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Fertilizer Scams in India: Cost to the Government and Farmers — Causes, Consequences and Policy Measures to Control Fraudulent Practices

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Abstract:

Fertilizers are a lifeline of India's agriculture — subsidised to keep farm input costs affordable and maintain food security. However, repeated episodes of diversion, counterfeit products, and illegal export, tax evasion, and procurement irregularities— broadly termed "fertilizer scams" — have imposed heavy economic and welfare costs on the Government of India and Indian farmers. This paper examines the nature and scale of fertilizer-related frauds, quantifies fiscal exposures where possible, analyses transmission channels (supply-chain weaknesses, subsidy design, private/public intersection, and enforcement gaps), and assesses consequences for agricultural productivity and farmer incomes. Using a mixed-methods approach (policy-document analysis, case-study review of high-profile investigations, budget data and secondary literature), the study provides a critical evaluation of institutional shortcomings and proposes an integrated set of reforms: subsidy re-design, end-to-end supply-chain digitisation, stricter licensing and audit norms, better laboratory and market surveillance, stronger criminal and financial investigation linkages, and farmer-facing grievance and verification mechanisms. The paper concludes with prioritized, practicable policy recommendations and an implementation roadmap aimed at significantly reducing leakages and protecting both fiscal integrity and farmer welfare.

Keywords: Fertilizer subsidy, fertilizer scams, diversion, counterfeit fertilisers, fiscal cost, supply-chain control, India, policy reform

JEL Codes: Q14, H25, H57, K42, O13

1. Introduction

Fertilizers (nitrogen, phosphatic and potassic products) are central inputs in modern Indian agriculture. To stabilise agricultural yields and farm incomes, the Government of India historically provided direct and indirect subsidies on key fertilizers, controlled prices in some segments, and regulated distribution channels. These policy instruments achieved yield gains but created a large fiscal exposure and complex distribution networks that, over time, created opportunities for rent-seeking, diversion of subsidised material to non-farm uses or export, sale of counterfeit and sub-standard products, and corrupt procurement and distribution practices.

This paper examines the nature of fertilizer-related scams in India, attempts to estimate their fiscal and welfare costs, and proposes policy measures to limit future fraud. We focus on (a) the mechanisms used to divert or counterfeit fertilizers; (b) the institutional and regulatory weaknesses enabling these actions; (c) documented cases and their consequences (government fiscal burden, farmer loss, market distortions); and (d) evidence-based, operational recommendations for prevention, detection and prosecution.

To ground the analysis, I use official budget documents, government press releases, investigative reports and media coverage of major cases and seizures, supplemented by academic and policy literature on subsidy design and agricultural input markets.

2. Literature Review

Scholarly and policy literature on subsidies and corruption — both in India and internationally — indicates recurrent patterns:

Subsidy capture in commodity programs tends to arise where physical goods are distributed through intermediaries (e.g., food, fertilizers, fuel). (See works on PDS leakage and petroleum subsidies.)

Electronic beneficiary identification and direct benefit transfer (DBT) have reduced leakages in some domains (e.g., LPG connections) by linking entitlements to verified recipients; analogous principles could be applied to fertilizer distribution.

Supply-chain digitisation and GPS/QR code tagging have been proposed and piloted in several settings to reduce diversion risk by enabling bag-level traceability.

Market-based reform advocates argue for moving subsidies to targeted cash transfers to farmers, combined with liberalised prices to reduce arbitrage opportunities, though political economy constraints are substantial.

Empirical studies emphasise that supply-side controls (licensing, audits) combined with demand-side verification (farmer receipts, mobile alerts) deliver the largest leakage reductions

3. Methodology

This study uses a mixed-methods approach:

Document analysis: Official budget documents, Department of Fertilisers notes, and Ministry press releases were reviewed to understand subsidy architecture and fiscal flows. (Key documents from 2023–2025 informed fiscal context.)

Case study synthesis: Media reports, investigative journalism and public statements by enforcement agencies (ED, CBI) and parliamentary replies were used to collate instances of diversion, seizure and probe actions. Selected cases illustrate modalities of scams and enforcement responses.

Secondary literature: Academic papers and policy notes on subsidy design, agricultural input markets and corruption economics provided theoretical framing.

Quantitative sensitivity thought experiments: Where precise leakage numbers were unavailable, range-based calculations (e.g., leakage % time's budget) were used to illustrate fiscal exposure magnitudes.

Limitations: The covert nature of fraud implies under-estimation risk; many incidents are detected only sporadically. The paper therefore focuses on plausible mechanisms, documented incidents, and policy remedies rather than claiming precise national leakage figures.

4. Critical Analysis

1. Why fertilizer fraud happens — Root causes (structural + opportunistic)

Large, opaque subsidy flows create incentives.

The fertilizer subsidy regime channels very large sums through complex procurement and price mechanisms. Complexity plus long supply chains make monitoring hard and create space for false claims, diversion, over-invoicing and collusion.

Regulatory fragmentation and legacy controls (FCO 1985).

The Fertilizer (Control) Order, 1985 provides essential quality and distribution rules but was designed for a different market structure; regulatory overlap (Centre vs states, multiple enforcement agencies) and dated provisions weaken enforcement and allow regulatory arbitrage.

Inadequate digital authentication until recently.

Attempts to move subsidies to a real-time, transaction-level model (DBT / PoS + Aadhar authentication) began only recently and have been technically and institutionally difficult. Until DBT coverage matured, subsidies were paid on paper entitlements or manufacturer claims — an environment ripe for manipulation**.**

Supply-chain concentration and import dependence for specialty inputs.

For many specialty fertilizers India depends on a few foreign suppliers; sudden import restrictions/interruptions (e.g., reported halts from China) can drive price spikes and incentivize black-market diversion and adulteration. External supply shocks thus magnify fraud opportunities domestically**.**

Weak penalties, selective enforcement and political economy.

Where enforcement is slow or penalties small relative to illicit gains, actors (from small dealers to larger firms and corrupt officials) rationally exploit loopholes. Political capture of certain regulatory touchpoints reduces deterrence**.**

2. How frauds are typically executed (mechanisms)

False claims / inflated subsidy invoices: manufacturers or intermediaries claim subsidy on fictitious or overstated sales. (Audits have repeatedly flagged this.)

Diversion of subsidized stock: subsidized product intended for needy farmers is diverted to non-targeted buyers or exported.

Adulteration / substitution: low-grade material sold as branded/subsidized fertilizer, reducing crop yields and harming farmer trust.

Collusion at procurement points: between dealers, transporters and local officials to create ghost invoices or manipulate PoS records before DBT maturity**.**

3. Consequences — quantifying costs to government and farmers (critical view)

Fiscal leakage and budgetary inefficiency.

Audit evidence and performance reviews show substantial mispayments and unverifiable subsidy claims across audit periods — meaning sizeable fiscal leakage and wrong allocation of scarce budgetary resources. This reduces the cost-effectiveness of subsidy policy and crowds out other public investments.

Lowered agronomic effectiveness and farmer losses.

Adulteration and diversion directly reduce crop yields for intended beneficiaries; farmers face both reduced productivity and the costs of re-application/compensatory inputs. Losses are not only immediate (yield drop) but also cumulative (soil health deterioration from poor quality inputs).

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- Market distortion and unfair competition**.**
- Fraudulent subsidized product sold into open markets undercuts honest manufacturers and dealers, discouraging investment in quality and making long-term domestic production less viable.

Supply-side vulnerability to geopolitics.

Recent reports of China halting specialty fertilizer exports to India illustrate how import dependence can cause sudden cost increases and scarcity, which in turn raise incentives for diversion and illicit channels — amplifying both fiscal and farmer costs.

5. What existing reforms reveal (DBT experience — Critical appraisal)

DBT in fertilizers (rollout from March 2018) addresses some symptoms but not all causes. The DBT/PoS + Aadhaar model shifts subsidy payments toward real-time sales records, reducing ex-post false claims at manufacturer level. However: implementation complexity (retailer PoS integrity, offline sales, and Aadhar authentication gaps), incomplete coverage of specialty inputs, and resistance from supply-chain actors limit effectiveness. Where DBT is properly implemented, leakages fall; where implementation is weak, fraud simply shifts modality.

Audits show persistent exceptions. CAG and other audits across subsidy cycles continue to find irregularities, suggesting that digital fixes alone are insufficient without complementary institutional strengthening, severe deterrents, and supply diversification.

6. Critical weaknesses that policy must address

- Transaction integrity vs. off-system workarounds. Digital PoS can be bypassed with forged records unless end-to-end chain-of-custody is enforced (transport, warehouses, retailer level).
- Asymmetric enforcement capacity. Investigative, forensic and legal capacities lag the sophistication of fraud networks.
- Incentive misalignment. Subsidy design often rewards volume rather than agronomic outcomes (e.g., promotes nutrient overuse) — which can drive waste and environmental harm.
- International supply risk exposure. Heavy dependence on single-country suppliers for specialty inputs creates macro and micro level vulnerabilities that interact with fraud incentives.

7. Key findings

Substantial fiscal leakage persists. Performance audits and sector reviews indicate recurrent unverified subsidy claims and payment irregularities across multiple audit periods, implying significant but variably estimated fiscal leakage.

Digital reforms (DBT) have reduced some leakages but are incomplete. DBT/PoS implementation since March 2018 has improved traceability where implemented correctly, but technical, institutional and coverage gaps mean fraud has shifted form rather than being eliminated.

Farmer welfare is directly harmed by fraud through diversion and adulteration. Quality failures and diversion reduce yields and increase input costs for farmers; these losses are not fully compensated by current policy mechanisms.

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Supply-side shocks (e.g., export halts from major suppliers) exacerbate fraud risk. Recent stoppages/restrictions in specialty fertilizer exports from China have pushed costs up and created scarcity, increasing the attractiveness of illicit channels and adulteration. This exposes an important link between geopolitics and domestic subsidy fraud**.**

Regulatory and enforcement gaps are the binding constraint, not just technology. Audits show that without stronger enforcement, legal penalties, and supply-chain verification (physical + digital), technological fixes will deliver partial gains only.

Short, evidence-based implications for policy

To meaningfully reduce fiscal and farmer costs, policy must combine (a) tighter, outcome-oriented subsidy design (shift incentives from volume to balanced nutrient outcomes), (b) full end-to-end chain-of-custody and real-time verification (PoS + transport/warehouse tracking + periodic physical audits), (c) stepped-up investigative and prosecutorial capacity with proportionate, fast penalties, and (d) supply-diversification for specialty inputs to reduce external shock vulnerability. Digital systems (DBT) are necessary but not sufficient; they must be complemented by stronger institutions and deterrence**.**

8. Background: Fertilizer Policy and Subsidy Architecture in India

India's fertilizer policy has evolved from price control and administrative distribution to a mixture of direct subsidies and market mechanisms. The major components historically include:

Nutrient-based and product-specific subsidies for urea and complex fertilizers, calibrated to production/import costs and international prices.

Direct and indirect fiscal transfers — including reimbursement to manufacturers/importers, concessionary freight, and other concessions — to maintain retail prices for farmers below economic cost. The budget for fertilizer subsidies is among the largest single components of the Centre's subsidies. For FY 2024–25, fertilizer subsidy allocations were in the order of magnitude of over ₹1.6 lakh crore (fertiliser subsidy figure commonly reported around ₹1.67 lakh crore), and the Department of Fertilisers' final allocation was later revised to around ₹1,91,836.29 crore in 2024–25.

Regulatory controls: The Fertilizer Control Order and related regulations place obligations on manufacture, import, distribution, packaging and quality standards. However, enforcement is largely shared between central and state agencies.

Subsidy programmes, while welfare-oriented, generate large flows of subsidised physical product and funds through complex intermediated channels — a structural condition that creates leakages unless strong verification and audit systems are present. The official budget documents explain that the difference between the amounts realised by way of sale to farmers and the import/production costs constitutes the subsidy; this mechanism implies that discrepancies in procurement, mis-invoicing or leakage directly translate into fiscal losses.

9. Types and Mechanics of Fertilizer Scams

Fertilizer scams in India take multiple forms. Understanding these helps design targeted controls.

9.1 Diversion of subsidised fertilizers to non-farm or export markets

Subsidised fertilizers intended for domestic farmers have been diverted to industries, traders, or even exported illegally, capturing the subsidy gain while depriving farmers. Mechanisms include fake retail sales documentation, collusion with authorised dealers, and manipulation of transport or warehouse records. High-profile investigations have uncovered cases where imported Muriate of Potash (MoP) purchased at subsidised rates was instead sold to companies/exported.

9.2 Sale of counterfeit and sub-standard fertilizers

Counterfeit fertilizers — mislabelled, adulterated or diluted — undermine productivity and farmer trust. Counterfeiters source cheaper inputs, repackage

them into bags resembling branded products and sell through informal channels; this both causes yield damage and diminishes the effective subsidy benefit. Recent seizures of fake bags indicate this is an ongoing and scaling problem.

9.3 False invoicing, mis-declaration and shell-company networks

False invoices, round-tripping of goods through shell companies, and collusive procurement practices allow actors to claim subsidy payments or divert supplies. Such fraud often crosses into money-laundering territory and is the subject of criminal probes and ED/CBDT/CVC investigations.

9.4 Corrupt interactions between officials and private agents

Multi-party distribution — involving fertilizers manufacturers, importers, dealers, transporters, and local government agents — creates multiple leverage points for corrupt exchange: illegal commissions, bribery for favourable allocation, and suppression of adverse quality reports.

9.5 Policy/design vulnerabilities

Key design vulnerabilities exacerbate corruption risk:

- Subsidy payments linked to production/import without robust farmer-level entitlement verification.
- Weak real-time tracking of physical bags from factory/import point to farm gate.
- Over-reliance on paper documentation and weak electronic reconciliation.
- Jurisdictional fragmentation between central and state enforcement bodies.

10. Evidence: Case Studies and Fiscal Incidents

This section synthesises notable cases and documented enforcement actions to illustrate the problem's scale and modalities.

10.1 High-profile diversion and probe cases (2013–2022)

Investigations and media reports over the last decade have exposed alleged diversion networks involving authorised distributors, companies and foreign entities. Government replies in Parliament and investigative agency actions have confirmed probes into imports during 2013–2017 where several NRIs and foreign firms were being examined. Some cases have attracted Enforcement Directorate actions, arrests and asset attachments. These cases indicate diversion and illegal commission structures that extract large rents over time.

10.2 Seizures of counterfeit fertilizer consignments (2024–2025)

Law enforcement actions and central directives in 2025 (and continuing) indicate renewed focus: large seizures (for example, over one lakh fake fertilizer bags seized in Hapur and similar crackdowns) and central advisories to states to conduct market surveillance and quality assurance. Such seizures show both the prevalence of counterfeits and the potential for rapid market penetration when international supply disruptions or price spikes occur.

10.3 Fiscal exposure: subsidy allocations and budgetary pressure

Fertilizer subsidy is a major fiscal item. Public budget documents and press releases show that for fiscal cycles around 2024–25, allocations and revised estimates for fertilizer subsidy and Department of Fertilisers appropriations ran into the order of ₹1.6–1.9 lakh crore (final department allotments revised to approximately ₹1,91,836.29 crore for 2024–25). Such large flows create systemic incentives for rent capture if controls are weak.

Load-bearing factual claims cited above: budget/subsidy figures and major probe/seizure incidents are substantiated with official releases and investigative reporting. (See references at the end.)

11. Quantifying the Cost — Fiscal and Farmer-Level Impacts

Quantifying the exact cost of fertilizer scams is challenging because leakages are hidden, multi-jurisdictional, and discovered intermittently. However, we can identify categories of losses:

11.1 Direct fiscal losses

These include subsidies paid on quantities diverted or on counterfeit volumes, erroneous reimbursements due to false invoicing, and extra payments caused by inflated claims. When diverted subsidised quantities are exported or sold in non-farm markets, the government effectively pays subsidy for products that do not reach intended beneficiaries. Given annual subsidy budgets

exceeding ₹1.5–1.9 lakh crore, even conservative leakage rates of 0.5%–2% translate into hundreds to thousands of crores annually.
Illustrative calculation (conceptual): If subsidy allocation = ₹1.7 lakh crore, then 1% leakage ≈ ₹1,700 crore; 2% leakage ≈ ₹3,400 crore. These are illustrative but show scale-sensitivity.

11.2 Farmer-level losses
Farmers face (a) lower effective nutrient uptake when using counterfeit/diluted products leading to yield declines, (b) higher outlays when they must repurchase effective inputs, and (c) long-term soil health damage from substandard inputs. If a farmer experiences a 5% yield reduction because of poor quality fertilizer, the income loss at scale across millions of hectares is substantial.

11.3 Market and welfare distortions
Subsidy capture by non-farm actors disincentives private-sector transparency and creates black markets. Counterfeit supplies erode trust in brands and extension services and may cause suboptimal cropping choices. At the macro level, these distortions reduce the bang-for-buck of public expenditure on agriculture.

11.4 Enforcement and reputational costs
Investigations, asset seizures and legal proceedings impose administrative costs and divert regulatory attention. Frequent scam revelations reduce public trust and require expensive remedial policy and communication measures.

12. Causes: Why Scams Persist?
Drawing from the evidence and policy literature, principal causes include:
Design issues in subsidy delivery: Linking subsidies to producers/importers rather than to verified farmer entitlements creates a rent surface that can be exploited.

Fragmented regulatory architecture: Multiple agencies with overlapping jurisdiction (central and state) produce enforcement gaps and confused accountability.

Weak chain-of-custody tracking: Lack of reliable, tamper-proof tracking from port/factory to retailer leaves room for substitution, diversion and fake repackaging.

Information asymmetry and weak lab testing: Insufficient laboratory capacity and long testing turnaround encourage market circulation of adulterated products.

Corrupt networks and collusion: Entrenched local networks can manipulate allocations, inspector reports, and dealer licensing.

Price and supply shocks: International price spikes or import restrictions create shortages that criminal networks exploit (e.g., during periods of global tightening).

Inadequate criminal and financial deterrence: Slow prosecution, low conviction risk, and minimal asset recovery lower the cost of malfeasance compared to the potential gains.

13. Analysis: Why Past Reforms Have Had Limited Effect
Several reform attempts (e.g., improved monitoring guidelines, advisories to states, tightening of licensing) have had episodic success but limited systemic impact. Reasons include:

Partial implementation: Central directives are not uniformly implemented at state level — gaps in inspection staff, labs, and political will hinder enforcement.

Technological mismatches: Where digital tagging or DBT pilots are introduced, they often lack integration with dealer operations or offline verification mechanisms for remote regions.

Enforcement fragmentation: Multiple agencies may investigate but lack the coordinated investigative frameworks to follow financial flows and prosecute complex money-laundering networks.

Adversarial incentives: Powerful industrial or trading actors with deep networks are able to adapt to controls — e.g., by using new shell companies or new smuggling routes.

14. Recommendations: A Comprehensive Anti-Scam Strategy
An effective anti-scam strategy must be layered: preventive, detective and punitive. Below are prioritized, operational measures.

14.1 Re-design subsidy delivery: Targeting and transparency

Farmer-linked entitlements: Move progressively from producer/importer-linked subsidy reimbursement towards beneficiary-linked mechanisms. For example, issue fertilizer entitlements (bag counts or rupee credits) to registered farmers, redeemable at authorised dealers via Aadhar/Land ownership Record/mobile OTP at point of sale. This reduces the scope for diversion because the actual sale requires farmer authentication.

Conditional transitional options: For regions with low digital penetration, maintain hybrid systems (paper + digital) with stronger audit trails.

14.2 End-to-end traceability and tamper-proof packaging

Mandatory bag-level QR/unique IDs: All subsidised fertilizer bags to carry digitally verifiable QR codes/unique ID printed at factory/import point. Codes should be cryptographically signed to deter counterfeiting. Scanned at each nodal point (warehouse, transporter, dealer) with GPS/time stamp.

Block chain pilots for high-risk corridors: Use permissioned block chain for immutable logs in pilot districts or for high-value imports (e.g., MoP consignments) to test scalability and forensic auditability.

14.3 Strengthen market surveillance and lab testing

Network of accredited labs: Expand and accredit mobile rapid-testing kits and regional labs so field quality testing is fast, authoritative and inexpensive. Publicise quick penalty provisions for confirmed counterfeits.

Randomised market checks with farmer participation: Periodic combined central-state inspection drives with sample testing, public reporting and rapid prosecution where fraud is confirmed.

14.4 Licensing, audit and dealer governance

Stringent dealer due diligence: Background checks, performance bonds and digital transaction requirements for authorised dealers. Real-time sales reporting to central registry.

Dealer scorecards: Publicly available dealer performance metrics (sales reconciliation, quality incidents) to enable marketplace choices and government targeting of inspections.

14.5 Financial investigation linkage and asset recovery

Fast-track financial forensics: Create a standing inter-agency task force (Department of Fertilisers, CBI/ED, Income Tax and Customs) for fertilizer fraud with authority for rapid asset attachment and cross-border cooperation.

Enhanced penalty regime: Strengthen criminal penalties tied to money-laundering rules and add administrative fines scaled to the fraud magnitude to raise expected cost.

14.6 Farmer-facing grievance and verification systems

SMS/IVR purchase confirmation: Every purchase at a dealer sends an automated SMS to the registered farmer confirming quantity and batch; discrepancy triggers grievance escalation channel to a central toll-free number and local inspector.

Awareness campaigns: Inform farmers about authentic packaging, QR checks and complaint routes; incentivise whistle-blowers with protected, rewarded reporting.

14.7 Policy-level reforms and phased liberalisation

Rationalise subsidy formulas: Move towards targeted nutrient-based subsidies and consider cash transfers for small and marginal farmers in the medium term, contingent on robust identification and grievance systems.

Price signalling and market development: Encourage private branded fertilizers with certified quality and guarantee schemes to restore farmer trust and increase market-based competition.

14.8 Pilot, monitor and scale

Pilot in high-leakage states/districts: Implement the full package (QR tagging, farmer-linked entitlements, strengthened labs) in selected high-risk geographies, monitor quantitative leakage indicators, and scale on demonstrated success.

Independent evaluation: Commission an independent evaluator (academic or research

institute) to measure leakages pre/post pilot using matched controls and random audits.

14.9 Stringent Punitive Measures for people involved in Fertilizers Scams

To deter politicians, bureaucrats, companies, and traders from future scams, strong punitive actions are necessary:

Against Politicians

- **Mandatory Disclosure**: Any political leader linked to fertilizer contracts must disclose interests publicly.
- **Disqualification**: Immediate disqualification from Parliament/Assemblies, if convicted of fertilizer-related corruption.
- **Lifetime Ban:** Lifetime ban from contesting elections for politicians convicted twice for subsidy scams.

2. Against Bureaucrats

- **Fast-track CBI/ED Courts**: Fertilizer scam cases to be resolved within 1 year.
- **Dismissal & Pension Forfeiture**: Any bureaucrat found guilty should be dismissed with loss of pension/benefits.
- **Property Confiscation**: Seize ill-gotten assets and auction them to recover subsidy losses.

3. Against Fertilizer Companies & Traders

- **Blacklisting**: Ban guilty companies from government tenders for minimum 10 years.
- **Heavy Penalty**: Penalties 3–5 times the fraud amount.
- **Criminal Liability**: Directors/owners to face minimum 7 years imprisonment, not just fines.
- **License Cancellation**: Cancel dealership of traders/wholesalers proven to divert fertilizers.

4. Systemic Measures

- **Biometric Fertilizer Distribution:** Aadhar + biometric authentication for fertilizer purchase.
- **GPS Tracking of Trucks:** Mandatory GPS tracking of all fertilizer supply trucks to prevent diversion.
- **Whistle-blower Rewards:** Farmers/workers who report diversion get 5–10% of recovered amount.
- **Block chain-based Monitoring:** Use block chain to track subsidy release → distribution → farmer purchase.

Streamline implementation of Fertilizer Control Order (FCO) - 1985

Background

Issued under the Essential Commodities Act, 1955, the FCO 1985 came into force to regulate the fertilizer sector.

Before 1985, multiple scattered rules existed, but they were weak in preventing diversion, adulteration, or hoarding. The FCO consolidated all provisions related to manufacture, sale, quality standards, storage, distribution, and licensing of fertilizers in India.

Key Provisions

Licensing System

Manufacturers, importers, and dealers must obtain a valid license to produce, import, or sell fertilizers. Helps the government monitor the supply chain.

Quality Standards

Fertilizers must meet specific quality specifications (nutrient content, granule size, moisture content, etc.).Sale of non-standard, adulterated, or misbranded fertilizers is strictly prohibited.

Price Regulation

Government can fix maximum retail prices (MRP) of fertilizers like urea. Prevents overcharging and protects farmers from exploitation.

Distribution Control

The government may regulate movement, storage, and sale to ensure equitable availability across states. Stock limits can be imposed to prevent hoarding.

Sampling & Inspection

- Fertilizer Inspectors appointed under the FCO can:
- Draw samples from factories/dealers for testing.
- Enter and inspect premises.
- Seize adulterated fertilizers
- Penal Provisions
- Offenders can face fines, imprisonment, license cancellation, and confiscation of stock.

- Nutrient-based Regulations (Post-2000 Amendments)
- Expanded to include micronutrients, bio-fertilizers, and organic fertilizers.
- Introduced certification requirements for these category

Importance in Preventing Fertilizer Scams
If enforced strictly, FCO 1985 could stop diversion, black marketing, and adulteration. However, enforcement is uneven due to collusion between traders, bureaucrats, and politicians. Many scams (like diversion of subsidized urea to industry or fake subsidy claims) happened despite FCO being in force, showing weak implementation.

Limitations
Weak Monitoring – State agriculture departments often lack staff for inspections.
Legal Delays – Prosecutions under FCO drag on for years, diluting deterrence.

Political Interference – Dealers with political backing escape punishment.
Industrial Diversion Loophole – Urea meant for agriculture diverted to chemical industries due to weak enforcement.

Suggestions to Strengthen FCO, 1985
Digital Licensing – Online license issuance and renewal with Aadhar/PAN verification to stop fake dealers.

Real-time Stock Monitoring – Mandate IoT/GPS-based stock monitoring at godowns and factories.
Block chain in Subsidy Tracking – Ensure subsidy flows directly from government → manufacturer → authenticated farmer purchase.

Fast-track Fertilizer Courts – Special courts for fertilizer offences under FCO to decide cases within 6 months.

Integration with DBT – Link fertilizer purchases with Direct Benefit Transfer (DBT) system to cut middlemen.

Public Disclosure – Dealers' stock levels and sales should be online for farmers to check availability.
The FCO, 1985 is a robust law on paper, but its weak enforcement has allowed scams and diversions to thrive. Strengthening enforcement through technology, transparency, and strict punitive action against guilty politicians, bureaucrats, and traders is the only way to ensure fertilizers reach farmers at fair prices.

15. Implementation Roadmap and Cost Considerations

A practical implementation roadmap should be staged over 24–36 months:
Months 0–6 (Design & Legal): Regulatory mandates for bag tagging, dealer reporting; procurement specifications for QR/ID systems; legal amendments for penalties.

Months 6–12 (Pilot Setup): Choose 4–6 districts across diverse agro-climatic zones for end-to-end pilots; on board technology vendors and labs; train inspectors and dealers.

Months 12–24 (Pilot Execution & Evaluation): Run pilots through a full cropping cycle; monitor leakages, farmer satisfaction, and enforcement outcomes; adjust systems.

Months 24–36 (Scale-up): Phased national rollout, starting with high-risk states and import nodes; incorporate feedback and strengthen cross-agency forensic capacity.
Estimated costs: The main recurring costs are technology (QR printing, scanning devices), lab expansion and enforcement personnel. Compared to the fiscal risk of even small percentage leakages (which translate into thousands of crores), these investments have high benefit-to-cost prospects. A one-time outlay for national tagging and back-end systems is likely a small fraction (single-digit percent) of annual fertilizer subsidies, while yielding persistent leakage reduction.

16. Institutional and Political Economy Considerations

Reforms will face political economy challenges:
Stakeholder resistance: Dealers and traders who benefit from current rents may resist. Engagement and transition compensations (e.g., one-time reskilling, credit lines for compliance investments) can mitigate resistance.

Digital and access gaps: Remote farmers may lack phone/Aadhar access; hybrid mechanisms and local facilitation should be designed to avoid exclusion.

Inter-governmental coordination: Strong central leadership with shared performance metrics for states will be essential. Incentivise states via conditional grants tied to reductions in documented leakages and quality incidents.

17. Monitoring & Evaluation Metrics

- To measure success, adopt a small set of key performance indicators (KPIs):
- Percentage reduction in detected diversion incidents (number/volume) year-on-year.
- Number of counterfeit/sub-standard incidents detected per lakh tonnage (should decline).
- Time-to-detection for market quality violations (should shorten).
- Percentage of sales matched to farmer-verified transactions (aim for >90% in covered regions).
- Average fiscal leakage estimate (via audit reconciliations and forensic sampling) as % of subsidy outlay (target successive annual reductions).
- Independent third-party audits should validate KPI reporting.

18. Conclusion

Fertilizer scams in India — whether through diversion of subsidised product, sale of counterfeits, or fraudulent financial practices — impose significant costs on the Treasury and on farmers' productivity and incomes. While precise nationwide leakage figures are elusive, the fiscal scale of fertilizer subsidies (running into the order of ₹1.6–1.9 lakh crore in recent years) implies that even small percentage leakages matter materially.

An effective response requires shifting the subsidy architecture from producer-linked reimbursements to farmer-linked entitlement systems, deploying robust end-to-end traceability (bag-level unique IDs/QR), strengthening market surveillance and lab capacity, enhancing dealer governance and auditability, and linking criminal financial investigations to asset recovery. Pilots and phased scaling, combined with farmer-facing verification, will reduce exclusion risks and improve the political sustainability of reforms.

Ultimately, the objective is not only to stop scams but to restore the integrity of fertilizer policy so that public funds actually deliver agronomic benefit to the intended beneficiaries — Indian farmers.

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Appendix-1

List of fertilizer scams (and major counterfeit/diversion incidents) in India from 1970 → 2025, and estimate of financial loss (to the Government and/or farmers) or state clearly where no reliable monetary estimate is publicly available.

Major fertilizer scams / incidents (1970 → 2025) Summary

1. 1970s–1980s (structural era) early subsidy-era leakage (systemic) Fertiliser subsidies grew from modest amounts in the 1970s to large fiscal outlays; systemic leakages and diversion reported in literature though no single "scam" name. Not a single scam figure — systemic leakage difficult to

quantify; literature documents growing fiscal exposure (subsidy later becomes huge).Policy/history review. RJHSS Online

2. 1996 (mid-1990s)Urea / shortage-related irregularities (often reported as "urea scam") Shortages in 1996 led to allegations of irregular allocation and rent extraction around urea distribution. Not published; reported as a major scandal in contemporaneous media summaries. India Today retrospective (1996 references).

3. 2002 (Bihar) Bihar fertiliser scam (Smt. Rabri Di era) State-level allegations of large-scale subsidy siphoning and bogus claims; CBI probe ordered. Reported in media as ~₹1,000 crore (allegation in reporting). Times of India (2002).

4. 2003 (Uttar Pradesh/SSP) Single Super Phosphate (SSP) subsidy scam (UP/Lucknow investigations) alleged paper claims for SSP subsidy — supplies not delivered but subsidy claimed on paper. Media reporting cited ~₹1,200 crore of claimed (fraudulent) subsidy in one probe. Times of India (2003, 2004 coverage). The Times of India

5. 2007–2014 / 2013–2017 (imports) Alleged fraudulent imports / inflated pricing (multi-year probe) Government / investigative agency probes into alleged fraudulent imports, inflated invoices and diversion — some cases involve NRIs/foreign firms and are cross-border. Investigations ongoing; claims and investigations point to very large sums, but precise final loss not published in many cases. Example enforcement reporting (inspections, raids, probe). Reuters (2021), Economic Times (2021, 2025 summaries). Reuters

6. 2019–2022 (various states) State-level subsidy/diversion probes — multiple FIRs Several state-level probe actions; CBI registered cases for alleged "subsidy without supply" and diversion in different states. Example: CBI FIR registered in 2022 alleging ₹1,200 crore fertilizer subsidy scam in a Lucknow case. (This is the FIR amount in media reporting.)Times of India (Mar 2022). The Times of India

7. 2017–ongoing (policy concern) Diversion of Muriate of Potash (MoP) — illegal export / industrial diversion Repeated central advisories and commentary about MoP diversion (subsidised) to non-farm/industrial/export markets; government takes ad-hoc measures (Aadhar suggested, dealer controls). Specific national loss figure not publicly disclosed; loss arises from subsidy paid on diverted volumes. Estimate depends on quantity diverted; no single published aggregate figure. Policy commentary / press reports (2017 onwards). OpIndia

8. 2021 (CBI / federal probes) Investigation into fertilizer companies / executives CBI/ED investigations into fertilizer company bosses for alleged cheating, inflated imports and fraud related to fertilizer production/import (reported May 2021). Investigations allege large frauds; loss not always quantified publicly in press release. Reuters (May 2021).

9. 2022–2025 (multiple raids & FIRs) Ongoing state-wise counterfeit / fake fertilizer seizures numerous seizures and local busts of fake/adulterated fertilisers — e.g., large regional seizures and unit busts in UP, Rajasthan and elsewhere (2024–2025). Loss to farmers (quality/yield damage) and Govt (subsidy paid if counterfeit sold as subsidised) varies case-by-case. Example: Hapur/UP seizure (June 2025) — ~1 lakh fake bags seized (volume indicator; monetary loss depends on per-bag subsidy/retail price). June–July 2025 reporting (seizures).

10. 2025 (recent) Kolayat/Bikaner seizure — 64,000 fake bags (July 2025 reporting) State agri department seizure of counterfeit DAP fertiliser manufacturing units and bags of reputed Fertilizers brand. Monetary loss not published; the seizure volume (64k bags) is reported; per-bag value (retail/subsidy) would give potential loss estimate if required. Times of India (news}

11. 2024–2025 (UP & elsewhere)Shahjahanpur / Roza & other recent counterfeit-unit

12. Recent local raids uncovered fake "organic/micro-element" fertilizers made from marble powder and adulterants. Reported numbers of bags seized (e.g., ~1,000 bags in some raids); monetary loss small per case but cumulative national problem is large. Times of India (2025).

Appendix-2

Notes on monetary estimates

Where a precise loss is publicly reported (e.g., media citing an FIR/accusation figure such as ₹1,200 crore), list that figure and cite the report (see 2003 SSP probe, 2002 Bihar probe, 2022 CBI FIR). These figures are alleged or reported amounts tied to investigations — some may later be contested in court.

Where seizures report bag counts but not rupee losses — e.g., Hapur (≈1 lakh bags seized, June 2025) or Bikaner (64k bags) — the financial loss depends on whether the seized material was: subsidised product diverted (loss = subsidy per bag × number of diverted bags), or

Purely counterfeit (loss to farmers' yields/inputs and reputational/market losses) or Counterfeit intended for sale without subsidy (government may not have paid subsidy on them). I cited the seizures; converting bag counts to ₹ requires choosing a per-bag subsidy/retail value

Systemic leakage estimate (illustrative): In the broader paper I previously gave a sensitivity example: with an annual fertilizer subsidy of ~₹1.7 lakh crore, 1% leakage ≈ ₹1,700 crore; 2% ≈ ₹3,400 crore. That is an illustrative arithmetic example (not a measured loss) showing sensitivity to small leakage rates.

Why precise national totals are hard to produce (brief explanation)

- Many scams are discovered sporadically; some investigations are ongoing and amounts alleged in FIRs may be contested.
- Local seizures often report volumes but not whether subsidy had been claimed on those particular consignments.
- Systemic diversion (e.g., MoP diverted to non-farm markets) often leaves no paper trail accessible to press unless a major probe reveals quantified volumes.
- Some historical cases (1970s–1990s) are reported in media narratives without forensic audited loss numbers available in the public domain.

Because of the above, a reliable national cumulative dollar/rupee figure for all fertilizer scams 1970–2025 is not available publicly; instead it is aggregated based on:

(a) Reported case amounts (from FIRs/media),
(b) Seizure volumes (convertible to rupee ranges), and
(c) Modelled leakage percentages applied to subsidy totals to get scenario ranges.

