

GOVERNMENT OF INDIA
MINISTRY OF PETROLEUM AND NATURAL GAS
RAJYA SABHA
UNSTARRED QUESTION NO. 937
ANSWERED ON 27/07/2026

WATER CONSUMPTION AND SUSTAINABILITY IN ETHANOL PRODUCTION

937. SHRI BABUBHAI JESANGBHAI DESAI:

Will the Minister of PETROLEUM AND NATURAL GAS be pleased to state:

- (a) whether Government has assessed the quantity of water required for producing one litre of ethanol from different feedstocks such as sugarcane, maize and damaged food grains;
- (b) if so, the details thereof, including the average water consumption per litre of ethanol produced;
- (c) whether Government has conducted any study on the impact of large-scale ethanol production on groundwater resources, irrigation demand and drinking water availability, particularly in water-stressed States; and
- (d) the measures taken to promote water-efficient technologies, wastewater recycling and sustainable ethanol production while achieving the national ethanol blending targets?

ANSWER

THE MINISTER OF STATE IN THE MINISTRY OF PETROLEUM AND NATURAL GAS
(SHRI SURESH GOPI)

(a) to (d): The Government has adopted a balanced approach to the Ethanol Blended Petrol (EBP) Programme, ensuring that water sustainability, food security and farmers' interests remain paramount. Under the National Policy on Biofuels, ethanol is produced from a diversified basket of feedstocks, including sugarcane-based feedstocks, maize, damaged foodgrains, broken rice, foodgrains unfit for human consumption, surplus foodgrains approved by the National Biofuel Coordination Committee (NBCC) and other approved agricultural feedstocks.

This diversified approach reduces dependence on any single crop while improving feedstock resilience (contribution of maize towards ethanol blending has improved from 0% in ESY 21-22 to around 37% in ESY 25-26).

The Government is promoting crop diversification towards comparatively less water-intensive feedstocks such as maize. An Expert Committee constituted by the Ministry of Agriculture & Farmers Welfare in 2024 examined the water requirement of various ethanol feedstock crops, and its recommendations are being considered while implementing the programme.

Water-use efficiency is also being enhanced through micro-irrigation, drip irrigation and other water conservation measures under the Per Drop More Crop component of the Pradhan Mantri Krishi Sinchayee Yojana. Many sugar mills are also encouraging farmers to adopt water-efficient cultivation practices.

Molasses-based distilleries with incineration boilers and grain-based distilleries are required to operate as Zero Liquid Discharge (ZLD) units, enabling recycling and reuse of process water while eliminating liquid effluent discharge. Modern ethanol plants typically consume about 3–5 litres of processed water for producing one litre of ethanol.
