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• ECONOMICS

US-Japan joint action: How a stronger yen affects Indian markets

Akash Mandal
Mumbai, August 3

THE US and Japan on Monday confirmed a joint coordinated intervention in the Japanese currency market aimed at smoothing out excessive volatility in the yen. The move, taken on Friday, strengthened the yen against the US dollar, ringing potential alarm bells for Indian markets.

The joint action — the first since 2011 — was under the US-Japan Finance Ministers' Joint Statement issued in September 2025, with both countries keeping the door open for further joint intervention efforts. This comes against the backdrop of the Japanese currency falling to 40-year lows in July.

"They have a weakening yen, and they wanted a little bit of help. And we're always there for Japan," Reuters quoted US President Donald Trump as saying in response to a reporter's query. The Japanese government may have sold as much as $59 billion in securities on Thursday to support its currency, Reuters reported citing central bank data.

Behind the intervention

The US has a vested interest in the yen's performance, with a weaker yen leading to US Treasury bond yields shooting up. With the Japanese government holding a large share of US Treasuries, a weak yen may force Japan to sell US bonds, further elevating US bond yields. With yields already under pressure owing to elevated inflation and expectations of interest rate hikes by the Federal Reserve, a joint intervention by both countries helps manage market expectations.

"Obviously Japan needs to increase interest rates (to curb inflation), but none of the central banks are keen to raise rates at this point because it could affect demand. That's why this sort of intervention is there," said Pankaj Pandey, head of research at ICICI Securities.

"The US debt has climbed to $40 trillion, so every 10-20 basis points of increase in bond yields will put a lot of pressure on the US balance sheet. Hence, the US might have stepped in to protect the dollar," said Sunny Agrawal, head of research at SBICAPS Securities. One basis point equals 0.01%, that is, 100 basis points equal 1%.

Ins and outs

- The Indian stock market saw a positive FII inflow of $2.1 billion (approximately Rs 20,200 crore) in July after four straight months of net outflow.
- The market has seen foreign outflows of $27.2 billion (approximately Rs 2.54 lakh crore) so far in 2026.

The Bank of Japan kept its short-term interest rates steady on Friday but signalled that there might be a need to raise rates soon as underlying inflation threatened to exceed its 2% target. While the US has also avoided hiking interest rates so far, the CME Fedwatch tool shows a nearly 65% probability of a 25-basis-point rate cut in the Fed's next meeting in September.

After the Monday announcement by the Japanese finance ministry, the yen rose by around 1% to 155.23 a dollar, which was the strongest level in three months, before paring some gains to trade around 156.75. This followed the currency gaining over 3% in the last two sessions of the previous week.

Impact on Indian markets

The Indian market has a significant exposure to the yen, especially through carry trades. This trade facilitates traders borrowing in a cheaper currency like the yen to buy securities in emerging markets like India to take advantage of the interest rate differential.

While analysts are unsure about current numbers, an August 2024 report by Elara Capital showed India's yen carry trade exposure stands at around $21 billion, or about 2.2% of the total foreign institutional investor (FII) holdings.

While unwinding of the yen carry trade may lead to an FII exodus in the shorter run, crude prices remain a bigger concern for the Indian market currently. "We haven't been a big beneficiary of FII inflows as of now, so most of the negatives are already there in terms of pressure. For us, the bigger macro issue is the stabilisation of crude price," said Pandey.

The Indian stock market saw a positive FII inflow of $2.1 billion (approximately Rs 20,200 crore) in July after four straight months of outflow. This inflow, however, was nothing compared to the foreign outflows of $27.2 billion (approximately Rs 2.54 lakh crore) the Indian stock market has seen so far in 2026.

The impact on the Indian market from the yen's trajectory would depend both on the current levels of exposure and the quantum of joint US-Japan intervention.

Both Foreign Direct Investment (FDI) and Foreign Institutional Investor (FII) are related to investment in a country. Which one of the following statements best represents an important difference between the two ?

(a) FII helps bring better management skills and technology, while FDI only brings in capital

(b) FII helps in increasing capital availability in general, while FDI only targets specific sectors

(c) FDI flows only into the secondary market, while FII targets primary market

(d) FII is considered to be more stable than FDI

With reference to Foreign Direct Investment in India, which one of the following is considered its major characteristic ?

(a) It is the investment through capital instruments essentially in a listed company.

(b) It is a largely non-debt creating capital flow.

(c) It is the investment which involves debt-servicing.

(d) It is the investment made by foreign institutional investors in the Government securities.

UnderStand UPSC
What we UnderStand, We Conquer

Context (GS-3: Indian Economy – External Sector, Foreign Portfolio Investment & Exchange Rate)

The United States and Japan jointly intervened in the foreign exchange market to stabilise the Japanese yen. A stronger yen can influence global capital flows, particularly Foreign Portfolio Investment (FPI) into emerging economies such as India.

I. Basics

1. Foreign Portfolio Investment (FPI)

A. Investment in financial securities without management control.

B. Investment below 10% of a company's voting equity is treated as Foreign Portfolio Investment (FPI), while 10% or more is Foreign Direct Investment (FDI).

2. Yen Carry Trade

A. Investors borrow cheaply in yen and invest in higher-return markets.

B. A stronger yen makes this trade less profitable, triggering capital withdrawal.

II. Main Issue

1. Why the intervention?

A. Japan: Stabilise the yen and contain imported inflation.

B. United States: Prevent volatility in currency and bond markets.

2. Significance

A. Reflects coordinated action to ensure global financial stability.

B. Influences capital flows towards emerging markets.

III. Impact on India

1. Capital Flows

A. India recorded Foreign Portfolio Investment (FPI) outflows of US$27.2 billion, despite US$2.1 billion inflows in July.

B. A stronger yen may reduce Foreign Portfolio Investment (FPI) inflows by weakening the yen carry trade.

2. Economy

A. Short-term volatility in equity and debt markets.

B. Pressure on the Indian rupee.

C. Overall impact likely to remain limited due to strong domestic fundamentals.

The problem with India's free trade agreement strategy

India's trade with key FTA partners such as the ASEAN countries has become increasingly import-driven, resulting in widening trade deficits

DATA POINT

Surendar Singh

Over the past few years, India has shown great interest in trade diplomacy to promote its economic and strategic interests. India's new founded enthusiasm in external engagement has culminated in Free Trade Agreements (FTAs) with the UAE, Australia, Oman, the U.K., the European Union, and most recently, New Zealand. Its imperative to enhance market access continues to extend the reach of its trade architecture through ongoing trade talks with the U.S., Gulf countries and Canada, highlighting a decisive shift towards bilateralism as a vehicle of market access, value chain integration and economic dynamism. There is an emerging view among policymakers, trade diplomats, and geopolitical analysts that FTAs are indispensable instruments of economic statecraft. However, the enthusiasm on enhanced market access through trade agreements and Global Value Chain (GVC) integration is founded on a set of implicit assumptions and dominant narratives that continue to maintain a striking analytical silence. The argument that FTAs stimulate export growth and GVC integration warrants a far more nuanced view.

Widening trade deficit

India's FTA experience with Asian economies has not been favourable. India's trade with key FTA partners such as the Association of Southeast Asian Nations (ASEAN), South Korea, Japan and Singapore has become increasingly import-driven, resulting in widening trade deficits. Data shows that India's trade deficit with ASEAN increased sharply from $10.4 billion in 2012 to $51.2 billion in 2025, driven by rapidly rising imports. In the same manner, imports increased at a much faster pace than exports in the case of Japan and South Korea. India's trade surplus has turned into a trade deficit in the case of Singapore after signing the trade agreement, exhibiting weakening export competitiveness.

India's export performance across its major Asian FTA partners such as ASEAN, Japan, South Korea and Singapore reveals an intriguing picture – its underperformance. India's share of the import basket among FTA partners has either stagnated or gradually eroded between 2012 to 2025, indicating a weakening in its export competitiveness post-FTAs. The most striking decline is in the case of ASEAN countries where India's share of ASEAN's import basket dropped from 3.42% to 1.71% while in the case of Singapore, the import share declined from 2.27% to 1.71%. Similarly, India's share in South Korea's import basket has declined from 1.33% to 1.02% while its share in Japan's import basket shows mixed trends.

Collectively, these trends indicate that instead of leveraging trade agreements to integrate into regional production networks, India is stuck on the margins of manufacturing-led trade integration. The inability to capitalise on tariff preferences under the FTAs demonstrates that market access based on tariff elimination alone cannot compensate for weak domestic industrial capabilities, logistical inefficiencies, and infrastructure and operational constraints. India's trade challenge is not fundamentally about negotiating more FTAs but about strengthening domestic productive capabilities and associated impediments. Without adequate industrial transformation, FTAs risk becoming instruments that increase import penetration faster than export competitiveness, thereby widening asymmetrical trade outcomes and structural vulnerabilities.

Moreover, FTAs are often presented as GVC drivers, eliminating barriers to the development of shared production arrangements and industrial upgrading. It is interesting to note that India's GVC integration related to trade as a percentage of gross trade declined from 37.13% to 34.38%, indicating that India's integration in GVC networks has actually weakened. India's GVC trade as a share of gross trade with its FTA partners has declined in the case of South Korea, Japan, Indonesia, Thailand, Vietnam, and Cambodia. Only in the case of Malaysia, Singapore and Philippines, has it increased.

These trends demonstrate that India's FTAs have not translated into broad-based GVC integration. This evidence challenges the conventional assumption that FTAs automatically foster GVC integration through trade liberalisation. Moreover, it raises questions about the proposition that deeper commitments to market access and regulatory harmonisation are, in themselves, sufficient to promote GVC participation. The contemporary policy narrative surrounding India's new FTAs and their ability to integrate into GVCs raises some critical questions.

An assessment

The declining export shares and weakening GVC integration in the case of India's key FTA partners clearly highlight the limitations of considering FTAs primarily as instruments of market access. It is understandable that FTAs may enhance market access in certain product categories, but their abilities to foster productive capabilities is still contested. This essentially means that India's FTA strategy needs to move beyond the standard argument of market access. It should focus on greater interaction with the broader industrial policy framework that emphasises technological upgrading, strategic investment, supply chain realignment, domestic value addition and domestic reforms. Without such policies, FTAs are likely to remain instruments of trade liberalisation that constrain policy flexibilities rather than drivers of industrial transformation.

Are the FTAs working?

The data for the charts were sourced from the International Trade Centre - Trade Map

Piyush Goyal, S. Jaishankar, European Council President António Costa, and other officials at the India-EU FTA meeting in Brussels on July 15

CHART 1 : India's percentage share in the import basket of ASEAN, Japan, South Korea, and Singapore

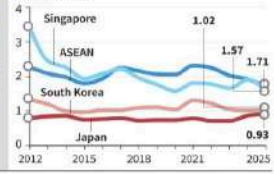

TABLE 1: India's trade with key FTA partners (in $ billions)

Partner	Indicator	2012	2015	2018	2021	2024	2025
ASEAN	Export	32.3	26.35	36.25	40.68	42.71	35.96
	Import	42.74	41.47	57.51	64.84	81.87	87.19
	Trade balance	-10.44	-15.12	-21.26	-24.16	-39.16	-51.23
Japan	Export	6.4	4.5	4.8	6.1	5.8	6.1
	Import	12.4	9.6	12.6	14.4	18.9	20.9
	Trade balance	-5.95	-5.17	-7.83	-8.34	-13.06	-14.77
South Korea	Export	4.1	3.6	4.8	7.1	6	6
	Import	13.7	13.1	16.4	17.1	20.9	21.1
	Trade balance	-9.6	-9.48	-11.62	-9.97	-14.98	-15.12
Singapore	Export	13.6	7.8	10.5	10.7	15.7	10.7
	Import	7.8	7.4	14.5	18.2	20.5	23.7
	Trade balance	5.76	0.4	-3.99	-7.55	-4.87	-12.97

TABLE 2 : India's global value chain-related trade as a share of gross trade with Asian FTA partners

	2012	2020	GVC integration (Increase/Decrease)
Indonesia	41.77	30.1	-11.67
Japan	41.07	28.44	-12.63
Malaysia	49.92	50.26	0.34
South Korea	63.18	41.58	-21.6
Thailand	48.32	47.65	-0.67
Singapore	66.87	69.54	2.67
Philippines	30.47	33.9	3.43
Vietnam	56.89	54.57	-2.32
Cambodia	47.43	44.34	-3.09

The declining share of GVC-related trade in total trade with several major FTA partners shows that preferential market access has been inadequate to bolster India's participation in global production networks. This evidence challenges the conventional assumption that FTAs automatically foster GVC integration through trade liberalisation

The author is an Associate Professor at Jindal School of Liberal Arts and Humanities, O.P. Jindal Global University, Sonipat. Views are personal

6. India and New Zealand have signed a Free Trade Agreement (FTA) in December 2025. In which of the following areas has cooperation under the FTA has been agreed upon between the two countries ?

1. AYUSH
2. Audio-Visual tourism
3. Traditional knowledge system
4. Horticulture

Select the answer using the codes given below :

(a) 1, 2, 3 and 4

(b) 2 and 4 only

(c) 1 and 3 only

(d) 1, 3 and 4 only

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Context (GS-3: Indian Economy – External Sector, Free Trade Agreements (FTAs), Global Value Chains (GVCs) & International Trade)

India has expanded its Free Trade Agreement (FTA) network to improve exports and integrate with global markets. However, recent evidence suggests that many FTAs have become import-driven, widened trade deficits and delivered limited gains in Global Value Chain (GVC) integration.

I. Main Issue

1. Why are India's FTAs being questioned?

- Imports have grown faster than exports with major FTA partners.
- Market access has not translated into higher export competitiveness.
- India's participation in Global Value Chains (GVCs) has remained weak.

2. Key Evidence

- Trade deficit with ASEAN widened from US$10.4 billion (2012) to US$51.2 billion (2025).
- India's share in ASEAN's import basket declined from 3.42% to 1.71%.
- India's GVC-related trade share fell from 37.1% to 34.4%, indicating weaker integration into global production networks.

II. Challenges

- FTA-led market access alone is insufficient without competitive domestic manufacturing.
- High logistics costs, infrastructure gaps and regulatory bottlenecks reduce export competitiveness.
- Limited participation in Global Value Chains (GVCs) prevents Indian firms from benefiting from regional production networks.
- Rising imports without corresponding export growth have widened trade deficits with major FTA partners.

III. Way Forward

- Align future Free Trade Agreements (FTAs) with an industrial policy focused on manufacturing competitiveness.
- Strengthen logistics, port infrastructure and ease of doing business to reduce trade costs.
- Promote technology transfer, investment and domestic value addition to deepen Global Value Chain (GVC) integration.
- Periodically review FTAs based on export performance and sector-specific outcomes rather than tariff reduction alone.

Critical minerals, the foundation of strategic power

Vinayak Vipul

Partner, Business Consulting, EY-Parthenon India

Critical mineral security will define India's industrial and strategic trajectory

Critical minerals have moved from the margins of resource policy to the centre of industrial strategy and security. Lithium, cobalt, nickel, graphite, copper and rare earth elements are foundational to electric vehicles, storage, renewable power, semiconductors, defence and advanced manufacturing. As decarbonisation and digitalisation accelerate, mineral security is becoming as important as oil once was. The global supply picture is concentrated. For copper, lithium, nickel, cobalt, graphite and rare earth elements, the average market share of the top three refining countries rose to 86% in 2024, from around 82% in 2020. Incremental supply is tied to a few nodes: Indonesia for nickel, and China for cobalt, graphite and rare earths. China is the leading refiner in 19 out of 20 strategic minerals with an average market share of about 70%, making minerals geopolitical, not merely commercial.

Geopolitical risk as a factor

Clean energy transitions will require minerals far beyond today's production systems. The current copper project pipeline points to a potential 30% supply shortfall by 2035. Lithium appears better supplied in the near term but rising demand is expected to drive the market into deficit by the 2030s. Rare earth demand will rise sharply as wind power, electronics and magnets expand.

Geopolitical risk is compounding these pressures. China's rare earth export controls announced in 2025 created concerns across energy, automotive, defence, aerospace, Artificial Intelligence (AI) and semiconductors. Major economies are responding quickly. The European Union (EU) Critical Raw Materials Act sets 2030 benchmarks of 10% domestic extraction, 40% processing and 25% recycling, and no more than 65% from a single country. The United States is diversifying supply chains through partnerships.

India's clean energy and manufacturing ambitions are mineral intensive. Under a net zero scenario, cumulative demand for critical energy transition minerals could reach roughly 169 million tonnes by 2070, about 51% higher than under a current policy pathway. Copper demand will rise with power systems; rare earth demand will grow with wind energy and advanced manufacturing.

India has domestic potential, including reserves of cobalt (44.9 million tonnes), copper (163.9 million tonnes), graphite (211.6 million tonnes) and nickel (189 million tonnes), along with monazite deposits containing rare earth oxides. Recycling could eventually meet up to a quarter of copper and graphite demand by mid-century. Yet, reserves have not ensured supply security. India remains import dependent for lithium, cobalt and nickel, while graphite and China-dominated processing expose it to disruption as demand scales. The critical gap is processing and refining. India's position differs from the EU, the U.S. and Australia, which are building integrated supply chains through mandates, partnerships and processing investments. India is still developing foundational capability. While several minerals are processed domestically, capacity and high-purity production remain constrained. It has bulk-mineral experience but still relies on imports for high-purity critical mineral products.

This is where much value and vulnerability sit. In 2024, China accounted for over 90% of rare earths and graphite processing, nearly 75% of cobalt and 70% of lithium chemicals. India must build midstream capacity to participate meaningfully in supply chain realignment.

Structural constraints

Several constraints slow progress. Exploration remains relatively shallow, regulatory clearances can be time-consuming, private participation is limited and remote-region project economics are challenging. Processing is a larger bottleneck: India lacks some high-purity input facilities, while copper and graphite face smelting, purification and scale constraints. Recycling will play a role but cannot substitute for primary supply in the near term because feedstock, collection and technology remain limited.

India's policy response since 2023 marks a shift. The government has identified 30 critical minerals, strengthened regulatory frameworks, and launched the National Critical Mineral Mission to support the value chain. The mission targets 1,200 domestic exploration projects by 2030-31, production of at least 15 critical minerals, and acquisition of 50 overseas mining assets by Indian companies. The Khanij Bidesh India Limited (KABIL) has secured 15,703 hectares in Argentina's Catamarca province for lithium exploration, while the 2026-27 Budget proposed rare earth corridors in Odisha, Kerala, Andhra Pradesh, and Tamil Nadu. The India-U.S. critical minerals and rare earths framework signed in May 2026 provides an additional diplomatic lever.

Mission to execution

The next phase is execution. Processing and refining must become a national industrial priority, backed by infrastructure and targeted incentives. Private capital needs better geological data, predictable approvals and risk sharing. India should also operationalise strategic stockpiles for critical minerals, accelerate applied research and development through industry partnerships, scale domestic capabilities and diversify overseas supply through trusted partners and platforms.

India energy transition, electronics, semiconductor, defence manufacturing, and advanced industrialisation all depend on secure mineral supplies. While individual policy measures are necessary, they are insufficient. A comprehensive strategy should establish mineral-specific risk thresholds, integrate recycling into supply planning, set measurable milestones, and create a coordinated institutional framework. The priority now is to convert potential into capability and reduce strategic vulnerability through sustained execution.

Consider the following statements :

I. India has joined the Minerals Security Partnership as a member.

II. India is a resource-rich country in all the 30 critical minerals that it has identified.

III. The Parliament in 2023 has amended the Mines and Minerals (Development and Regulation) Act, 1957 empowering the Central Government to exclusively auction mining lease and composite license for certain critical minerals.

Which of the statements given above are correct?

(a) I and II only *(b)* II and III only

(c) I and III only *(d)* I, II and III


Critical minerals, the foundation of strategic power

Vinayak Vipul

Partner, Business Consulting, EY-Parthenon India

CURRENTLY – Editorial to Mains Answers

Critical Minerals: The Foundation of Strategic Power

Source: The Hindu (Editorial) | Page: 6 | Date: August 4, 2026

CONTEXT: Critical minerals are vital for clean energy, electronics, defence and advanced manufacturing. Rising global demand and concentrated supply chains—particularly China's dominance in processing—pose strategic risks. India has launched the National Critical Mineral Mission to secure mineral security. [GS-3: Indian Economy – Resources, Energy Security, Industrial Policy]

FLOW OF ANSWER (10 MARKS)

1. **Introduction** – Define critical minerals; state importance & context.
2. **Significance** – Why critical minerals are vital for India.
3. **Challenges** – Key constraints in securing critical minerals.
4. **Way Forward** – Measures for a resilient strategy.
5. **Conclusion** – Way ahead for India's strategic autonomy.

MAINS QUESTION (10 MARKS) – 150 WORDS

Q. Critical minerals are the foundation of economic development and strategic power in the 21st century. Critically examine the challenges India faces in securing critical minerals and suggest a way forward.

SHORT SUMMARY

Critical minerals are essential for India's clean energy transition, high-tech industries and defence. However, import dependence and China's dominance in processing pose major risks. India must build domestic capabilities, diversify sourcing, create strategic reserves, promote recycling and strengthen policy-execution to achieve mineral security and strategic autonomy.

I. SIGNIFICANCE OF CRITICAL MINERALS FOR INDIA

- **Clean Energy Transition:** Essential for EVs, batteries, solar, wind, hydrogen and energy storage; demand may reach **169 million tonnes by 2070** (~51% higher under current policies).
- **Semiconductors & Electronics:** Critical for chips, magnets and advanced electronics; key to digital economy and global competitiveness.
- **Defence & Strategic Security:** Crucial for aerospace, missiles, submarines, radar, AI systems and secure communications.
- **Industrial Growth & Atmanirbhar Bharat:** Backbone of advanced manufacturing, innovation and high-value industries; can create jobs, boost exports and reduce strategic vulnerabilities.

II. KEY CHALLENGES

- **Global Concentration:** China processes >90% rare earths & graphite, ~75% cobalt and ~70% lithium chemicals, giving it strong market control and leverage.
- **High Import Dependence:** India is import dependent for lithium, cobalt, nickel and rare earths; vulnerable to supply disruptions and price volatility.
- **Weak Domestic Capacity:** Exploration is limited and shallow; processing & refining capacity inadequate; bulk minerals experience but reliance on imports.
- **Regulatory & Structural Constraints:** Time-consuming clearances, limited private participation and remote-region project economics hinder progress.
- **Limited Recycling Ecosystem:** Collection, technology and scale for recycling critical minerals remain underdeveloped.

III. WAY FORWARD

- **Accelerate Exploration:** Expand geological surveys, fast-track clearances and incentivise private exploration in mineral-rich regions.
- **Build Domestic Processing & Refining:** Invest in mineral processing parks, smelting and separation facilities to create value addition.
- **Diversify Supply & Strategic Partnerships:** Secure overseas assets and partnerships (e.g., KABIL in Argentina); deepen ties with resource-rich countries.
- **Strategic Reserves & Recycling:** Create strategic stockpiles; promote recycling of e-waste, magnets and batteries to reduce import dependence.
- **R&D, Innovation & Governance:** Invest in substitution technologies, efficient extraction and recycling; establish robust data systems and strong governance.

CONCLUSION

Critical minerals are the backbone of India's clean-energy transition, industrial growth and strategic autonomy. A comprehensive strategy—strengthening domestic capabilities, diversifying supply chains and fostering global partnerships—will be vital to secure economic future and national security.

KEY DATA

- Top 3 refining countries account for **86%** of global refining capacity for key critical minerals (rose from 82% in 2020 to 86% in 2024).
- China's dominance in processing:
  - **>90%** Rare earths & graphite
  - **~75%** Cobalt
  - **~70%** Lithium chemicals
- India has identified **30** Critical Minerals.
- National Critical Mineral Mission (launched 2023):
  - **1,200** domestic exploration projects by 2030-31
  - Production of at least **15** critical minerals
  - Acquisition of **50** overseas mining assets by Indian companies
- India's reserves (domestic potential): Cobalt – 44.9 MT, Copper – 163.9 MT, Graphite – 211.6 MT, Nickel – 189 MT (with rare earth oxides).
- Copper project pipeline indicates a potential **30%** supply shortfall by 2035.

Why Iran war didn't cause fertiliser crisis

Better supply-side management from the government, especially in urea, and subdued demand due to deficient monsoon cushioned war's impact

HARISH DAMODARAN

THE UNITED States-Israel versus Iran war and the effective closure of the Strait of Hormuz since February 28 has triggered arguably the greatest global energy supply shock in history, eclipsing even the ones of 1973 and 1979.

However, its impact hasn't been felt as much in India with regard to fertilisers, especially urea.

Data from the Fertiliser Association of India shows the country's urea production fell to 17.5 lakh tonnes (lt) in March 2026, from 24.7 lt in March 2025.

The main reason was the supply disruptions in the primary feedstock, liquefied natural gas (LNG). Before the war, 53-54% of India's LNG imports came from Qatar and the United Arab Emirates (UAE), mostly against long-term supply contract agreements. These couldn't be honoured due to shipping blockades as well as damage to key liquefaction infrastructure from Iranian missile and drone strikes.

Domestic urea output recovered to 21 lt in April. The following two months saw it further rise to 25.2 lt and 25.4 lt, so much so that cumulative production in April-June 2026, at 71.5 lt, was 5.4% higher than the 67.9 lt for the same quarter of last year.

Proactive government action

"The credit goes to the government, which pushed GAIL (India) Ltd and Indian Oil Corporation to diversify their LNG sourcing, even if it meant pivoting heavily to spot market purchases at higher prices. So, even as the share of Qatar and UAE dwindled to near-zero, more LNG was imported from the US, Oman, Nigeria, Angola, People's Republic of the Congo and even Indonesia, Trinidad and Norway," a fertiliser industry official said.

The same proactiveness was also seen in the imports of urea. The state-owned Indian Potash Ltd (IPL) and National Fertilizers Ltd floated tenders on April 4 and May 27, against which 25 lt and 17 lt of imported urea were secured at landed prices of $935-959 and $444.9-449.3 per tonne respectively.

A third tender for the import of 17 lt — 10 lt to be delivered in western Indian and 7 lt in eastern coast ports — was issued by Rashtriya Chemicals and Fertilizers on July 29. The bids for this tender will open on August 11.

On the whole, India imported 25.1 lt of urea during April-June 2026, up from a mere 8.4 lt in April-June 2025. "Through this crisis, the government has made sure there is adequate supply of both imported urea and LNG for domestic production. It has also not allowed the higher import costs to be passed on to farmers, which would reflect in the fertiliser subsidy bill overshooting budget estimates," the official noted.

Not so comfortable

While the urea supply situation is comfortable, it's not so with di-ammonium phosphate (DAP) and complex fertilisers.

Urea meets the nitrogen (N) requirement of crops, just as DAP and muriate of potash (MOP) provide P and potassium (K) respectively. Complex fertilisers contain these plant nutrients — N, P, K and sulphur (S) — in different blends.

It can be seen from the accompanying table that the production of DAP, complex fertilisers and also single super phosphate (SSP, a low P-content substitute for DAP) have registered declines in April-June 2026 over April-June 2025. Moreover, unlike in urea, their reduced domestic output has been combined with lower imports.

The success achieved in widening the import sources of urea and LNG has not been replicated either in phosphatic and complex fertilisers or key intermediates/raw materials such as phosphoric acid and sulphur.

Prices of phosphoric acid (cost plus freight) imported into India have increased from $1,055 per tonne in January-March 2025 to $1,153 in April-June 2025, $1,258 in July-December 2025, $1,290 in January-March 2026, $1,360 in April-June 2026 and $1,700 for the current July-September 2026 quarter.

It's worse for sulphur, where landed prices were elevated at $500-550 per tonne (as against the normal $150-250 range) even before the Iran war. That spike was on account of Ukrainian drone attacks on oil refineries in Russia, which led to production losses and a ban on exports by a major global supplier.

The conflict in West Asia has tightened sulphur supplies from other big sources too: QatarEnergy, Saudi Aramco, Abu Dhabi National Oil Company and Iran itself. The result is that import prices are ruling at around $1,100 per tonne now.

The conflict has also squeezed the supply of ammonia — the source of N for complex fertilisers — from QatarEnergy, Saudi Arabia's Maaden and SABIC, and Iran. These were, again, previously being shipped through the Strait of Hormuz. Import prices of ammonia have eased to $650-700 per tonne though, after skyrocketing to $850-900 levels in May.

"The real problem today is sulphur. It is necessary for making sulphuric acid that is, in turn, used to break down rock phosphate (the P-bearing ore) and convert into phosphoric acid. And without phosphoric acid and sulphuric acid, there can be no DAP, SSP and complex fertilisers," the earlier-quoted official explained.

In DAP, no imports have been contracted after the purchase of 13.5 lt through IPL's mega-tender on April 28 at $930-935 per tonne (cost plus freight). That price was higher than the $725-750 levels of a year ago.

"Prices are unlikely to fall. In anything, they may go up if India were to float a fresh large import tender. The government must focus on augmenting supply of sulphur and make it viable for domestic DAP and NPKS manufacturers to import. It would entail making additional subsidy provision, similar to that on urea," the official added.

El Niño factor

Demand for fertilisers has been subdued because of the El Niño-induced monsoon deficiency.

With all-India rainfall during June-July being 12.6% below the normal average for the two months, the area sown under *kharif* crops, too, has been down 2.9% so far from last year.

This is in contrast to 2025 and 2024, which were surplus monsoon years. Ample soil moisture, well-filled reservoirs and recharged groundwater tables prompted farmers to plant with gusto and also queue up to buy fertilisers. With supply management failing to keep pace with demand, there was a scramble for fertilisers and the lines only got longer.

This time, there has been a slowdown in offtake of fertilisers, besides better supply preparedness on the government's part.

"With upcoming state elections in Uttar Pradesh, Punjab and Uttarakhand in February-March, you can expect the government to take no chances even for the *rabi* (winter-spring) cropping season," the official added.

• Production, import, sale of fertilisers

	Urea	DAP	MOP	Complexes	SSP
PRODUCTION					
Apr-Jun 2025	67.88	10.35	0	26.64	13.93
Apr-Jun 2026	71.53	9.84	0	19.2	13.5
IMPORT					
Apr-Jun 2025	8.38	9.74	2.65	9.54	0
Apr-Jun 2026	25.08	7.11	6.09	4.91	0
SALE					
Apr-Jun 2025	69.9	15.54	4.57	29.32	12.19
Apr-Jun 2026	69.33	15.26	4.23	30.15	13.55

SOURCE: THE FERTILISER ASSOCIATION OF INDIA — ALL FIGURES IN LAKH TONNES

Commercial vessels anchored in the Strait of Hormuz off Bandar Abbas, Iran. AP

Some worries

While the urea supply situation is comfortable, it's not so with di-ammonium phosphate (DAP) and complex fertilisers.

•

The conflict in West Asia has tightened sulphur supplies too.

Context (GS-3: Indian Economy – Agriculture, Fertiliser Subsidy, Food Security & Supply Chain Resilience)

The West Asia conflict and disruptions in the Strait of Hormuz raised concerns over global fertiliser supplies. However, proactive government interventions, diversified imports and subdued domestic demand enabled India to avoid a fertiliser crisis despite rising international prices.

I. Main Issue

1. Why did India avoid a fertiliser crisis?

► **Diversified imports**: India reduced dependence on Qatar and the UAE by sourcing LNG and fertilisers from the US, Oman, Nigeria, Angola, Norway and Indonesia.
► **Proactive government action**: Timely import tenders, higher domestic urea production and effective supply-side management ensured uninterrupted availability.
► **Subdued demand**: Deficient monsoon and lower kharif acreage reduced fertiliser consumption, easing supply pressure.

2. Key Data

► **Domestic urea production**: 67.9 LT (Apr–Jun 2025) → 71.5 LT (Apr–Jun 2026).
► **Urea imports**: 8.4 LT → 25.1 LT, ensuring adequate stocks.
► Overall urea sales remained stable at around 69 LT, indicating no supply disruption.

II. Challenges

► DAP and complex fertilisers remain vulnerable due to dependence on imported phosphoric acid, sulphur and ammonia.
► Sulphur prices increased to around US$1,100/tonne, significantly raising production costs.
► India continues to depend heavily on imported raw materials for phosphatic fertilisers, exposing it to geopolitical shocks.
► Rising global prices increase the fertiliser subsidy burden on the government.

III. Way Forward

► Diversify import sources for fertilisers and key raw materials.
► Strengthen domestic production of DAP, NPK and phosphatic fertilisers under Atmanirbhar Bharat.
► Secure long-term overseas supply agreements and strategic reserves.
► Improve nutrient-use efficiency through balanced fertilisation and nano-fertilisers.
► Continue efficient supply-chain management and digital monitoring to prevent shortages.

GETTY IMAGES

Why lab-grown diamonds are sustainable alternative to mined stones

Natural diamond mining is facing dwindling supplies while remaining associated with environmental damage, forced labour, conflict and pollution; lab-grown diamonds offer a more affordable, traceable and sustainable alternative, with India investing in indigenous production and research

Anupama Janakiraman
U. Vishnuja
S. Boominathasellarajan
N. Arunachalam

For centuries, diamonds have been regarded as symbols of eternal love, characterised by their rarity, scintillation and lustre. But behind the glamour of these stones lies a cold, hard truth: an industry plagued by forced labour, civil violence, and pollution.

Some of the world's largest diamond mines, such as the Argyle mine in Australia and the Diavik mine in Canada, have reached a point of exhaustion in recent years. This depletion has worsened year by year, and production is now at a multi-decade low. After all, natural diamond mines are only a finite source. It is estimated that the 40 diamond mines accounting for 90% of global production spread throughout Botswana, Russia and other countries have a lifespan of no more than 50 years.

The hidden cost

However, the problems associated with natural diamonds extend beyond dwindling supplies. Diamond mining requires large amounts of water and energy and causes considerable damage to the surrounding ecosystems. It is often associated with deforestation, displacement, soil erosion and water pollution. Massive open-pit excavations can also trigger landslides and mudslides.

Moreover, labourers suffer from a plethora of diseases as a result of working in diamond mines. A study by Gill Nelson et al. in 2011 found that workers are at risk of asbestos exposure and may develop asbestos-related diseases, including asbestosis, pleural plaques, and mesothelioma.

Then come the blood diamonds, which are mined diamonds involved in illicit sales and used to fund military action. It is nearly impossible to deduce a diamond's geographic origin. Although the Kimberley Process was introduced to verify that diamonds are conflict-free, regulatory gaps continue to allow blood diamonds to be smuggled across borders. As a result, these diamonds contribute to political and civil conflict.

These concerns raise an important question: can the beauty and durability of diamonds be preserved without the social and environmental costs of mining? In recent years, the answer appears to be yes, through the use of lab-grown diamonds.

A sustainable alternative emerges

The first proven synthetic diamonds were made by GE (General Electric) in 1954, under a project codenamed "Project Superpressure." They utilised the HPHT (High Pressure, High Temperature) process, which mimics the conditions under which natural diamonds form in the Earth's mantle.

In 1962, another method known as CVD (Chemical Vapour Deposition) was first used. This process involves depositing diamond material onto diamond seeds through chemical reactions involving carbon-rich gases.

Lab-grown diamonds are chemically, physically and optically identical to their natural counterparts. Until 2018, they were sold at a modest discount to mined diamonds. Due to improvements in the efficiency of laboratory equipment, the price of lab-grown diamonds has continued to decline over the years. Now more affordable and traceable, lab-grown diamonds preserve the qualities that have made diamonds desirable since time immemorial while avoiding much of the damage linked to conventional production.

India's push for lab-grown diamonds

India has also begun to recognise the potential of lab-grown diamonds as a sustainable and economically viable alternative to mined stones. In the Union Budget 2023-24, the Government of India announced measures to encourage indigenous production of lab-grown diamonds, including support for research into HPHT and CVD technologies.

Table 1: presents a comparison of natural and lab-grown diamonds, drawing on findings from the Natural Diamond Council's 2025 report and a 2021 study by Vladislav Zhdanov et al

Criterion	Natural diamonds	Lab-grown diamonds
Cost per carat in India	₹1.5–7 lakhs	₹80,000
Water consumption	0.077 m^3/ct	0–0.002 m^3/ct
Energy consumption	150 kWh/ct (DeBeers)	36 kWh/ct (HPHT) 214.7 kWh/ct (MP-CVD)
CO_2 emissions	160 kg/ct	17-260 kg/ct

Diamond prices vary based on the 4Cs — carat, cut, colour and clarity. The values shown are representative market ranges.

As part of this initiative, in 2023, the Indian Institute of Technology Madras (IIT Madras) was awarded a five-year grant of approximately ₹243 crore by the Ministry of Commerce and Industry to establish the India Centre for Lab-Grown Diamond (InCent-LGD).

The centre aims to develop domestic expertise in diamond seeds, machinery, and manufacturing processes.

To put things into perspective, **Table 1** consolidates the results of the 2025 Natural Diamond Council report and a 2021 study by Vladislav Zhdanov et al. to compare attributes of natural and lab-grown diamonds.

The staggering variation in carbon emissions for lab-grown diamonds can be attributed to the energy source used for production. Diamonds created using coal-heavy power grids have higher carbon emissions, while those manufactured using renewable energy sources have a much lower carbon footprint.

The latter aligns with the United Nations Sustainable Development Goals (SDGs), which emphasise the transition to cleaner energy systems and more sustainable manufacturing practices. Furthermore, the use of renewable energy in diamond production reflects the principles of a circular economy, where resources are utilised more efficiently and environmental impacts are minimised throughout a product's life cycle.

Although lab-grown diamonds are not entirely free from environmental concerns, the next generation of consumers is increasingly drawn to them as a more sustainable alternative to mined diamonds. This shift in public perception reflects a growing emphasis on ethical sourcing, environmental responsibility, and product traceability.

Their advantages become even more significant when one considers the wide range of applications diamonds have in modern society. They are used in heavy-duty industrial processes, including cutting and drilling, as well as in quantum computing, protective coatings that extend equipment lifespan, semiconductor manufacturing and several other fields.

For a material so deeply woven into both industry and culture, selecting the more economical and sustainable option becomes no longer a choice – it is a responsibility.

(Prof. N. Arunachalam is currently working as a Professor, Department of Mechanical Engineering and also leading the HPHT technologies development activities for growing diamond in lab as part of India Centre for Lab-grown Diamond (InCent-LGD), IIT Madras. Dr. S. Boominatha Sellarajan is working as a Principal Project Scientist at InCent-LGD, IIT Madras, Dr. U. Vishnuja is working as Project Manager at InCent-LGD, IIT Madras. Miss. Anupama Janakiraman is an IIth Std. student studying at Sishya School, Adyar, Chennai).

Context (GS-3: Science & Technology – Emerging Technologies; Environment & Ecology – Sustainable Manufacturing; Indian Economy – Manufacturing & Exports)

Declining natural diamond reserves, environmental concerns and ethical issues associated with mining have accelerated the adoption of Lab-Grown Diamonds (LGDs). India is promoting LGDs through technology, research and policy support to emerge as a global manufacturing hub.

I. Lab-Grown Diamonds vs Mined Diamonds

Lab-Grown Diamonds (LGDs)

- Produced using HPHT or CVD technology.
- Chemically, physically and optically identical to natural diamonds.
- Lower cost (~₹80,000/carat), highly traceable and conflict-free.
- Lower environmental footprint.

Mined Diamonds

- Naturally formed over millions of years and extracted through mining.
- Expensive (~₹1.5–7 lakh/carat) due to rarity.
- Mining causes land degradation, high water use and carbon emissions.
- May involve conflict diamonds and ethical concerns.

II. Technology Used

- **HPHT (High Pressure High Temperature)**: Replicates natural pressure and temperature inside the Earth to convert carbon into diamond.
- **CVD (Chemical Vapour Deposition)**: Carbon-rich gases deposit carbon atoms layer-by-layer on a diamond seed inside a vacuum chamber.

III. Significance

- **Sustainable alternative:** Reduces mining, deforestation, pollution and biodiversity loss.
- **Ethical sourcing**: Eliminates conflict diamonds and forced labour concerns.
- **Industrial applications**: Used in semiconductors, electronics, cutting tools and precision engineering.
- **Economic opportunity**: Supports Make in India, exports, employment and high-value manufacturing.
- **Affordable & traceable**: Lower prices with complete supply-chain transparency.
- **Supports SDGs**: Promotes responsible production and circular economy.

Bhupender Yadav
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India continues Her journey beyond a century in designating Ramsar Sites.

Delighted to announce Glaw Lake as Arunachal Pradesh's first Ramsar Site—a significant milestone for biodiversity, water and climate security, and sustainable livelihoods.

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7:50 PM · Aug 3, 2026

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What we UnderStand, We Conquer

Context (GS III: Environment & Ecology | Prelims: Ramsar Convention, Wetlands & Biodiversity)

India has designated **Glaw Lake as its 101st Ramsar Site**, making it the first Ramsar Site in Arunachal Pradesh. The recognition reflects India's commitment to wetland conservation, biodiversity protection, and climate resilience.

Key Points

* Glaw Lake is the first Ramsar Site in Arunachal Pradesh.
* India now has 101 Ramsar Sites.
* The site supports rich wetland biodiversity and migratory bird habitats.
* The designation promotes sustainable wetland management and supports local livelihoods.
* It strengthens India's commitments under the Ramsar Convention.

WELLINGTON

Nauru, the world's third smallest country, changes name to Naoero

AFP

The Pacific Island country of Nauru has changed its name to the Republic of Naoero, its President said, matching the spelling and pronunciation in the national language. With 12,000 residents, Nauru is the world's third-smallest country by population size. The new name is spoken as Now-ero. AP


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