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EDITORIAL ANALYSIS

Grain for Fuel: India's Rice-to-Ethanol Dilemma

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GS3

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THE LIFT LINE

Blending ethanol into petrol cuts oil imports and carbon, and India reached its 20 per cent target years ahead of schedule. But a policy that pours subsidised food-grain, procured for the poor, into fuel tanks at prices below welfare-scheme rates forces an uncomfortable question: when a nation has both hungry citizens and thirsty aquifers, is grain the right thing to burn?

WHY THIS EDITORIAL MATTERS FOR YOUR EXAM

Ethanol policy braids together **energy security** (<https://ujjyari.com/terms/energy-security/>), agriculture, water stress, food security and public finance, a classic multi-dimensional GS3 theme.

GS Paper 3: Issues of buffer stocks and food security; public distribution system; cropping patterns; e-technology and infrastructure; energy security; environmental impact of agriculture; government budgeting and subsidies.

Prelims angle: E20 and the Ethanol Blended Petrol Programme, the Open Market Sale Scheme (OMSS-Domestic), FCI economic cost, the National Food Security Act 2013, BIS standard IS 19850:2026, and ethanol feedstocks.

Mains angle: Critically examine the food-versus-fuel trade-off in India's ethanol blending programme and evaluate second-generation ethanol and maize as food-neutral alternatives.

BACKGROUND AND CONTEXT

India achieved 20 per cent ethanol blending (E20) in 2025, about five years ahead of the 2030 target. From April 1, 2026, all petrol sold in the country must be E20. Ethanol blending reduces crude oil imports, saves foreign exchange and lowers vehicular emissions, and it has become a flagship of India's energy-transition

story.

To feed the distilleries, surplus rice held by the Food Corporation of India (FCI) is sold under the Open Market Sale Scheme (Domestic), or OMSS-D. Here the controversy sharpens. The price of FCI rice for ethanol was cut to about Rs 2,250 to 2,320 per quintal, roughly Rs 22 to 23 per kg, against an FCI economic cost of about Rs 41.73 per kg. In effect, grain that cost the exchequer over Rs 41 per kg to procure and store is sold to private distilleries at nearly half that price, a deep and much-criticised subsidy.

The volumes are large and rising. The formal revised standard operating procedure caps rice-to-ethanol conversion at about 72 lakh tonnes (LMT) for ethanol supply year 2025-26, while the Food Secretary announced a plan to redirect up to about 90 LMT of FCI rice. Read the 90 LMT as the announced plan and the 72 LMT as the SOP cap, both sharply up from 52 LMT the previous year.

THE CORE ARGUMENT / ISSUE

The food-versus-fuel contradiction

The National Food Security Act, 2013 (<https://ujivari.com/legislation/food-security-act-2013/>) entitles about 80 crore people to subsidised grain. The core contradiction is this: grain procured at Minimum Support Price for the food security of the poor is being sold to private distilleries at prices below what welfare schemes themselves value it at. A public asset created for nutrition is subsidised again for fuel.

The water and climate paradox

(HTTPS://UJIYARI.COM/VOCAB/FEEDSTOCK/)	APPROX. WATER USE	ETHANOL FEEDSTOCK SHARE	FOOD-SECURITY PROFILE
Rice (paddy)	about 3,000 to 5,000 L/kg	rising via FCI diversion	Staple; directly competes with food
Maize	about 900 to 1,200 L/kg	about 48 per cent (single largest)	Less water-intensive; friendlier
Rice straw / stubble (2G)	negligible marginal water	emerging	Food-neutral; uses waste

Paddy is extraordinarily thirsty, needing about 3,000 to 5,000 litres of water per kg. It is grown heavily in Punjab and Haryana, where the Indus Basin aquifer (<https://ujivari.com/terms/aquifer/>) is among the world's most overexploited; the Central Ground Water Board found about 87 per cent of Punjab's blocks over-exploited. Rice cultivation is also a major methane source, accounting for roughly a fifth of India's total methane emissions and close to a quarter of its agricultural methane. Diverting rice to ethanol therefore rewards the most water-guzzling, methane-intensive crop precisely where groundwater is collapsing.

The crop-diversification contradiction

NITI Aayog and ICAR advise shifting Punjab and Haryana away from water-guzzling paddy toward maize, pulses and millets. The ethanol policy pulls in the opposite direction by guaranteeing offtake for rice, entrenching the very cropping pattern the state wants to break. Maize, needing about 900 to 1,200 litres per kg, is the more food-security-friendly feedstock and is already the single-largest ethanol feedstock at about 48 per cent. Second-generation (cellulosic) ethanol made from rice straw and stubble is the genuinely food-neutral path, and it doubles as a solution to stubble-burning pollution.

HOW TO THINK ABOUT THIS (ANALYTICAL FRAME)

Frame it as a **three-way trade-off triangle**: energy security, food security and water security. Ethanol from FCI rice improves the first, but at a cost to the second and third. The policy question is not whether to blend, but what to blend from. Rank feedstocks by their footprint: second-generation ethanol from crop residue (best, food and water neutral), then maize (moderate), then surplus rice only as a genuine last resort for stocks that would otherwise rot.

Add the **fiscal lens**: selling grain below economic cost is a subsidy transfer from taxpayers to distillers. That may be defensible for genuinely surplus, deteriorating stock, but not as a standing policy that pulls fresh procurement toward fuel.

THE DIAGRAM IN WORDS

Picture a single grain of rice at the centre, pulled by three ropes. One rope, labelled Fuel, drags it toward the ethanol distillery and the petrol pump. A second rope, labelled Food, drags it toward the ration shop and 80 crore beneficiaries. A third rope, labelled Water, is really a warning sign: producing that grain drained thousands of litres from a falling aquifer. A wise policy loosens the Fuel rope in favour of residue and maize, keeps the Food rope taut, and stops pulling harder on the Water rope in an already parched Punjab.

WAY FORWARD

- 1 **Prioritise second-generation ethanol.** Scale up cellulosic ethanol from rice straw and stubble; it is food-neutral and cuts stubble-burning.
- 2 **Shift the feedstock mix to maize.** Support maize cultivation and offtake so grain-based ethanol leans on the less thirsty crop.
- 3 **Cap grain diversion strictly.** Use FCI rice for ethanol only for genuinely surplus, non-issuable stock, never at the cost of NFSA entitlements.
- 4 **Align with crop diversification.** Ensure ethanol offtake incentives do not undercut NITI Aayog and ICAR advice to move Punjab and Haryana away from paddy.

5 **Rationalise the subsidy.** Reprice OMSS-D rice closer to economic cost so taxpayers do not subsidise private distillers below welfare valuations.

6 **Sequence the roadmap carefully.** With BIS standard IS 19850:2026 notifying specs for E22, E25, E27 and E30 (effective May 15, 2026) and a roadmap toward about 27 per cent blending by 2030, ensure higher blends draw on sustainable feedstocks, not more food-grain.

PYQ LINKAGE AND PRACTICE

The theme links to UPSC’s interest in food security, subsidies and sustainable agriculture. **UPSC Mains GS3 (2018):** “What are the reasons for the introduction of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003?” connects on subsidy discipline, while **GS3 (2020)** questions on cropping patterns and minimum support price map directly. Prelims regularly tests the Ethanol Blended Petrol Programme and NFSA.

Practice question (Mains, 15 marks, 250 words): “India’s ethanol blending programme has succeeded on energy security but raises a food-versus-fuel dilemma. Critically examine the diversion of FCI rice to distilleries and suggest a sustainable feedstock strategy.”

Sources: The Indian Express (<https://indianexpress.com>)

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