

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE & FARMERS' WELFARE
DEPARTMENT OF AGRICULTURE & FARMERS' WELFARE

RAJYA SABHA

UNSTARRED QUESTION NO. 1466

TO BE ANSWERED ON THE 31/07/2026

MEASURES TO CONSERVE SOIL AND PROTECT SOIL HEALTH

1466. SHRI S.R. SIVALINGAM:

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

- (a) the issues examined by the government regarding declining groundwater quality, salinity and soil degradation affecting agricultural sustainability across several regions of the country;
- (b) the initiatives undertaken by the government to promote crop diversification, micro-irrigation, groundwater recharge and sustainable farming practices for protecting soil health;
- (c) the challenges identified by the government relating to excessive groundwater extraction, water-intensive cropping patterns and chemical imbalance in agricultural land and the conclusions drawn; and
- (d) the framework proposed by government to strengthen groundwater management and long-term soil conservation across the country?

ANSWER

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

(a) to (d) Central Ground Water Board (CGWB), Ministry of Jal Shakti (MoJS) generates groundwater quality data at a regional scale, through its groundwater quality monitoring programme and scientific studies. As per the Annual Ground Water Quality Report 2025, 98.9% of the samples recorded Sodium Adsorption Ratio (SAR) ≤ 26 , indicating that most groundwater sources are safe for irrigation. Only 1.11% (166 samples) exceeded the permissible limit (SAR > 26), suggesting limited risk of sodicity hazards at National scale. 11.27% of the samples recorded Residual Sodium Carbonate (RSC) above 2.5 meq/L, indicating potential sodicity hazard and possible adverse effects on soil structure, permeability and agricultural productivity where such water is used continuously without appropriate management.

CGWB jointly with the State Ground Water Department, carries out annual assessment of Dynamic Groundwater Resources at the block level. The assessment provides estimates of annual groundwater recharge, annual extractable groundwater resource, annual extraction and stage of groundwater extraction. It categorizes assessment

units as Safe, Semi-Critical, Critical and Over-Exploited, based on stage of groundwater extraction. The Dynamic Ground Water Resources Assessment Report, 2025, indicated the total Annual Ground Water Recharge of the country as 448.52 Billion Cubic Metres (BCM), Annual Extractable Ground Water Resource as 407.75 BCM, and total Annual Ground Water Extraction for all uses as 247.22 BCM. Stage of Ground Water Extraction has been assessed as 60.63%. Of the total annual groundwater extraction, about 215.10 BCM, approximately 87%, is utilised for irrigation. As per Wastelands Atlas 2019, about 55.76 mha of land in the country has been mapped as wasteland including land affected by salinity (about 16.96% of the total geographical area of the country).

Watershed Development Component of Pradhan Mantri Krishi Sinchayee Yojana is being implemented by Department of Land Resources (DoLR). Under the scheme, activities such as soil and moisture conservation, construction of water harvesting structures, horticulture/afforestation, pasture development and livelihood interventions are undertaken to restore the productive potential of degraded lands. Further, under Viksit Bharat – Guarantee for Rozgar and Aajeevika Mission – Gramin (VB-G RAM-G), water conservation activities are prioritised through Natural Resource Management (NRM) works. These constitutes 110 works out of 318 permissible works under the programme that improves water security and conservation.

The Government supplements the efforts of State Government through Central and Centrally Sponsored Schemes to make agriculture a sustainable practice. Under the Crop Diversification Program (CDP) is implemented in original Green Revolution States of Punjab, Haryana and Western Uttar Pradesh to diversify cropping pattern away from water guzzling paddy. To diversify major tobacco growing areas, CDP has been extended in States of Andhra Pradesh, Maharashtra, Bihar, Karnataka, Uttar Pradesh, Odisha, Tamil Nadu, Telangana and West Bengal. Crop diversification is being promoted through the Mission for Aatmanirbharta in Pulses, the National Mission on Edible Oils–Oilseeds (NMEO-OS), and the National Food Security & Nutrition Mission (NFSNM). Per Drop More Crop scheme improves water use efficiency at the farm level through Micro Irrigation technologies i.e. drip and sprinkler irrigation systems. Rainfed Area Development scheme is implemented to promote Integrated Farming System for enhancing productivity and minimizing risks associated with climatic variability. The Soil Health and Fertility scheme assists states in promoting Integrated Nutrient Management through judicious use of fertilizers. Organic farming is promoted through Paramparagat Krishi Vikas Yojana and natural farming through National Mission on Natural Farming scheme. Mission for Integrated Development of Horticulture, Agroforestry & National Bamboo Mission also promote climate resilience in agriculture.

MoJS promotes effective groundwater management through policy, regulatory and technical measures. Guidelines for the regulation of groundwater withdrawal by industrial, infrastructure and mining projects has been notified on 24.09.2020. CGWB has completed the National Aquifer Mapping (NAQUIM) project in the entire mappable area of about 25 Lakh sq. km. CGWB has also prepared a Master Plan for Artificial Recharge to Groundwater- 2020 indicating various structures for the different terrain conditions. The Aquifer maps and management plans have been shared with respective State agencies for implementation and raising awareness among stakeholders including farmers about various ground water management plans.
