

GENERAL STUDIES III

Indian Agriculture's Polycrisis UPSC 2026: Explained

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Decode Indian agriculture's polycrisis for UPSC Prelims and Mains. Learn how climate, fertilizer costs, and biofuels interact with policy solutions.

Indian Agriculture's Polycrisis UPSC 2026: Explained

Indian agriculture's polycrisis connects UPSC GS Paper 3 topics covering farming, food security, energy and climate change with GS Paper 2 concerns about policy coordination and welfare. For Prelims, revise fertilisers, biofuels and El Niño; for Mains, examine interacting risks. **Indian agriculture's polycrisis** describes how simultaneous pressures can reinforce one another, making isolated solutions inadequate.

Introduction: What Makes This a Polycrisis?

A polycrisis is more than several problems occurring together. It arises when difficulties interact and amplify damage. A rainfall shock can increase irrigation demand while expensive energy raises pumping costs. If fertiliser supplies also tighten, farmers face higher expenditure alongside uncertain yields. The combined burden can exceed the impact of each shock considered separately.

Background: Farming Within Global Networks

Indian farms are linked to international markets through fuels, fertilisers, edible oils, machinery and trade. Domestic production therefore does not imply complete insulation from external shocks. A fertiliser manufactured in India may still rely on imported feedstock or energy. Equally, imports can cushion domestic shortages when global supplies remain accessible.

The contemporary debate highlights two connections: agriculture's dependence on fossil-energy-linked inputs and the use of agricultural feedstocks for fuel. These links create benefits as well as vulnerabilities. Analysis must establish the transmission channels rather than assume that every international disturbance produces an identical domestic outcome.

Key Features: The Interlocking Pressures

1. Fossilisation of Farming

Here, fossilisation refers to dependence on fossil fuels across agricultural production and distribution. Diesel powers machinery and transport, while natural gas is an important feedstock for ammonia production. Energy-price changes can consequently influence fertiliser costs, irrigation, processing and logistics. The degree of exposure varies across farming systems.

2. Fuelisation of Food

Fuelisation describes the growing connection between agricultural produce and fuel markets. Ethanol production can create demand for farm output and substitute for some petroleum use. However, feedstock allocation can generate trade-offs among food, animal feed, fuel, land and water. Their severity depends on stocks, harvests, technology and policy design.

3. Climate and Weather Risks

Heat, drought, flooding and poorly distributed rainfall affect different crops and growth stages differently. El Niño can alter weather probabilities, but does not determine every district's rainfall. WMO's October 2026 update described a strengthening event. Local agricultural decisions still require IMD advisories and observations of reservoirs, soils and crop conditions.

4. Geopolitical and Supply-Chain Disruptions

Conflict can affect energy availability, fertiliser trade, shipping routes, freight and insurance. Disruption matters particularly when supplies are concentrated or alternatives take time to arrange. Nevertheless, exposure is not proof of shortage: inventories, domestic production and diversified contracts can provide important buffers.

How agricultural risks can reinforce one another

Initial pressure	Possible transmission
Rainfall deficit	Higher irrigation needs and uncertain crop output
Energy-price increase	Costlier pumping, fertiliser production and transport
Shipping disruption	Delayed inputs and higher delivery costs
Competing feedstock demand	Trade-offs among food, feed and fuel uses
Lower farm income	Reduced investment and greater household vulnerability

Significance for India

The consequences extend beyond crop yields. Farmers may experience reduced margins even when output remains stable. Consumers can face higher food prices, while governments face competing demands for input support, food assistance and infrastructure. National food availability also differs from household access: sufficient aggregate stocks do not automatically guarantee affordable, nutritious diets everywhere.

Rural households are diverse. A farmer may sell grain while buying vegetables, oil and livestock feed. Higher prices can therefore produce mixed effects. Landless workers, tenants and households with weak financial buffers may need support distinct from measures directed primarily toward landowners.

Challenges in Designing a Response

- **Policy silos:** Agriculture, energy, water, trade and welfare decisions can pull in different directions.
- **Uneven information:** Comfortable national supplies may coexist with local distribution problems.
- **Transition costs:** Switching crops requires knowledge, suitable seeds, buyers and working capital.
- **Resource pressures:** Production incentives can encourage unsuitable cropping patterns or excessive groundwater use.
- **Fiscal trade-offs:** Emergency support can protect livelihoods while limiting resources available for long-term investment.

The response should avoid false choices. Abruptly removing inputs can threaten productivity, while maintaining inefficient use indefinitely can deepen vulnerability. Similarly, judging biofuels requires examining feedstock, location, water use and lifecycle emissions rather than treating every production pathway as equivalent.

Relevant Policy Features and Evidence

A July 2026 official statement assessed fertiliser requirements for 2025–26 at **677.18 lakh metric tonnes**, against 649.43 lakh metric tonnes in 2024–25, approximately 4% higher. It highlighted advance planning and supply partnerships. This illustrates the need to distinguish assessed requirements, availability and actual consumption.

The Economic Survey 2025–26 discusses crop diversification, income protection and emerging ethanol-related incentives. Relevant adaptation initiatives include NICRA and the National Mission for Sustainable Agriculture. These instruments address different parts of the problem; their effectiveness depends on coordination and local implementation.

Way Forward: Manage the Connections

- **Integrate monitoring:** Track weather, reservoirs, input stocks, prices and logistics together to identify compound risks early.
- **Diversify supplies:** Reduce excessive concentration in sourcing while improving domestic efficiency and contingency planning.
- **Improve nutrient management:** Combine soil testing, balanced application and locally appropriate organic inputs without assuming complete substitutability.
- **Support voluntary diversification:** Provide demonstrations, transition assistance and credible markets for suitable alternative crops.
- **Govern water demand:** Pair efficient irrigation with aquifer assessment and incentives consistent with local water budgets.
- **Review biofuel trade-offs:** Assess feedstock allocations against food, feed, water and energy conditions using transparent evidence.
- **Protect vulnerable households:** Coordinate timely relief, food access and livelihood support when shocks occur together.

Prelims Pointers: Facts and Reports

- **El Niño:** The warm phase of ENSO, involving coupled tropical Pacific ocean-atmosphere changes.
- **Fertiliser link:** Domestic manufacturing can retain exposure to imported energy and raw materials.
- **Biofuels:** Feedstock choice influences land, water and food-system implications.
- **Reference material:** Use the Economic Survey, IMD advisories, WMO updates and official fertiliser statistics.
- **Data caution:** Product tonnage and nutrient tonnage measure different quantities.

Mains Value Addition

Use the **food-energy-water nexus** to organise analysis. Identify an initial shock, explain its transmission and evaluate who bears the cost. Then distinguish immediate protection from structural reform. A useful argument is that resilience requires managing dependencies and trade-offs, rather than maximising one sector's output while ignoring costs elsewhere.

UPSC PYQs and Practice Questions

PYQ linkage: Revise themes on crop diversification, irrigation, subsidies and food security. The following are original practice questions, not actual UPSC PYQs.

Prelims MCQ 1

Consider two statements: (1) Domestic fertiliser production necessarily eliminates exposure to international energy markets. (2) Energy-price increases can affect farming through both inputs and logistics. Which is correct?

- A: Statement 1 only.
- B: Statement 2 only.
- C: Both statements.
- D: Neither statement.

Answer: B. Domestic factories may use imported feedstock or energy. Fuel costs can influence production and transport.

Prelims MCQ 2

Which situation best illustrates an agricultural polycrisis?

- A: An isolated machinery breakdown.
- B: A routine seasonal harvest.
- C: Drought increases pumping needs while expensive fuel and disrupted inputs further squeeze farm income.
- D: A single farmer changes its seed supplier.

Answer: C. Multiple pressures interact and amplify the overall impact.

Mains Practice Question

"Agricultural resilience requires coordinated management of food, energy and water." Discuss with reference to climate risks, fertiliser dependence and biofuel policy. **(150 words; 10 marks)**

Conclusion

India's agricultural challenge involves interacting production, income and resource risks. Effective policy must combine immediate protection with diversified supplies, sound agronomy and coordinated incentives. Resilience means sustaining affordable food and viable livelihoods while preserving the ecological foundations of future production.

Key Takeaways for Revision

- A polycrisis involves interacting and reinforcing pressures.
- Domestic output does not eliminate imported-input exposure.
- Biofuel benefits and trade-offs require contextual assessment.

- Coordinate food, energy, water and livelihood policies.

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