NEXT IAS

DAILY EDITORIAL ANALYSIS

TOPIC

PERSIAN GULF AND INDIA'S FOOD SECURITY

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Context

- Recent geopolitical tensions (e.g., US-Iran conflict) and restrictions on **Strait of Hormuz** leads to supply shortages and **fertiliser inputs** flows in India, as it is highly dependent on **Gulf-origin fertilisers.**
- The **Strait of Hormuz** is a narrow maritime passage that serves as the **only outlet connecting the Persian Gulf to the Arabian Sea (and open ocean)**.

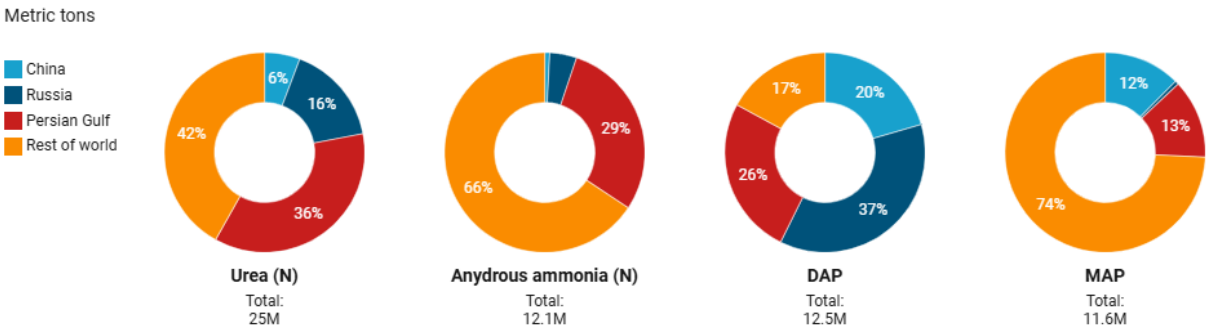
Indian Agricultural & Role of Fertilisers

- Agriculture in India is the backbone of the economy that employs nearly 45% workforce.
- Fertilizers were a key driver of yield increase during the Green Revolution, along with **high-yielding varieties (HYVs), irrigation.**
  - HYV seeds require **intensive nutrient input,** and without fertilisers, HYVs fail to deliver higher yields.
  - India moved from **food scarcity (1960s)** to **food surplus** post-Green Revolution and production has shifted from food deficit to **foodgrain surplus.**
- Modern inputs like fertilisers were central to productivity gains and food self-sufficiency.
- India's food security is largely dependent on **fertiliser imports**, particularly from the **Persian Gulf region (West Asia)**.

India's Dependency on Persian Gulf Countries for Fertilisers

- **Nature of Dependency:** India is one of the **largest global importers of urea and DAP**, with a significant share coming from Gulf countries.
  - **High Import Dependence:** Urea (~18%); DAP, phosphatic (~50–60%); Potash (**100%)** imported.
- **Dependence on Raw Materials:** Even domestic production relies on imports of natural gas (for urea), ammonia (key input), phosphoric acid & sulphur.
  - India's fertiliser industry is described as **import-dependent at multiple stages (inputs and finished products)**
- **Role of Persian Gulf Countries: Key suppliers** are Saudi Arabia, Oman, Qatar, and UAE.
  - They have abundant **natural gas**, critical for cheap ammonia & urea production, and strategic location for global shipping.
- The Gulf countries were the **single biggest regional exporter of urea and ammonia** (both nitrogen-based), and the **second largest regional exporter** of **diammonium phosphate (DAP)** and **monoammonium phosphate (MAP)** fertilizers for 2023-2025.
  - The Gulf region dominates global fertiliser supply chains:
    - Saudi Arabia: largest urea exporter, 2nd largest ammonia exporter
    - About 50% of global sulphur trade passes through the Strait of Hormuz

Share of selected fertilizer product imports originating from the Persian Gulf, Russia and China



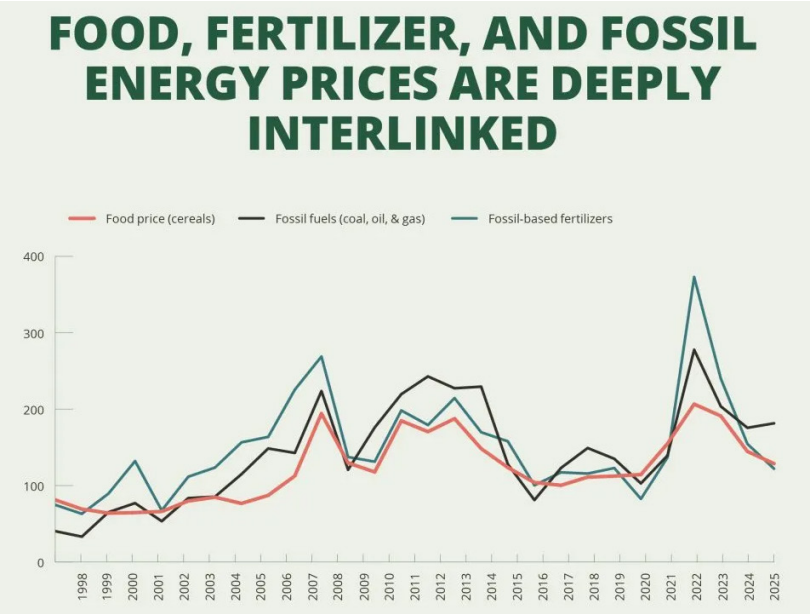
Reasons for India's Dependence

- **Structural Factors:** Lack of domestic reserves of **phosphate & potash;** limited natural gas availability; and high energy cost of fertiliser production.

- **Policy Factors:** Subsidy regime discourages efficiency; and underinvestment in domestic capacity.
  - India's **phosphatic fertiliser sector is about 90% import dependent** due to raw material constraints.

Implications of Dependency

- **Strategic Risks:** Vulnerability to **West Asian conflicts**, and supply disruptions via Strait of Hormuz.
- **Economic Risks:** Rising import bill, and pressure on fiscal deficit (subsidy burden).
- **Agricultural Risks:** Price volatility affects farmers' input costs, and potential impact on food production.
- **Environmental Risks:** Excessive use of chemical fertilisers leads to soil degradation; Nitrogen fertilisers contribute to greenhouse gas emissions; water-intensive ammonia production adds sustainability concerns.



Economic Burden: Farmers and Fiscal Costs

- **On Farmers:**
  - Fertiliser: **16% of paid-out costs (subsidised prices)**
  - At market rates: up to **50% of input costs**
  - Wheat: ₹4,500–₹6,500 per acre on fertilisers
  - Paddy: ₹4,500–₹7,000 per acre
- **On Government:** Fertiliser subsidy increases automatically with global price spikes; urea price frozen since 2018 (₹242 per bag), and pressure on foreign exchange reserves.
  - It creates fiscal strain, exposure to global price volatility, and implicit transfer of economic benefits to exporting countries.

Pathways to Reduce Dependence

- **Agroecological Alternatives:**
  - **Zero Budget Natural Farming (ZBNF):** It covers more than 8 million hectares (Andhra Pradesh); reduces input costs by 20–50%; and maintains yields, increases profits.
  - **Organic Farming (Sikkim Model):** 12% productivity increase over 5 years.
  - **Integrated Nutrient Management:** Combines chemical and organic inputs; it reduces fertilizer use by 25–40%.
- **Technological Solutions:**
  - **Green Ammonia (solar-based fertiliser production):** It leverages India's renewable energy capacity, and decouples agriculture from fossil fuel imports.
    - Green fertilisers as a key solution linking decarbonisation and food security.

Lessons From Global Experience

- The case of Sri Lanka (2021) demonstrates that abrupt bans on chemical fertilisers can lead to severe yield losses (up to 40%), and poorly planned transitions can trigger economic crises
- **Key Takeaway:** Transition needs to be gradual, evidence-based, and supported by policy incentives.

Way Forward

- **Policy measures** include gradual fertiliser rationalisation, target rainfed areas for transition, promote biofertilisers and composting, invest in green ammonia and domestic capacity, and reform subsidy structure (shift to direct income support)
- **Strategic measures** include diversifying import sources, building strategic fertiliser reserves, and strengthening supply chain resilience.
- **Environmental measures** include encouraging sustainable farming practices, and align with climate commitments (NDCs).

Source: HT

Daily Mains Practice Question

[Q] Examine the implications of fertilizer supply disruptions on India's agriculture amid recent geopolitical developments in West Asia. Suggest a balanced strategy for ensuring long-term food and input security.