRA, location-specific climate-resilient technologies have been demonstrated in Chamarajanagar, Chikkaballapur, Chitradurga, Gadag, Kalaburagi, Haveri and Tumakuru to address climate-related risks such as heat waves and drought. NICRA modelling projects reduced future flows in the Cauvery basin, affecting rice and sugarcane; recommended strategies include crop diversification, reduced water-intensive crops, water-saving technologies and

reservoir augmentation. In the Krishna basin, irrigation demand may increase for chickpea and sugarcane, decline for rabi sorghum, pigeon pea and maize, and remain stable for rice.

Under World Bank-assisted Sujala-III Project (2014–19), ICAR-National Bureau of Soil Survey and Land Use Planning (NBSS&LUP) conducted Land Resource Inventory (LRI) across 12,500 ha in Gadag, 10,000 ha in Kalaburagi, 11,500 ha in Raichur (Krishna basin), and 10,500 ha in Chamarajanagar (Cauvery basin). Subsequently, during 2022–25, under the Rejuvenating Watersheds for Agricultural Resilience through Innovative Development (REWARD) Programme, detailed LRI was carried out in Koppal and Gadag districts, covering 87 micro-watersheds (67,412 ha) in Yelburga and 102 micro-watersheds (74,762 ha) in Ron. Farm-level datasets on soil depth, texture, soil organic carbon (SOC), pH and nutrient status were generated, and 2,16,975 LRI cards were prepared for farmers. These datasets have supported land suitability assessment, soil and water conservation planning, drainage planning, and the development of a hydrological atlas, which includes information on rainfall, actual evapotranspiration (AET), runoff, soil moisture, groundwater and recharge. Further, Pradhan Mantri Fasal Bima Yojana also provides comprehensive risk coverage against crop losses from pre-sowing to post-harvest due to extreme climate events such as floods, cyclones, hailstorms, and localized calamities, thereby supporting farmers facing recurrent climate-induced crop losses.

Further, key climate-resilient interventions include water management (farm ponds, check dams, bunding, micro-irrigation, mulching), crop resilience (drought-tolerant varieties, resilient intercropping, seed hardening), and livelihood diversification (backyard poultry, improved sheep breeds, hydroponic fodder, fish culture, fodder and silage). Farmer training programmes were conducted in NICRA villages, and District Agricultural Contingency Plans (DACPs) have been prepared for all districts of Karnataka State.
