

EDITORIAL HIGHLIGHTS

20-07-2026

GS Paper: GS-3

Syllabus Topics: Awareness in the fields of

The materials and methods that made the Vikram-1 launch unique

If its engine is printed, the airframe is woven; carbon-fibre composite — filaments of near-pure carbon set in resin — offers strength per unit weight many times that of aerospace aluminium or maraging steel. Skyroot has thus claimed a five-fold saving over the best rocket steel

Jacob Koshy

The Vikram-1 rocket, built by the Hyderabad firm Skyroot, shot through the sky a little past noon on July 18. The seven-storey-tall vehicle lifted off ISRO's First Launch Pad at Sriharikota and, a little over 15 minutes later, placed its payloads in an orbit roughly 450 km above the earth. The mission, named 'Aagamam', Sanskrit for 'arrival', made India only the third country, after the U.S. and China, whose private industry can reach orbit on its own launch vehicle.

Rocket engines have traditionally been forged, machined, welded from dozens of parts. 3D printing inverts this. A laser fuses metal powder layer upon layer, building the part up from nothing. There are some real advantages to this approach. An engine printed as one piece sheds the bolts, seals, and joints where conventional engines leak and fail. When Skyroot test-fired its 'Raman' engine in 2020, it said the fully printed injector halved the mass and cut components and lead time by 80% against conventional manufacturing.

Complex internal plumbing — the fine cooling channels that let Vikram-1's regeneratively cooled engine chill itself with its own propellant — can be printed in shapes no drill can reach. Prototypes emerge in days, not months, so a startup can test, fail, and redesign at a pace that would have been anathema to ISRO's supply chains. The downsides are more subtle: peer-reviewed surveys of the field flag porosity, rough internal surfaces, and batch-to-batch variability, and NASA has documented a printed copper combustion chamber failing on the test stand from degraded material quality.

A printed engine, in short, is faster and lighter but demands obsessive quality control. The flaws hide inside the layers.

Carbon-composite body

If the engine is printed, the airframe is woven. Carbon-fibre composite — filaments of near-pure carbon set in resin — offers strength per unit weight many times that of aerospace aluminium or maraging steel. Skyroot claims a five-fold saving over the best rocket steel. Every kilogram of structure trimmed is a kilogram of satellite gained.

The American company Rocket Lab's Electron rocket pioneered the approach. The material also resists fatigue and corrosion and can be laid up by automated machines into seamless tubes. Vikram-1's own stage-1 is India's longest single-piece composite rocket stage. However, the material and its curing infrastructure are expensive; its strength runs along the fibres, so a poorly designed laminate is strong one way and brittle another; and damage can lurk



This photograph taken on July 7, 2026 shows a Vikram-1 rocket model at Skyroot Aerospace facility on the outskirts of Hyderabad. AFP

beneath a perfect surface, demanding ultrasonic inspection where a dent in aluminium announces itself.

Both Vikram-1 and PSLV are four-stage expendable rockets that end in a restartable liquid stage for precise orbital insertion: Vikram-1's Orbital Adjustment Module is a miniature cousin of the PSLV's PS4. Both lean on India's long mastery of solid propulsion. However, the PSLV is a 44-metre, 320-tonne workhorse alternating solid and liquid stages to lift 1,750 kg to polar orbit. Vikram-1 is a 22-metre featherweight stacking three solid stages under its liquid module to carry 350 kg.

The nearer analogue is the SSLV. Both Vikram-1 and the SSLV have three solid-fuel stages capped by a small restartable liquid module, both conceived for small satellites on short notice.

On raw capacity, ISRO wins: SSLV lifts 500 kg to low-earth orbit against Vikram-1's 350 kg. However Vikram-1's all-carbon airframe is leaner than SSLV's conventional casings. Most of all, SSLV was designed by the state and its production licensed to Hindustan Aeronautics Limited for ₹511 crore; Vikram-1 is owned outright by its maker, financed by venture capital, and priced by the market.

First flight

According to reports, the Vikram-1 developmental flight met almost every one of its checkpoints, including the process called 'long coast', a tricky phase for a debutant, where the rocket must

For a maiden flight whose stated ambition was merely to clear the tower and gather data, reaching orbit is an important achievement: Electron, Firefly's Alpha, and ISRO's own SSLV all stumbled the first time

hold its attitude with nothing pushing it while the printed engine burns one last time. For a maiden flight whose stated ambition was merely to clear the tower and gather data, reaching orbit is an important achievement: Electron, Firefly's Alpha, and ISRO's own SSLV all stumbled the first time.

The rocket carried five working payloads and two talismans: EMBRACE, a robotic-arm demonstration by CosmoServe Space aimed at grabbing space debris; the SOLARAS satellite from Grahav Space; Skyroot's own SCOPE experimental satellite; and two deployable-technology demonstrators, uD3PP and mD3RN, from the German firm Dcubed.

Alongside flew a lab-grown diamond lotus and an 18-karat gold micro-rocket bearing rice-grain sculptures of 'Sarabhai', 'Raman', and 'Kalam' — the three names Skyroot gives its rockets and engines. The company has said that all the payloads have been deployed.

Building rockets

Skyroot holds both of Indian private

spaceflight's firsts — the suborbital Vikram-S launch in November 2022 and now an orbital launch with customer payloads.

But Chennai's Agnikul Cosmos, incubated at IIT-Madras, is running a parallel course. Its Agnibaan SOrTeD vehicle flew a suborbital flight in May 2024 from India's first private launchpad, on the world's first single-piece 3D-printed engine — a semi-cryogenic design burning liquid oxygen and kerosene, a propellant technology ISRO itself is still maturing.

Having test-fired four Agnilet engines in cluster this May, and with former ISRO chairman S. Somanath joining its board, Agnikul is working on its Mission 02: a two-stage Agnibaan attempting India's first sea recovery of an orbital-class booster while the rocket's upper stage reaches orbit as a working platform. Mission 02, in other words, aims at reusability — the technology that rewrite launch economics and the next barrier Indian rockets must clear.

Since the 2020 reforms and IN-SPACe's creation in 2022, India's space startups have multiplied from a handful to more than 400, but until Saturday (July 18) they all needed ISRO's rockets to fly. A private launcher now could turn ISRO from gatekeeper into landlord — and turn access to orbit from a national programme into a market. The small-satellite launch business is supply-starved worldwide; Skyroot pitches itself as a 'cab service' to space.

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THE GIST

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GS Paper: GS-3

Syllabus Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment; Inclusive growth.

The stark reality of the missing jobs for India's Gen Z

India has one of the world's largest youth populations (371 million, according to United Nations data of 2025), often described as a demographic dividend. But this demographic dividend is only a promise and does not guarantee an automatic outcome. It pays off only when the transition occurs, enabling young people to move from classrooms into decent, productive work with higher skills. Right now, that transition is faltering, and the evidence is visible in Gen Z's employment patterns.

The term 'Gen Z' refers to individuals born between 1997 and 2012. They succeeded the Millennials (also known as Generation Y), who were born between 1981 and 1996. The working-age population for Gen Z broadly falls within the 15-26 age group, while Millennials are aged between the years 27 to 42. According to the 2023-24 Periodic Labour Force Survey (PLFS), India has an estimated 29.94 crore working-age Gen Z individuals (aged 15-26 years), compared with 35 crore Millennials (aged 27-42 years). Using the same datasets, we analyse their occupational patterns, labour force participation rates, unemployment levels, and access to social security systems.

Gen Z work status

PLFS 2023-24 estimates show that a large share of Gen Z remains engaged in education. The data show that 41.7% of young males and 38.4% of young females are studying. While this partly explains their delayed entry into the labour market, the situation of the remaining youth is a cause for concern.

When young people do enter the labour market, many are absorbed into non-salaried and casual forms of employment. Among young males, 15.8% are engaged as unpaid family workers, 12.3% are in casual work – possibly with segments of the informal economy – and only 14.8% are regular wage earners. Among female Gen Z individuals, about 35% are engaged in domestic duties (out of the labour force), 10.7% work as unpaid family workers, and only 4.7% are regular wage earners.

These patterns underline the fact that women bear this burden disproportionately. Among Gen Z females, 27.1% are engaged in domestic duties only, compared with just 0.32% of males. Even where women want paid work, they face higher unemployment and weaker labour market attachment. This is not only a matter of jobs. It also reflects childcare burdens, safety concerns, mobility constraints and social norms, and the design of work itself. India cannot talk seriously about harnessing its demographic advantage while leaving such a large share of young women outside the paid economy.

What happens when young people try to enter



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Celebrating India's demographic dividend means little when Gen Z faces unemployment, insecurity and shrinking pathways to decent work

the labour market? The answer is concerning: too many of them are unable to find adequate employment opportunities.

The first indicator to consider is the labour force participation rate (LFPR). Among Gen Z, 41.7% are in the labour force, against 75% of Millennials. Within Gen Z, rural participation (44.1%) exceeds urban participation (37.2%), suggesting that rural youth tend to enter the labour market earlier, whereas urban youth spend more time in education and training. A sharp gender divide is also evident. Among young males, labour force participation is 59.3% in rural India and 51.3% in urban India, compared to just 28% and 21.1% respectively for young females.

The unemployment situation is even more alarming. The overall unemployment rate for Gen Z is 11.9%, compared to only 2% among Millennials. In urban India, the situation deteriorates further, with Gen Z unemployment rising to 17.1%.

For urban young women, it reaches a staggering 22.6%. This is not merely a temporary labour-market friction; it is a serious warning sign that the economy is struggling to absorb young jobseekers, particularly in areas where aspirations and educational qualifications are often higher.

The graduate trap, social security mirage

For most of the youth, education offers a gateway of opportunity: more education leading to better jobs and lower unemployment. Instead, our estimate shows the opposite at the top end. Among Gen Z males with graduate-level education or above, unemployment stands at 29%. Among Gen Z females, it is even higher at 36.9%. This is the heart of India's silent jobs crisis. The country is producing educated young people faster than it is producing suitable jobs for them.

A similar disparity persists among Millennials. Only 5.2% of male graduates and above are unemployed, but the corresponding figure for women is significantly higher at 13.8%.

This disconnect perhaps points to a deeper mismatch between the education system and labour market requirements. While part of the problem relates to skill mismatches, it is also increasingly shaped by automation and the growing adoption of artificial intelligence, both of which are altering the nature of available jobs.

That mismatch carries a deeper risk. When higher education no longer improves employment prospects quickly or reliably, frustration rises, family investment in education comes under strain, and confidence in the growth story weakens. A labour market that cannot absorb its educated youth is not just inefficient. It can become socially corrosive and

destabilising. Even for those who do find work, the quality of employment remains deeply concerning. Only 20.1% of Gen Z individuals are covered by social security, and just 14.1% have a formal job contract. Among the remaining 79.9% who lack social security coverage, only 3.2% have a job contract. Overall, only 17.3% of Gen Z workers have any form of contractual employment.

This implies that most are entering the workforce without either. The challenge, therefore, is not merely unemployment but the widespread prevalence of informal, insecure, and weakly protected work. Further, in recent years, there has been growing evidence of the informalisation of formal employment among the Gen Z population.

The situation among Millennials is only marginally better. Merely 26% have a job contract, while only 28.6% are covered by social security.

The recent large-scale violent labour protests in Noida, Uttar Pradesh, led by industrial and factory workers demanding higher wages and better working conditions, reflect the frustration that insecure and poorly protected employment can produce.

A promise deferred

India's jobs debate is too often discussed in silos: unemployment, skilling, women's work and labour force participation, and informality. However, these are not separate problems. They are one connected failure of labour market transition. Young people (Gen Z) are staying in education longer, but the bridge from education to work is weak. Women face structural barriers that keep them out or push them into unpaid roles. And even when work is found, it is too often outside the protections of formal employment.

It is time India moves beyond merely celebrating its large demographic dividend and begins treating the issue with greater urgency. Skill programmes have value, but they cannot substitute for actual job creation. The answer lies in expanding labour-intensive sectors, building stronger school-to-work pathways, linking training more closely to employers, and making it easier for women to enter and remain in paid work. Apprenticeships, formal hiring incentives, urban employment expansion, safe transport and childcare support all need to be part of the response.

The numbers tell a blunt story. India's youth challenge is no longer about whether young people are ready for work. It is about whether the economy is ready for them. Until that changes, the demographic dividend will remain what it has so far been: a promise deferred.

GS Paper: GS-2

Syllabus Topics: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests; Effect of policies and politics of developed countries on India's interests.

Much more than 'Melbourne meets Modi'

In terms of rock star performances by foreign leaders, it would be hard to beat Prime Minister Narendra Modi's magnetic engagement with a Melbourne crowd in Australia in the second week of July. As one of those in the crowd, I can attest that the audience revelled in Mr. Modi's energy, and the messages of aspiration for the diaspora and for the Australia-India partnership.

Mr. Modi's visit to Australia took place from July 8 to 10. But this visit was a lot more than a rock star performance. It opened new chapters in the India-Australia story – in investment, strategic trust, culture, sports and people.

Beyond symbolic diplomacy

A short call of the board is warranted. The leaders, Mr. Modi and Australian Prime Minister Anthony Albanese agreed on: a new Joint Declaration on Defence and Security Cooperation that deepens our work together as a force for peace, stability and prosperity in the Indo-Pacific; a new Partnership on Cyber, Critical Technologies and Supply Chains that strengthens our respective cyber capabilities, improves regional and global cyber resilience, and boosts our industrial and business linkages; a sports playbook that leverages Australia's expertise in major sporting events, as India seeks to demonstrate its global leadership by hosting the Commonwealth Games and bidding for the Olympic and Paralympic Games; a statement on energy security that commits Australia and India to more resilient energy supply chains, while making possible Australian uranium exports to India for peaceful purposes, and a Maritime Security Collaboration Roadmap that charts the way forward for Australia and India to expand



Philip Green

Australia's High Commissioner to India

The 'Melbourne momentum' is opening new chapters in security, business, education and culture

cooperation on maritime security in the vast Indian Ocean that lies between our shores.

Business, education, cricket

That is a lot for a single visit. And business leaders chipped in – Australia's leading pension fund, Australian Super, decided to invest half a billion dollars (that is ₹3,360 crore) in India's National Investment and Infrastructure Fund Limited. That is on top of Australia's leading hyperscalers committing to build tens of billions of dollars in data centres across India.

Our education sectors reminded us that eight Australian universities have now undertaken to open foreign branch campuses in India, including the University of New South Wales (UNSW), which is a global top 20 university. When its campus opens later this year, UNSW will be the highest-ranking university in India.

And a big next step in our relationship was also foreshadowed, with the plans for an annual showcase of the best of Australian culture and business under the banner "G'Day - Namaste". G'Day - Namaste will coincide with the Australian Big Bash League playing its first game (cricket) on foreign soil in December this year.

To me, this rich set of outcomes represents more than a fair bit of work in preparation for the visit. It shows that there is a lot more headroom to deepen and expand our collaboration. That is because of three underlying drivers that are impelling our partnership forward: The fact that we are reliable partners at a time when our region, and the world more broadly, is in flux, and when each of us needs to find deeper international connections to safeguard our interests; the fact that we have highly complementary economies – Australia's

strengths in energy, mining, and education and skills fit neatly with India's rapidly growing manufacturing industry, and the fact that the Indian diaspora in Australia – Australia's fastest-growing – is a source of pride and dynamism for our two governments.

Leadership drives partnership

Relationships grow when the objective conditions are fertile. They flourish when each nation sees in the other, solutions to some of its problems, and pathways to maximise their opportunities. That is where Australia and India are.

They also flourish when they have leadership with a shared vision and ambition for the relationship.

That shared ambition was much on display between Prime Ministers Narendra Modi and Anthony Albanese. Stability and continuity are on the side of our leaders too, with each focused on fixing long-term problems and seizing opportunities.

The two leaders have a deep respect and admiration for each other.

The genuine warmth between our Prime Ministers was on unmistakable display over two days in Melbourne – from their banter about cricket in quiet moments, to their attentive consideration of each other's viewpoints, to the bear-hugs that caught the attention of the cameras.

The visit is a vivid demonstration of what a positive place we find ourselves in, in the India-Australia partnership. Not all bilateral relationships have that just now, so we should celebrate it. Celebrate it, and recommit ourselves to maximising the opportunities of a special moment of alignment of interests.

1. GS Paper: GS-3

2. Syllabus Topics: Indian Economy (Mobilization of Resources, Financial Markets, Banking & Regulation).

India's F&O boom needs adequate protections

Headlines continue to highlight the devastating financial ruin of investors who trade in the Futures and Options (F&O) segment, as many of them get caught in a spiral of debt. Mounting financial pressure from these trading losses has recently led to multiple cases of suicide.

At their core, F&O contracts are derivatives. They allow investors to buy, sell, or lock in the price of an underlying asset such as a stock, index, or commodity at a future date without actually owning it. While institutions use these instruments to hedge existing portfolios against market downturns, many retail participants are drawn to them solely to speculate, lured by the promise of quick money.

According to SEBI reports, the average investor driving this frenzy is overwhelmingly male (86.3%), hails from small tier-2 and tier-3 cities (over 72%) and earns less than ₹5 lakh per annum (75%). A July 2025 SEBI study revealed that over 90% of individual traders incurred heavy losses over the four-year period from FY22; aggregate retail losses surpassed ₹2.8 lakh crore, with the average net loss per participant pegged above ₹4 lakh. Only 1% of retail traders managed a profit exceeding ₹1 lakh.

Rigged playing field

Over the last eight years, India has evolved from a marginal player into one of the world's largest F&O markets. This hyper-growth began during the FY16 to FY19 period, when exchanges introduced weekly-expiring contracts in addition to the traditional month-end expiries. Fuelled by a booming bull market, smooth mobile trading apps, instant UPI fund transfers, aggressive 'how-to-trade' content via social media, and cheap discount brokerages, entering the market became effortless. However, the psychological thrill of fast cash has blinded users to reality: over 75% of loss-making retail traders



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Mature derivatives markets do not rely on warnings; they enforce strict entry barriers and suitability systems to limit speculative risks

continue to trade year after year, even after sustaining heavy losses.

Retail traders lose because they are bringing knives to a gunfight. SEBI's research reveals that 97% of institutional profits and 96% of proprietary trading profits in the Indian F&O market are generated by algorithmic trading. These institutional desks utilise lightning-fast code co-located directly inside exchange servers. Retail investors are competing against highly sophisticated, millisecond-fast automated strategies they cannot access. A July 2025 SEBI interim order banned Jane Street, an American quantitative trading firm, for index manipulation, highlighting how high-frequency traders exploit retail participants in the F&O market. Furthermore, individual traders focus purely on whether an option premium moves up or down, completely ignoring the massive layer of statutory taxes, platform fees, and transaction charges applied to every click. Over 70% of these transaction costs stem from brokerage and exchange fees. In FY24, retail traders incurred a total net loss of ₹74,800 crore. Of this, ₹22,450 crore went entirely toward transaction costs. When you strip away these costs, individual traders suffered a gross trading loss of ₹52,400 crore. Crucially, this wealth was transferred directly to the other side of the aisle: proprietary traders booked ₹33,000 crore in gross profits, while Foreign Portfolio Investors (FPIs) took home ₹28,000 crore.

Both SEBI and the Union Government have tried to cool this market. Regulators have hiked minimum contract sizes, limited weekly expiries, mandated upfront premiums, enforced a 50% cash collateral rule, introduced stringent intra-day position monitoring and forced brokers to display prominent risk disclosures. While these initiatives caused a brief contraction in overall F&O volumes, retail investors are stubbornly staying put. In fact, NSE volumes from

May 2026 show that the proportion of individual investors in the Equity Derivatives pool actually rose by 4% year-on-year to hit 31%. As FPIs and proprietary traders reduce their exposure, retail traders are choosing to make up a larger slice of a highly volatile, shrinking pie.

The way forward

Indian regulators must now look toward global safeguards. Mature derivatives markets do not rely on warnings; they enforce strict entry barriers and suitability systems to limit speculative risks.

For example, in Singapore, the Monetary Authority of Singapore requires brokers to conduct a formal Customer Knowledge Assessment for exchange traded derivatives. Similarly, in the U.S., under the Financial Industry Regulatory Authority's Know Your Customer and Suitability Rules, broker-dealers act as legally liable gatekeepers. Brokers must bucket retail clients into strict options approval tiers based on their self-certified financial health; or face severe fines and civil liabilities if they approve unseasoned traders for complex strategies.

Therefore, to protect vulnerable citizens, SEBI must move beyond passive warnings. This regulatory courage is especially critical as the National Stock Exchange (NSE) prepares for its long-awaited public debut. With a massive portion of the NSE's IPO valuation anchored directly to the explosive transaction volumes of retail F&O trading, the exchange's commercial incentives are fundamentally at odds with investor protection. SEBI must see past the market euphoria.

The regulator should explore implementing a baseline liquid capital threshold for F&O access, establish mandatory entry exams, and place the legal responsibility of verifying investor suitability squarely on the shoulders of the discount brokerages profiting from the volume, ensuring that a public listing for the NSE does not come at the cost of financial stability.

GS Paper: GS-2

Syllabus Topics: Effect of policies and politics of developed and developing countries on India's interests; West Asian geopolitics; Maritime

On the second phase of U.S.-Iran war

The second phase of the Iran-U.S. war is primarily centred on the future of the Strait of Hormuz. The MoU stipulated that Iran would allow 60 days of free passage for ships through the strait and define its future administration with Oman. Subsequent talks in Doha broke down over U.S. resistance to a formal management plan

EXPLAINER

M. Kalyanaraman

The second phase of the Iran-U.S. war is being fought almost exclusively over the future of the Strait of Hormuz. The sequence of events leading to the restart of hostilities suggests there was no genuine meeting of minds when the MoU was signed. As before, by holding out and retaliating, Iran has forced the issue – shipowners now seem resigned to paying a “logical” toll, even as they worry about the precedent it sets for other straits.

Events that led to the war

The two countries agreed to a ceasefire on June 14 and the terms of the MoU were finalised, which stipulated that Iran would allow ships to pass “with no charge for 60 days only,” and that Iran would work with Oman to “define the future administration and maritime services” in the strait. Two days later, the Persian Gulf Strait Authority – set up by Iran in May to handle transits – circulated terms reasserting itself as the nodal transit authority, requiring every vessel to hold a passage permit and PGSA-approved insurance, free for now but with fees reserved for later. Iran was formalising its stake as a legal outcome of the MoU.

U.S. and Iranian delegations met in Switzerland on June 21, and sanctions were lifted the next day. But the PGSA, already sanctioned, was never explicitly relieved – leaving shipping firms wary of dealing with it.

U.S. Secretary of State Marco Rubio then toured the UAE, Kuwait and Bahrain from June 23-25, culminating in a Gulf Cooperation Council (GCC) meeting in Bahrain. Amid that visit, on June 24, the International Maritime Organization (IMO) – working with Oman – formally announced a temporary corridor: a southern one via Oman, alongside the northern route Iran championed. This effectively formalised the Omani route.



The second phase of the war is fought almost exclusively over the future of the Strait of Hormuz. REUTERS

Iran complained it had not been consulted and said any other route barring the route it had specified was “unauthorised and dangerous.”

The next day in Bahrain, Mr. Rubio said accepting a toll near a country’s territorial waters “will spread throughout the world like a contagion,” adding that no Gulf state supported one. The U.S. and GCC signed a statement opposing Iran’s control of the strait. Iran did not take this quietly. The IRGC threatened vessels on non-Iranian routes, and the IMO’s governing council “strongly condemned” Iran’s bid to “establish an entity purporting to control traffic through the strait.”

On June 30, U.S. and Iranian officials met in Doha. Reports said Iran and Oman had floated a plan to monetise transits – a voluntary toll modelled on the Malacca-Singapore Straits – which Washington rejected in favour of the pre-war status quo.

A Maritime and Port Authority of Singapore spokesperson, responding exclusively to *The Hindu*, said the Straits of Malacca and Singapore are, like

Hormuz, Straits Used for International Navigation, and that Indonesia, Malaysia and Singapore accordingly levy no fees or tolls on ships exercising transit passage. A voluntary Aids to Navigation Fund exists, backed by contributors including The Nippon Foundation, but the spokesperson stressed its “contributions are not for the exercise of transit passage and should not be misconstrued as fees, tolls or payment imposed on transiting ships.” Talks in Doha broke down over U.S. resistance to any formal management arrangement – effectively a bid to walk back the MoU’s own Hormuz clauses.

Hostilities resume

The first week of July brought the mourning period for Ayatollah Ali Khamenei. As the NATO summit opened in Turkey on July 7 – where U.S. officials restated their Hormuz position, and Donald Trump complained European allies weren’t helping keep the strait free for navigation – Iran struck three ships on the Omani route, among them the India-bound *Al Rekayyat*, one of the largest LNG carriers built. An exploding

LNG tanker at a chokepoint ranks among shipping’s worst-case scenarios. Mr. Trump declared the ceasefire over. War had resumed.

On July 11, 2026, Iranian Foreign Minister Abbas Araghchi met with Omani Foreign Minister Badr Albusaidi in Muscat to discuss the strait but the meeting apparently produced no agreement. A few hours later, Iran attacked the *DFS Galaxy*, in which one Indian seafarer died, bringing the recent Iranian attacks on ships to six. The U.S. began attacking merchant ships too, as part of its blockade against Iranian oil trade. It has reinstated the sanctions it had briefly lifted.

Washington keeps claiming it has degraded Iran’s capacity to strike shipping – a claim repeated after nearly every strike, rebutted each time by a fresh attack. For instance, on July 13, CENTCOM said strikes on six Iranian sites would “further degrade” that capability; the IRGC responded the same day by claiming it had disabled two tankers.

Strikes on Greater Tunb Island on July 15 drew the same claim. Yet on July 16, the Joint Maritime Information Center raised its Hormuz risk rating to “severe,” and nine Greek-operated LNG tankers stayed put rather than risk transit – insurers, the most reliable independent judges, are pricing in continued Iranian capability. Lloyd’s List data shows weekly transits that nearly doubled to 282 for June 22-28 have since fallen to 164 for July 6-12, concentrated on the Omani route.

Iran has now turned to alternatives to the strait – targeting ship-to-ship transfers off UAE’s Fujairah pipeline and pushing the Houthis to shut off Saudi Arabia’s East-West pipeline route by attacking ships taking the Red Sea route.

“Shipping companies are super tired [of] all this back and forth,” said Dimitris Maniatis, CEO of Greek maritime firm Marisks, at a Lloyd’s List webinar. “Most would accept a toll amount that is logical, not 20% though which is ludicrous. If a legitimate arrangement is formulated, shippers would welcome the development.”

THE GIST

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GS Paper: GS-2

Syllabus Topics: Structure, organization, and functioning of the Judiciary; Cultural heritage protection; Secularism.

What is the legal tussle surrounding the Taj Mahal?

What controversial claims have been made about the monument over the years?

Ziya Us Salam

The story so far

Taj Mahal, the seventeenth-century tomb, is once again in the news. Earlier this month, the Allahabad High Court issued notices to the Centre and the Archaeological Survey of India, asking for their response to a plea challenging an Agra trial court order refusing a survey of the Taj Mahal. A Bench of Justice Rohit Ranjan Agarwal passed the order on a petition filed by advocate Harishankar Jain contending that the Taj, a UNESCO World Heritage monument, is actually 'Tejo Mahalaya'.

Mr. Jain pleaded for a declaration that the Taj Mahal is a Hindu temple and sought permission for Hindus to offer prayers there. The petitioners also sought the appointment of an Advocate Commissioner to inspect the monument.

Built by Mughal emperor Shah Jahan as

a tomb for his favourite wife Arjumand Bano, the Taj Mahal took 22 years to be completed. Constructed under chief architect Ustad Ahmed Lahori, the first time it faced a controversy was when it was claimed by many in the West that the architect of the Taj was Venetian Geronimo Veroneo, a jeweller by profession. That was in the 17th Century. Then came the claim by Mughal Beg in Tarikh-e-Taj Mahal that the Taj was designed by Muhammad Effendi, an architect supposedly sent by the Sultan of Turkey. Effendi, however, was not an architect as subsequent revelations proved.

What was P.N. Oak's claim?

Then in the mid-19th Century, it was claimed that the monument was the result of the genius of Frenchman Austin de Bordeaux, a jeweller by profession. However, Austin died in 1632, the year the work on the Taj began.

No historian of medieval India has contested the fact of the Taj being a tomb of the Mughal emperor Shah Jahan's wife. This includes the illustrious historians Irfan Habib and Athar Ali, besides noted names like Satish Chopra and Syed Ali Nadeem Rezavi. The first person to cast aspersions on the tomb's authenticity was a non-historian, P.N. Oak, a teacher-turned-lawyer-turned-journalist, who, through his book *Taj Mahal is a Temple Palace*, claimed in 1965 that the Taj was originally a Rajput palace built in the 4th century. In 1989, Oak revised his opinion and claimed it was originally a Hindu temple built in the early 12th century. Again, he penned a book, *Taj Mahal: The True Story*, to buttress his contention. It was the first time anybody associated the monument with a Hindu deity. The historians rejected his claims as lacking credibility in the absence of any evidence. Oak's claim, however, was heard in the Supreme Court, which

rejected it outright in 2000.

What legal challenges followed?

In 2005, Amarnath Mishra, now a member of Ayodhya Sadbhavna Samiti, went to Allahabad High Court claiming the Taj was a temple built by the Chandela rulers in 1189. The court dismissed his contention too.

The opponents did not give up. In 2015, a civil suit filed at an Agra trial court sought to declare the Taj Mahal a Hindu temple. The court, however, didn't agree with the claim. After it refused to order a survey of the Taj premises, like the one ordered in Gyanvapi and Bhojshala, the petitioners went to Allahabad High Court. The court then sought response from the Union Government and the Archaeological Survey of India (ASI).

What was the ASI's stand?

In 2017, the ASI stated unambiguously that the Taj was a 17th-century tomb. The technology used in its construction and design, including pietra dura, did not exist in pre-medieval days. It should have ended any vestiges of controversy. However, a PIL was filed by a BJP leader in the Supreme Court in 2022. It was dismissed too. Two years later, some activists tried to offer Gangajal at the Taj. That attempt, too, was foiled. Now, following the Allahabad HC ruling, the ball is in the Centre's court, besides the ASI yet again.

THE GIST

▼ The Allahabad High Court had issued notices to the Centre and the Archaeological Survey of India, asking for their response to a plea challenging an Agra trial court order refusing a survey of the Taj Mahal.

▼ In 2017, the Archaeological Survey of India stated unambiguously that the Taj was a 17th-century tomb. The technology used in its construction and design, including pietra dura, did not exist in pre-medieval days.

GS Paper: GS-3

Syllabus Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment; Major crops-cropping patterns in various parts of the country.

• ECONOMICS

Poor monsoon's impact on India's agri import bill



HARISH DAMODARAN

IN 2025-26 (April-March), India imported a record 16.9 million tonnes (mt) of vegetable oils and 1.1 mt of raw cotton, valued at \$19.5 billion and \$1.9 billion respectively. Further, it imported nearly 6 mt of pulses — the highest after 2024-25 and 2016-17 — worth \$3.6 billion (table 1).

The current fiscal could see even these records broken, thanks to El Niño. The impact of this climate phenomenon — an abnormal warming of the central and eastern Pacific Ocean waters off the coasts of Peru and Ecuador, associated with dry weather across India, Southeast Asia and Australia — is already being felt.

Rainfall for the country in June was 38% below the normal long-period average for the month. While July so far has registered a lower 9% shortfall, the cumulative deficiency for the four-month southwest monsoon season (June-September) as on July 19 is still at 23.8%.

Kharif sowing lag

The lack of rain has affected plantings of most kharif (monsoon-cultivated) crops. While overall sown area till July 10 was 16% below that for the same period of 2025, the decline was even more in pulses (23.3%) and oilseeds (21%).

Within pulses, the year-on-year acreage drop was 30.3% for arhar (pigeon pea) and 29.7% for urad (black gram). In oilseeds, it has ranged from 16% for soyabean to 34% for groundnut and 46% for sesamum. The progressive area sown under cotton, too, has fallen 15.3% from last year's corresponding coverage (table 2).

"Rainfall has been weak and also scattered. There are areas within 20-25 km of the same taluka (sub-district) that have received showers and those that haven't," said Nitin Kalantri, a leading dal miller from Latur in Maharashtra.

The monsoon's revival seen during the first week of July should help somewhat close the above gaps and may be reflected in the Agriculture Ministry's kharif sowing

• How India's imports of these three have soared

Year (Apr-Mar)	Vegetable Oils		Pulses		Raw Cotton*	
	Quantity	Value	Quantity	Value	Quantity	Value
2016-17	140.07	10892.75	66.09	4244.13	5	946.88
2017-18	153.61	11637.48	56.08	2908.33	4.69	979.32
2018-19	150.19	9890.32	25.28	1140.76	2.99	633.05
2019-20	147.22	9672.88	28.98	1440.09	7.44	1328.42
2020-21	135.4	11089.12	24.66	1611.72	2.31	385.89
2021-22	142.78	18991.62	27	2228.95	2.24	559.55
2022-23	157.45	20837.7	24.96	1943.89	4.52	1438.69
2023-24	155.2	14871.66	47.39	3746.78	2.52	598.66
2024-25	164.13	17366.26	72.56	5477.28	6.01	1219.32
2025-26	169.4	19488.41	59.64	3572.89	10.73	1888.79

QUANTITY IS IN LAKE TONNES AND VALUE IS IN \$ MILLION; *INCLUDES WASTE. SOURCE: DEPARTMENT OF COMMERCE

data update on Monday.

"Sowing of pulses, including arhar (a 5-6 months crop), can take place till July-end. What we need is good rain over the next two weeks," added Kalantri.

The same goes for cotton, where the sowing window in the main growing belts of central and southern India usually shuts by mid-July. This can be extended till the month-end, if the monsoon is delayed or erratic.

"Cotton doesn't need too much rain. Also, the price sentiment for cotton is good this time, with many farmers keen to shift from rice and maize," M Prabhakar Rao, chairman and managing director of the Medchal (Telangana)-based Nuziveedu Seeds Ltd, pointed out.

According to him, less rainfall would be a problem more from the standpoint of pink bollworm (PBW) infestation, which can bring down crop yields: "PBW is a monophagous pest that feeds exclusively on cotton. Frequent rains help in disrupting the mating cycle of the adult moths, besides drowning the pupae in the soil. Prolonged dry weather is conducive for uninterrupted mating, egg-laying and the growth of larvae that bore into the developing bolls".

El Niño worries

While the monsoon rainfall deficit is

• Kharif acreage growth

Crops	2025-26	2024-25
Pulses	-23.32	
Arhar /Tur	-30.29	
Moong	-10.63	
Urad	-29.72	
Moth Bean	-28.1	
Cotton	-15.34	
Rice	-8.64	
Sugarcane	1.52	
Jute & Mesta	1.95	
All Kharif Crops	-16.03	
Oilseeds	-21.01	
Soyabean	-15.98	
Groundnut	-33.99	
Sesamum	-46.03	
Sunflower	62.26	
Coarse Grains	-22.47	
Maize	-19.54	
Bajra	-26.58	
Jowar	-23.64	
Ragi	-16.22	
Small Millets	-29.27	

(% YEAR-ON-YEAR), AS ON JULY 10. SOURCE: DEPT. OF AGRICULTURE & FARMERS' WELFARE

quite significant now, the worry is more from a strengthening El Niño in the months ahead.

The US National Oceanic and Atmospheric Administration (NOAA) has forecast an 81% probability of the present El Niño intensifying into a "very strong" event during October-December, with a 97% chance of it persisting through the spring months till March-April.

Given that El Niño is known to not only suppress rainfall, but also raise temperatures, it could translate into a relatively short and warm upcoming winter. That can potentially hurt the ensuing rabi (winter-spring) season crops such as wheat, rapeseed-mustard, chana (chickpea), masoor (red lentil) and potato as well.

The brunt of all this would be borne by oilseeds, pulses, millets and cotton, which are predominantly rainfed crops, unlike rice, wheat or sugarcane. The current developing El Niño — which, NOAA believes, may turn out to be "among the largest... events in the historical record going back to 1950" — can result in India's vegetable oil, pulses and cotton imports also scaling a new peak.

The comfort factors

On the positive side, stocks of rice and wheat in government godowns, at 68.3 mt and 53.4 mt respectively on June 1, were way above the corresponding minimum

The hit to domestic production from El Niño could result in record imports of vegetable oils, pulses and cotton. There is some cushioning, though

required levels of 13.5 mt and 27.6 mt for July 1.

Government agencies are also reportedly holding over 4 mt stock of pulses, which includes 2 mt of chana and 0.6-0.7 mt of arhar.

"They can offload these in a worst-case scenario. There is also scope to import, especially with fresh shipments of arhar from East Africa (Mozambique, Tanzania, Malawi and Sudan) expected in August-September. Likewise, masoor from Canada and Australia would be ready for shipping after September and November respectively. The voyage time for these would be 20-30 days," noted Kalantri.

Also, unlike in 2022, post Russia's invasion of Ukraine, the world is awash with ample stocks from the record global harvests of wheat, rice, corn (maize), sugar and even soyabean, rapeseed and palm oil in 2025-26.

The Food and Agriculture Organisation's benchmark food price index was up just 1.7% year-on-year in June. The only commodity of worry is vegetable oils, where the index in June was 23.3% higher than a year ago. The landed prices of imported crude palm, soyabean and sunflower oil in Mumbai, at \$1,235, \$1,292 and \$1,455 per tonne on Friday, was higher than their corresponding July 2025 average of \$1,095, \$1,191 and \$1,216 respectively.

A key reason for vegetable oil prices firming up is their alternate use as biofuel. When crude petroleum prices harden — as they are with the resumption of the conflict in West Asia — there is added incentive to divert palm, rapeseed and soyabean oil for the production of fatty acid methyl esters, which can substitute regular diesel.

In the coming days, if the monsoon continues to play truant, one can expect two actions from the government.

The first is a slashing of import duties — currently 16.5% on crude palm, soyabean and sunflower oil, 30% on yellow peas and 10% on masoor and chana. This will be alongside continuation of nil duty on imports of arhar, urad and raw cotton.

Secondly, one shouldn't rule out the government even going slow on the ethanol-blended petrol programme. That could involve bringing back restrictions on diversion of sugarcane juice/syrup and even intermediate-stage 'B-heavy' molasses for making ethanol.

GS Paper: GS-3

Syllabus Topics: Infrastructure: Energy; Science and Technology—developments and their applications in everyday life; Indigenization of technology.

• INDIA-AUSTRALIA URANIUM DEAL: THE COUNTRY IS SECURING URANIUM AS IT AIMS TO EXPAND NUCLEAR POWER CAPACITY TO 100 GWE BY 2047

Why domestic reserves are not enough to fuel India's nuclear ambitions

Pratyush Deep
New Delhi, July 19

EARLIER THIS month, India secured a long-term uranium supply deal with Australia, marking the first major outcome of the India-Australia Civil Nuclear Cooperation Agreement signed nearly 12 years ago.

While the volume of uranium oxide, or yellowcake, to be supplied and the duration of the agreement have not been disclosed, the deal follows similar long-term uranium supply agreements signed with Canada and Kazakhstan earlier this year, underscoring New Delhi's efforts to diversify and secure fuel supplies for its planned expansion of nuclear power generation.

The agreement comes as India pursues an ambitious tar-

get of expanding its civil nuclear power capacity to 100 gigawatt-electric (GWe) by 2047 and, last year, opened the tightly regulated civil nuclear sector to greater private participation.

Uranium, a common element found worldwide, must undergo several processing stages before it can be used as nuclear fuel. These include mining and milling, conversion, enrichment (where required), and fuel fabrication.

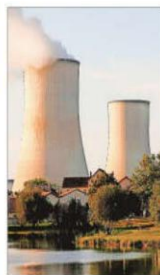
But where does India currently source the uranium that fuel its nuclear reactors? And what role do the domestic uranium reserves play in meeting the country's growing demand?

India needs more uranium supply

For the country's indigenous pressurised heavy water reactors (PHWRs), which run

on natural uranium, fuel requirements are met through a combination of production from state-owned Uranium Corporation of India Ltd (UCIL) mines and imports. Enriched uranium used in the two light water reactor (LWR) variants — Tarapur Nuclear Power Plant and Kudankulam Nuclear Power Plant — is entirely imported.

The domestic uranium oxide reserves currently stand at around 4.3 lakh tonnes, spread across 47 uranium deposits located in Andhra Pradesh, Telangana, Jharkhand, Meghalaya, Rajasthan, Karnataka, Chhattisgarh, Uttar Pradesh, Uttarakhand, Himachal Pradesh and Maharashtra. UCIL has the mandate to mine and process uranium ore in the country and operates major mines in Jaduguda and Tur-



Uranium must undergo several processing stages before it can be used as nuclear fuel. REUTERS

amdih in Jharkhand and Tummalapalle in Andhra Pradesh. However, the uranium requirement for only 2.4 GWe out of the country's total 8.7 GWe capacity is currently met

• URANIUM DEFICIT

DOMESTIC URANIUM oxide reserves stand at around 4.3 lakh tonnes, spread across 47 uranium deposits located in Andhra Pradesh, Telangana, Jharkhand, Uttar Pradesh, Uttarakhand, Himachal Pradesh among others

BUT URANIUM requirement for only 2.4 gigawatt-electric out of the country's total 8.7 gigawatt-electric capacity is currently met from domestic sources while the rest is met through imports

from domestic sources while the rest is met through imports, a committee constituted by the Ministry of Power to prepare a roadmap for 100 GW nuclear capacity by 2047

noted in June 2025.

Thus, to meet the target of 100 GW of nuclear capacity in 2047, India would need to augment uranium supplies and also have commensurate processing and fabrication capabilities," it added.

The committee estimated that in 2047, the country will need an additional 8,029 tonnes of natural uranium and 1,045 tonnes of enriched uranium annually.

NSG waiver, global uranium partnerships

The country's ability to import uranium for its civil nuclear reactors was unlocked in 2008, when the Nuclear Suppliers Group (NSG) granted it a 'clean' waiver, making it the only non-signatory to the Nuclear Non-Proliferation Treaty (NPT) to

enjoy such trading privileges.

Government data shows that between 2008-09 and 2024-25, India imported a total of 18,842.60 metric tonnes (mt) of uranium in the form of uranium ore concentrate, natural

uranium dioxide pellets and enriched uranium dioxide pellets for reactors operating under International Atomic Energy Agency (IAEA) safeguards.

In 2024-25, nuclear power plants generated \$6,631.48 million units (mu) of electricity, of which 39,180 mu was produced using imported uranium, according to government data. The estimated requirement of imported natural uranium for operating and proposed safeguarded PHWRs is around 9,000 metric tonnes of uranium during 2025-2033.

India currently imports uranium from Russia and Uzbekistan. Shipments from Canadian mining company Cameco Corp., under the \$2.6-billion supply agreement signed in March, are expected to begin next year. Kazakhstan is also expected to emerge as one of India's most significant uranium suppliers after Kazatomprom, the world's largest uranium producer, agreed in February to sell a substantial volume of uranium to India. Both Cameco and Kazatomprom were among India's major uranium suppliers until 2020-21.

Apart from these countries, France supplied uranium ores and concentrates to India in 2025-26, while similar imports were received from the US in 2024-25, according to trade data. FULL REPORT ON WWW.INDIANEXPRESS.COM