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India's Fertilizer Crisis: 70% Import Dependence and the Reform Imperative

13 April 2026 · ECONOMY · ENVIRONMENT · SOCIAL ISSUES

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13 April 2026 · 6 min read · 3 tags

WHY IN NEWS

Agricultural economist **Ashok Gulati** (ICRIER) called for urgent fertilizer policy reform, highlighting that India's **~70% fertilizer import dependence** and ₹1.95–2 lakh crore annual subsidy burden represent a structural vulnerability in India's food security system. The 2026 West Asia conflict (Iran-Israel tensions disrupting Gulf supply chains) caused global urea prices to spike **65% in 40 days** — exposing how fragile India's farm input security truly is.

INDIA'S FERTILIZER SECTOR — THE BASICS

India's Fertilizer Consumption

India is the **world's second-largest consumer of fertilizers** after China:

METRIC	FIGURE
Annual fertilizer consumption	**~40 million tonnes**
Urea consumption	~35 million tonnes (largest single fertilizer)
DAP (Di-ammonium Phosphate) consumption	~11–12 million tonnes
MOP (Muriate of Potash) consumption	~4–5 million tonnes
Domestic urea production capacity	~26 million tonnes
Domestic DAP + MOP production	Very limited — heavily imported
Overall import dependence	**~70%**

India's Fertilizer Subsidy Architecture

India operates a **dual subsidy system**:

1. **Urea subsidy (MRP-fixed)**: Urea retail price is fixed by the government (currently ~₹5,360/bag of 45 kg — among the lowest in the world). The difference between cost-of-production/import and MRP is paid by the government directly to manufacturers/importers.

2. **NBS (Nutrient-Based Subsidy)**: For P&K (phosphorus and potassium) fertilizers — fixed subsidy per kg of nutrient. Retail prices are market-determined (with NBS reducing the gap).

YEAR	FERTILIZER SUBSIDY (₹ CRORE)
2020–21	~1,27,922 crore
2021–22	~1,53,658 crore (Russia-Ukraine spike)
2022–23	~2,25,220 crore (peak year)
2024–25	~1,95,000 crore
2025–26 (estimated)	**~₹2 lakh crore**

THE IMPORT DEPENDENCE PROBLEM

Why India Imports So Much

FERTILIZER	IMPORT SHARE	REASON
Urea	~25–30%	Domestic capacity insufficient; high energy cost for gas-based production
DAP	~60–65%	India lacks phosphate rock reserves; imports from Morocco, Jordan, Saudi Arabia
MOP (Potash)	~100%**	India has zero domestic potash reserves
Ammonia	~40%	Gas feedstock dependency
Sulphur	~100%	No domestic production

Key supplier countries for India:

- Urea: **Saudi Arabia, Qatar, UAE, Oman, China, Russia**
- DAP: **Saudi Arabia, Morocco, China**
- Potash: **Canada, Belarus, Russia**
- All heavily concentrated in geopolitically sensitive regions

The 2026 Supply Shock

The Iran-Israel conflict in West Asia (March 2026):

- Disrupted Gulf shipping lanes; insurance premiums spiked
- **Global urea prices rose 65% in 40 days**
- India's existing buffer stocks cushioned immediate impact — but exposed long-term vulnerability
- Fertilizer prices feed directly into farm input costs → food prices → inflation

NUTRIENT USE EFFICIENCY — THE WASTE PROBLEM

Beyond import dependence, India faces a **Nutrient Use Efficiency (NUE) crisis**:

FERTILIZER	NUE IN INDIA	WORLD AVERAGE	LOSS MODE
Urea (nitrogen)	**35–40%**	50–60%	Volatilisation (ammonia), leaching, denitrification
DAP (phosphorus)	~20–25%	30–40%	Soil fixation, runoff
Potash (K)	~50–60%	60–70%	Leaching in sandy soils

What does 35–40% NUE for urea mean? India uses ~35 million tonnes of urea annually. Only **~12–14 million tonnes** actually benefits crops — the rest:

- **Volatilises as ammonia** (air pollution; acidification)
- **Leaches into groundwater** (nitrate contamination of drinking water)
- **Runs off into water bodies** (eutrophication; algal blooms)

At ₹5,360/bag at retail price (and actual cost ~₹17,000–20,000/bag), the waste of 60–65% urea represents **₹1+ lakh crore in wasted subsidy resources annually**.

DISTORTIONS CREATED BY THE CURRENT POLICY

1. Urea Overuse

Because urea is priced at ~30% of its market cost, farmers over-apply it:

- Distorts NPK ratio: India's actual use ratio is ~8:3:1 (nitrogen: phosphorus: potash); ideal is 4:2:1
- Excess nitrogen damages soil health, reduces yield over time
- Green Revolution-era yield gains are stagnating partly due to soil degradation from fertilizer misuse

2. Neem-Coating Partial Fix

India mandated **100% neem-coating of urea** (2015) to slow nitrogen release and reduce diversion to industry (urea was being illegally used in chemicals, melamine manufacturing). Neem-coating improved NUE marginally but didn't fix the fundamental price incentive problem.

3. Industrial Diversion

Cheap urea has historically been diverted for industrial uses (melamine, animal feed adulteration). Neem-coating + PAHAL (direct subsidy to manufacturers) reduced diversion.

4. Import Bill Vulnerability

India's annual fertilizer import bill: **$8–10 billion** (normal year); can spike to $14+ billion during price shocks. Paid in dollars — adds to current account deficit and currency pressure.

ASHOK GULATI'S REFORM PROPOSALS

Ashok Gulati (Distinguished Fellow, ICRIER — Indian Council for Research on International Economic Relations) has proposed a two-part reform:

1. Direct Benefit Transfer (DBT) for Fertilizers

- Replace the current producer/importer subsidy with **direct cash transfer to verified farmers** (linked to land records + Aadhaar)
- Farmer buys fertilizer at market price; government transfers subsidy directly to their account
- Advantage: Eliminates leakage, industrial diversion; government pays only for actual farming use
- Precedent: **PAHAL scheme** (LPG DBT) transferred ₹97,000+ crore, saved ~₹50,000 crore in leakages

2. Crop-Neutral Quantitative Rationing

- Currently, urea subsidies benefit paddy + wheat farmers disproportionately (they are intensive urea users)
- Proposed: Subsidy per acre (regardless of crop) — incentivises shift to less nitrogen-intensive crops (pulses, oilseeds)
- Helps address India's edible oil and pulse import dependence simultaneously

Challenges to Reform

- **Political sensitivity**: Fertilizer prices are a third rail in Indian politics; any price increase triggers farmer protests
- **Database gaps**: Land records not fully digitised in all states; multiple landholdings create targeting challenges
- **MSP linkage**: Farmers argue if fertilizer prices rise, MSP must rise — creating a fiscal spiral

INDIA'S FERTILIZER SELF-SUFFICIENCY INITIATIVES

INITIATIVE	DETAILS
Nano Urea (IFFCO)	Liquid urea: 500 ml bottle replaces one 45 kg bag; NUE claim: 85–90%; launched 2021; scale-up ongoing
Nano DAP (IFFCO)	Liquid DAP substitute; launched 2023
GOBARdhan	Organic fertilizer from cattle waste → biogas + slurry (organic manure)
Paramparagat Krishi Vikas Yojana (PKVY)	Organic farming cluster development
Soil Health Card	Soil testing + customised nutrient recommendations → reduce over-fertilization
PM PRANAM	States that reduce fertilizer consumption get rebate from subsidy savings
New fertilizer plants	Revival of Gorakhpur, Barauni, Sindri, Talcher urea plants (closed since 1990s–2000s)

UPSC RELEVANCE

PAPER	ANGLE
GS3 — Economy/Agriculture	Fertilizer subsidy; NUE; DBT for fertilizers; Nano Urea; import dependence
GS3 — Environment	Nutrient pollution; groundwater nitrate contamination; soil degradation; eutrophication
GS2 — Governance	PAHAL scheme; DBT in agriculture; PM PRANAM; Soil Health Card
GS3 — Food Security	Fertilizer-food nexus; supply chain vulnerability; MSP distortions
Prelims	Gulati/ICRIER; India imports ~70%; Urea NUE 35–40%; Nano Urea (IFFCO 2021); PM PRANAM; GOBARdhan
Interview	"India's fertilizer subsidy saves farmers today but makes agriculture fragile tomorrow — how would you redesign it?"
Mains Keywords	Nutrient Use Efficiency, DBT for fertilizers, Nano Urea, PM PRANAM, GOBARdhan, IFFCO, fertilizer import dependence, Ashok Gulati, ICRIER

> *Import dependence:* **~70%** | *Annual consumption:* **~40 million tonnes** | *Annual subsidy:* **~₹1.95–2 lakh crore** | *Urea NUE:* **35–40%** | *Urea global price spike:* **+65% in 40 days** *(2026 West Asia conflict)* | *Expert:* **Ashok Gulati, ICRIER** | *Reform: DBT for fertilizers + crop-neutral quantitative rationing* | **Nano Urea** *(IFFCO, 2021): 500 ml = 1 bag of urea* | **PM PRANAM***: states incentivised to reduce fertilizer use* | **Neem-coating** *(mandated 2015): slows release, reduces diversion* | *MOP:* **100% imported** *(India has zero potash reserves)* | *GS3: Agriculture, Economy, Environment*

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