

India's fertilizer sector reforms: Time for Action

- Amitabh Kant**

The ongoing US–Iran conflict has once again underscored the hard truth that energy sovereignty and energy security are economic imperatives. The ripple effects have been immediate and far-reaching. Disruptions in the Strait of Hormuz have constrained fertilizer supplies and transmitted global energy shocks directly into India's agricultural economy. In 2022–23, India's fertilizer subsidy bill surged to over ₹2.25 lakh crore, more than double the budget estimate, driven by global price spikes and raw material disruptions.

This recurring vulnerability stems from India's heavy external dependence on raw materials used in fertilizer production, as domestic production falls short of consumption needs. For urea, India's most-used nitrogen fertilizer, direct imports met 13% of requirements in 2024-25. Even for domestic production, over 80% of India's natural gas is imported and this gas constitutes a key feedstock. Factoring in both direct urea and natural gas import content, effective self-sufficiency dropped below 50% of total needs in 2024-25. For other key nutrients, Phosphorus & Potassium (P&K), ~90% of raw materials or finished phosphatic fertilizers are sourced from abroad, while potash is entirely imported. So, despite being the world's third-largest producer of fertilizers, India's production base relies on feedstocks it does not control, making it highly exposed to global disruptions. Each time such shocks occur, the outcome is predictable: prices rise, imports increase and the subsidy burden expands to absorb the impact.

Even over the long term, fertilizer subsidies have shown a persistent upward trajectory. From ₹16,127 crore in 2004–05, the subsidy rose to ₹75,067 crore in 2014–15 and reached ₹1,77,000 crore in 2024–25. Over two decades, this reflects a compounded annual growth rate of 12.7%, with the subsidy increasing nearly elevenfold in absolute terms. Fertilizer subsidy represents around 4% of the total union budget. So, this significant and escalating subsidy burden underscores the need for thoughtful structural reforms.

Farmer support is not in question; it is foundational. Fertilizer subsidies will continue to play a critical role, particularly for small and marginal farmers. The challenge lies in ensuring that this support is delivered with greater efficiency, equity and fiscal prudence. The 1991 balance-of-payments crisis led to sweeping economic liberalization. Similarly, the fertilizer sector has seen reform during periods of stress: the 2012 New Investment Policy revived urea capacity, while the 2010 Nutrient-Based Subsidy (NBS) regime introduced a more market-linked approach for phosphatic and potassic fertilizers.

Urea, the most widely used nitrogen fertilizer is sold at a fixed price of ₹242 per 45-kg bag, unchanged since 2018, and among the lowest globally. It alone accounts for nearly two-

thirds of the total subsidy burden. In contrast, phosphatic and potassic fertilizers such as Diammonium Phosphate (DAP) and Muriate of Potash (MOP) are decontrolled and subsidized based on nutrient content under the NBS regime. This pricing imbalance has created a distorted incentive structure, and this subsidized urea is diverted for stocking and black marketing.

Farmers understandably overuse the cheapest nutrient, leading to a severe imbalance in soil health. India's Nitrogen, Phosphorus, and Potassium application ratio has deteriorated to 10.9:4.4:1, far from the recommended 4:2:1. Moreover, conventional granular urea has a nutrient use efficiency of just 35–40%, meaning that more than half is lost to the environment, contributing to nitrous oxide emissions and groundwater contamination.

A key reform would be to bring urea under the NBS framework, applying a uniform nutrient-based subsidy across nitrogen, phosphorus and potassium rather than maintaining artificially low urea prices. Encouraging alternative nitrogen sources such as ammonium sulphate and ammonium phosphates could diversify the nutrient mix and reduce overdependence on urea. At the same time, moderating the prices of DAP and MOP would help narrow price disparities and correct nutrient imbalances. Promoting products like triple superphosphate, liquid urea could further improve soil health outcomes.

Additionally, expanding Direct Benefit Transfer mechanisms to channel subsidies directly to farmers would improve targeting, reduce leakages and allow market signals to guide more efficient fertilizer use. This would require a data-driven approach by digitizing and verifying land records and linking them to Aadhar-seeded bank accounts. Existing databases can be leveraged with gram panchayats, assisting in validation. Then, the per-hectare equivalent subsidy can be transferred directly to farmers rather than a price-based subsidy. This shift would need robust Centre-State coordination for smooth rollout.

Beyond these measures lies a transformative opportunity. Green ammonia, produced using green hydrogen derived from renewable energy, offers a domestically producible and geopolitically resilient alternative. As India's renewable capacity expands, the economics of green ammonia are steadily improving. Recent procurement initiatives by SECI, a landmark tender for 724,000 tonnes of green ammonia annually, targeted the fertilizer sector to cut reliance on imported natural gas. This signals early momentum in this direction. A transition to green ammonia will reduce subsidy burdens, enhance energy security and lower emissions. Under India's Carbon Credit Trading Scheme, the fertilizer sector has been targeted to reduce GHG emission intensity. Adopting green ammonia offers a pathway to generate carbon credits while helping meet these sectoral emission goals.

For decades, India has managed fertilizer crises reactively, without addressing the structural roots of the problem. Yet India has repeatedly demonstrated its ability to turn crises into opportunities for reform. The fertilizer sector is now due for such a transformation. The need for reform is evident and increasingly urgent, and it should ensure that every rupee spent enhances soil health, boosts farm productivity, supports farmers, and strengthens the nation's food security.

***Author is Ex-G20 Sherpa & Ex -CEO, Niti Aayog. Views are personal.*