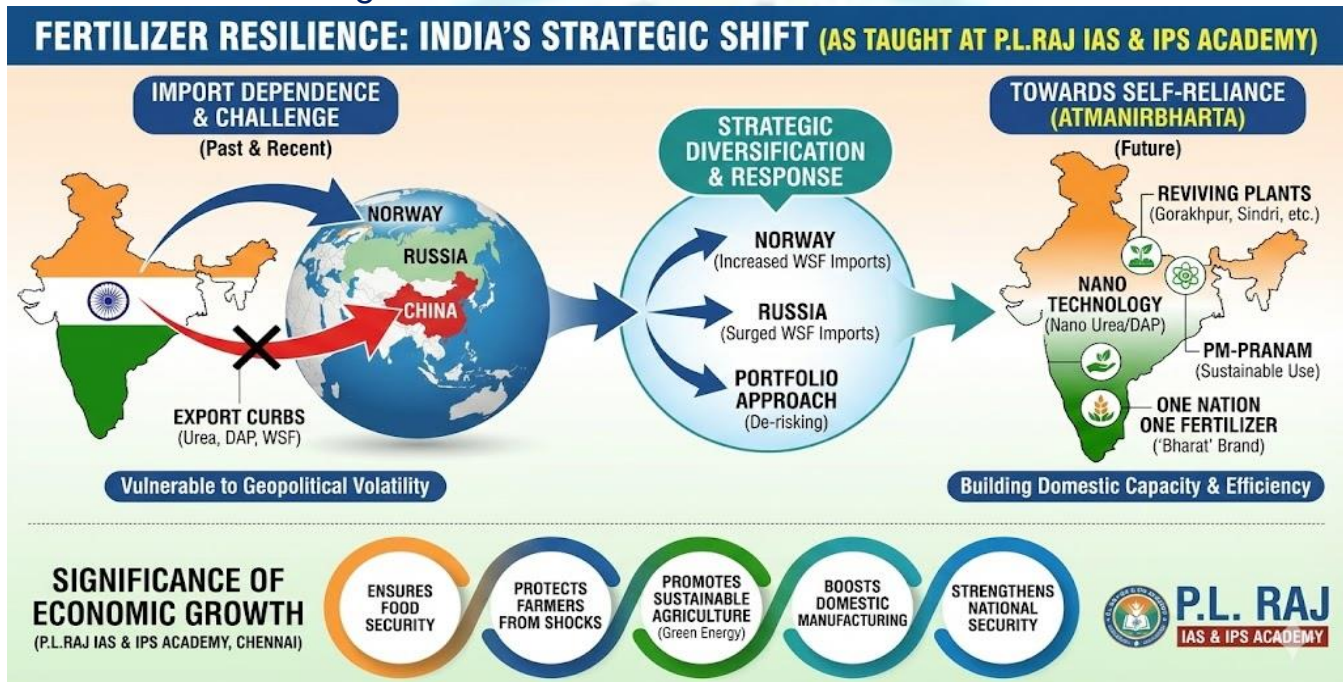


Fertilizer Resilience – India's Strategic Shift from Import Dependence to Self-Reliance

Introduction

Agriculture remains the backbone of the Indian economy, contributing nearly 16% to the GDP and supporting over 46% of the population. To sustain food security for 1.4 billion people, fertilizers are the essential "fuel" that drives agricultural productivity. However, this reliance on fertilizers has historically exposed India to global market volatilities and geopolitical risks. In recent years, India has faced significant supply chain disruptions—most notably from China—forcing a strategic pivot in how the country secures its plant nutrients.

Status of Fertilizer Usage in India



India is the second-largest consumer of fertilizers in the world. The primary fertilizers used are Urea (Nitrogen), DAP (Di-ammonium Phosphate), and MOP (Muriate of Potash). Ideally, the consumption ratio of N -P -K (Nitrogen, Phosphorus, Potassium) should be 4 -2 -1 to maintain soil health. However, due to the heavy subsidization of Urea, this ratio has often been skewed heavily towards Nitrogen (reaching alarming levels like 8 -3 -1 in some states), leading to soil degradation. Recent trends in 2024-25, however, show a positive shift. Farmers are increasingly adopting complex fertilizers and speciality Water-Soluble Fertilizers (WSFs) that offer targeted nutrition through drip irrigation, marking a slow but steady move towards "balanced fertilization."

The Challenge – Import Dependence

Despite being a major agricultural power, India lacks the raw material reserves (such as natural gas for urea, rock phosphate for DAP, and potash reserves for MOP) required for total self-sufficiency.

Urea – India produces significant amounts domestically but still imports about 20% of its requirement.

DAP – Dependence is higher, with nearly 40-60% of the requirement met through imports.

MOP – India is 100% dependent on imports for Potash, primarily from Canada, Russia, and Belarus.

Speciality Fertilizers – High-value Water-Soluble Fertilizers (WSFs) are also largely imported.

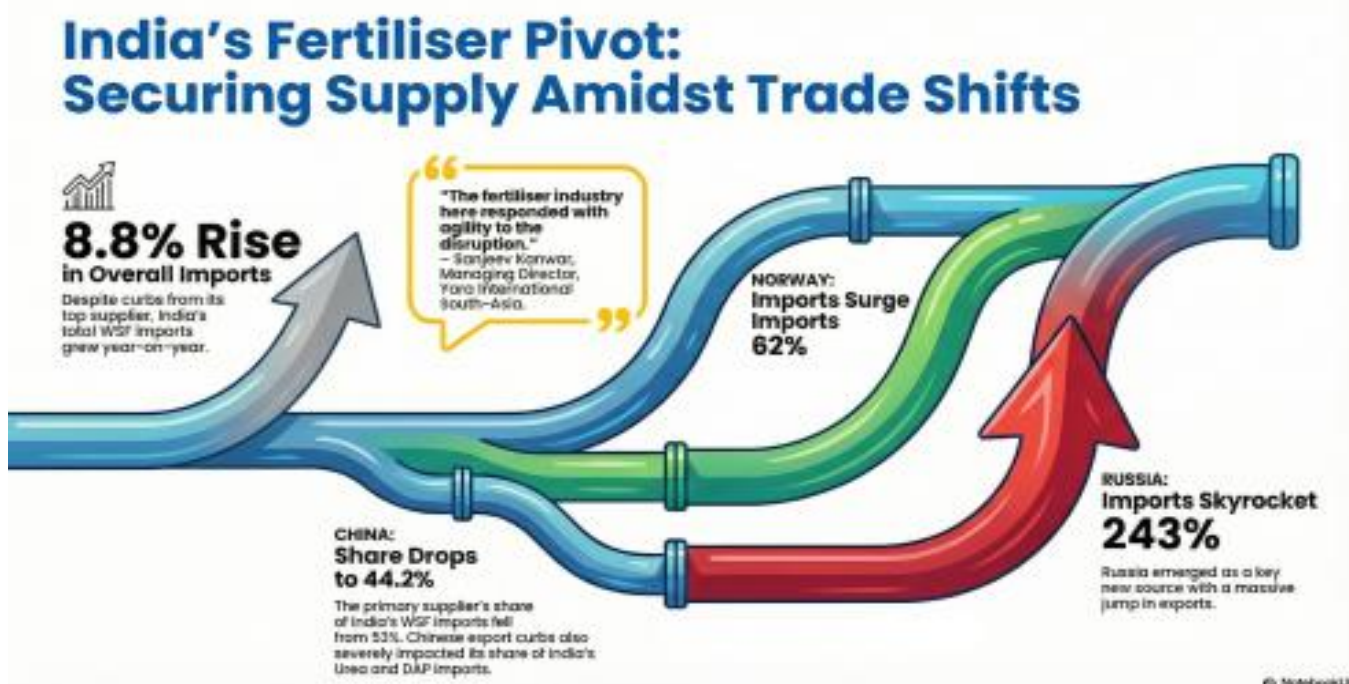
This high dependency makes India vulnerable. When a major supplier changes its export policy, Indian agriculture feels the tremors immediately.

The Recent Crisis – China's Export Curbs

China has traditionally been a dominant supplier of fertilizers to India. However, in recent years, Beijing has imposed intermittent export curbs to prioritize its domestic availability. This situation became acute in 2024-25, specifically impacting two categories –

1. **Water-Soluble Fertilizers (WSFs)** – China accounted for over half of India's supplies. In October 2025, fresh curbs led to a sharp 33.1% drop in Chinese WSF exports to India compared to the previous year.
2. **Bulk Fertilizers (Urea & DAP)** – The shift here has been drastic. In FY24, China supplied 26.5% of India's urea imports; by FY25, this plummeted to just 1.8%. Similarly, China's share in India's DAP imports fell from 40% to 18.5%.

India's Strategic Response – Diversification



Faced with this "weaponization of trade," India did not face a domestic shortage. Instead, the government and industry adopted a "Portfolio Approach"—diversifying suppliers to mitigate risk.

The Pivot to Norway and Russia – As Chinese supplies dwindled, India aggressively increased imports from other reliable partners. Between January and November 2025, WSF imports from Norway rose by 62%, while imports from Russia surged by a massive 243%.

Outcome – Despite the Chinese ban, India's overall import of speciality fertilizers actually *increased* by 8.8%. This agility proved that India is no longer held hostage by a single dominant supplier.

The Road to Self-Reliance (Atmanirbharta)

Diversifying imports is a short-term fix. The long-term solution lies in increasing domestic capacity and efficiency. The Government of India has launched several initiatives to achieve this –

1. **Reviving Closed Plants** – The government is reviving five major closed fertilizer units (Gorakhpur, Ramagundam, Talcher, Barauni, and Sindri). Recently, Prime Minister Modi laid the foundation for a massive Ammonia-Urea project in Namrup, Assam, signaling a focus on the Northeast as a new fertilizer hub.
2. **Technological Innovation (Nano Urea)** – India is the first country to commercialize Nano Urea and Nano DAP. These liquid fertilizers are highly efficient—a 500ml bottle can replace a 45kg bag of traditional urea. This innovation aims to drastically reduce the sheer volume of logistics and imports required.
3. **PM-PRANAM Scheme** – The "PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth" incentivizes states to reduce chemical fertilizer usage. If a state reduces its consumption, the central government shares the subsidy savings with them as a grant, encouraging a shift to alternative, organic fertilizers.
4. **One Nation, One Fertilizer** – Under the 'Pradhan Mantri Bhartiya Jan Urvarak Pariyojana' (PMBJP), all subsidized fertilizers are now sold under a single brand name, "Bharat" (e.g., Bharat Urea, Bharat DAP). This standardizes quality and eliminates cross-country freight costs caused by brand-specific marketing, saving logistics expenses.

Future Prospects

The future of India's fertilizer sector lies in Sustainability and Green Energy.

Green Ammonia – India aims to produce Green Ammonia (using renewable energy instead of natural gas) to produce carbon-free fertilizers, insulating the country from volatile global gas prices.

Nutrient-Based Subsidy (NBS) – The government is refining the NBS scheme to promote specialty fertilizers (which are currently unsubsidized) to encourage high-yield farming without burdening the exchequer.

Conclusion

India's handling of the Chinese fertilizer export ban serves as a classic case study in economic resilience. By swiftly pivoting to alternative partners like Russia and Norway, India protected its farmers from global shocks. However, true security will come from the ongoing domestic reforms. Through the revival of manufacturing plants, the adoption of Nano-technology, and schemes like PM-PRANAM, India is steadily moving from a state of "vulnerable dependence" to one of "strategic autonomy" in its agricultural sector.

Mains Practice Question

1. "Strategic autonomy in critical agricultural inputs is essential for national security. Analyze how India's recent diversification of fertilizer imports mitigates geopolitical risks, and evaluate the potential of domestic initiatives in achieving long-term self-reliance."

Answer Guidelines (Structure & Key Points)

1. Introduction (Contextualize the Issue)

The Vulnerability – Start by highlighting India's status as the 2nd largest fertilizer consumer with significant import dependency (Urea ~20%, DAP ~50%, MOP 100%).

The Trigger – Mention the recent geopolitical disruption caused by China's export curbs (drastic drop in Urea and Water-Soluble Fertilizers) to set the context for the "strategic shift."

2. Body

1. Analysis of External Strategy (The 'Portfolio Approach')

De-risking Supply Chains – Explain how India moved away from over-reliance on a single dominant supplier (China).

Agile Diversification – Cite specific examples of the pivot to alternative partners. Mention the surge in imports from Russia (up 243%) and Norway (up 62%) to fill the vacuum left by China.

Argument – Argue that this reflects a mature foreign policy where India treats essential supplies like a diversified investment portfolio, ensuring that trade weaponization by one nation does not cripple domestic agriculture.

2. Evaluation of Domestic Initiatives (The Road to Atmanirbharta)

Capacity Building – Discuss the revival of closed fertilizer units (e.g., Sindri, Barauni) to boost indigenous production.

Technological Interventions – Evaluate the role of Nano Urea/DAP. Explain how high-efficiency liquid fertilizers can drastically cut down the *volume* of imports required.

Structural Reforms – Mention "One Nation, One Fertilizer" (reducing logistics costs) and PM-PRANAM (incentivizing states to reduce chemical usage and save subsidies).¹

3. Conclusion (The Way Forward)

Synthesize – Conclude that while import diversification is an effective short-term buffer, true resilience lies in reducing the *need* for imports.

Future Outlook – Emphasize that the transition to Green Ammonia and sustainable agricultural practices (balanced fertilization) will be the final step in securing India's fertilizer sovereignty.