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INTERNATIONAL

ESCALATION TRAP

Donald Trump should change course if he wants to end the war with Iran

The decision by Yemen's Ansar Allah, better known as the Houthis, to impose a blockade on Saudi Arabia signals that the war on Iran has entered its most dangerous phase. The Houthis, a close Iranian ally, had avoided direct involvement due to a fragile but functional ceasefire with Saudi Arabia, despite their controlling most of Yemen's population centres, including capital Sana'a. That ceasefire effectively fell apart on July 13 when an airport in Sanaa was attacked by forces of "Yemen's internationally recognised government". Based in Saudi Arabia, this government maintains loyal forces inside Yemen, though the Houthis remain the country's most powerful and influential political and military force. Blaming Riyadh for the attack, the Houthis announced on July 20 a blockade on ships using Saudi ports on the Red Sea. Saudi Arabia, whose crude and other exports through the Strait of Hormuz have been severely constrained by Iran's blockade, has increased its reliance on Red Sea ports, especially Yanbu. Tankers from Yanbu to Asian markets must pass through the Bab-el-Mandeb Strait, which links the Red Sea to the Gulf of Aden and the Arabian Sea. The Houthis control much of Yemen's Red Sea coastline overlooking the Bab el-Mandeb and can enforce a blockade of the chokepoint.

When Iran closed the Strait of Hormuz after the U.S.-Israel war began on February 28, all Persian Gulf states struggled to sustain their exports. Saudi Arabia, however, cushioned the impact by using its East-West Pipeline, which links its eastern oilfields to the Red Sea export terminals. If the Houthis enforce a total blockade on the kingdom, Riyadh could face far deeper economic disruption. This, coupled with Iran's attacks on Kuwait's desalination plants and power grid — after U.S. strikes on Iranian civilian infrastructure — paints a grim picture of the war and its regional consequences. If the first phase of Iran's counterattack targeted the Persian Gulf monarchies, the second has expanded to include Jordan, which hosts two major U.S. military bases. Now, with the Houthi blockade, the war's economic pain is set to deepen further. U.S. President Donald Trump had an opportunity to extricate himself from the conflict when he signed a memorandum of understanding with Iran on June 17. But by returning to war over disputes surrounding control of the Strait of Hormuz, Mr. Trump has not only squandered the opportunity but has also raised the risk of dragging the U.S. into yet another forever, unwinnable war. At this point, he is pursuing the same military tactics against Iran repeatedly, expecting different results. If Mr. Trump wants a way out, he should change course, push for an immediate ceasefire and return to diplomacy.

'ICC CHIEF PROSECUTOR REMOVED FROM POST OVER SEXUAL MISCONDUCT CHARGES'

The recent removal of Karim Khan as Chief Prosecutor of the International Criminal Court (ICC) by a decisive vote of the Assembly of States Parties marks a watershed moment in the history of international criminal justice. For the first time, a sitting Prosecutor has been dismissed for "serious misconduct and serious breach of duty" linked to sexual misconduct allegations. While the decision reinforces the principle that no one is above the law, it also exposes the fragile intersection of institutional integrity, power politics, and the pursuit of justice.

The ICC was established to end impunity for the most serious crimes—genocide, war crimes, crimes against humanity, and aggression. Its credibility rests not only on its ability to investigate



powerful individuals but also on the moral authority of those who lead it. The findings against Khan, following a prolonged internal process involving UN investigations and judicial scrutiny, underscore that personal conduct cannot be separated from institutional responsibility. Accountability within the Court is essential if it is to demand accountability from states and leaders.

Yet the episode cannot be viewed in isolation. Khan's tenure was marked by high-profile actions, including applications for arrest warrants against Israeli leaders over the Gaza conflict, which triggered sharp political backlash, US sanctions, and accusations of selective justice. Critics of the removal have alleged political motivation, while supporters of the decision insist that the allegations were serious and independently investigated. This polarisation reflects a deeper challenge: international institutions often become battlegrounds for competing geopolitical narratives. When internal disciplinary processes coincide with external pressure, the line between genuine accountability and strategic targeting becomes contested.

For students of international relations and aspirants of the civil services, the case offers several lessons. First, the legitimacy of global institutions depends as much on internal governance and ethical standards as on their external mandates. Second, the ICC's effectiveness continues to be constrained by the non-participation of major powers and the selective cooperation of states. Third, the removal highlights the urgent need for clearer, more transparent procedures for handling allegations against senior officials so that due process is both done and seen to be done. India, though not a party to the Rome Statute, has consistently advocated a rules-based international order and the principle of accountability. The episode reinforces the importance of strengthening domestic and international mechanisms that balance independence with responsibility. As the ICC prepares to elect a new Prosecutor, the focus must shift from individual controversy to institutional resilience. Only by demonstrating both moral consistency and procedural fairness can the Court retain the confidence of the global community and fulfil its foundational promise of justice for the gravest crimes.

DreamIAS



NATIONAL

FOUR INDIAN SEAFARERS DEATH UNDERLINES NEED TO PROTECT MARITIME ORDER

The killing of four Indian seafarers in the Russia-Ukraine war is tragic. It also signals the erosion of long-standing norms, underpinned by international law, that are meant to protect civilian maritime commerce. The MV Golden Leo, struck by a Russian missile in an attack that killed 10 seafarers in all while departing a Ukrainian port, was not a military vessel but a merchant ship. New Delhi has summoned Russia's chargé d'affaires and lodged a protest — rightly so, given the loss of Indian lives and India's stake in the freedom and safety of commerce at sea. In the past few weeks, Indian seafarers, including three aboard the MT Settebello, have been among sailors killed in and around the Strait of Hormuz, as merchant shipping and civilian crews are increasingly caught in the line of fire.

The purpose of International Humanitarian Law is to shield non-combatants from the horrors of war. Repeated attacks on shipping suggest that these protections are being increasingly violated, especially when great-power interests are involved. Merchant vessels engaged in civilian commerce cannot lawfully be attacked unless they are being used for military purposes. The MV Golden Leo was reportedly carrying grain when it was struck. The global economy depends on maritime shipping and its continuance even amid conflict. Ukraine remains one of the world's leading grain exporters, supplying markets across Europe, North Africa and Asia; disruptions across the Hormuz have already exposed the vulnerability of global energy supplies.

More than 10 per cent of the world's seafarers are Indian, many serving aboard foreign-flagged vessels such as the MV Golden Leo (Guinea-Bissau) and the MT Settebello (Palau). Following the deaths of two Indian seafarers in West Asia last week, the Directorate General of Shipping has advised shipowners, ship managers and recruitment agencies against deploying Indian seafarers on voyages through the Strait of Hormuz. These are necessary steps. New Delhi must also defend the norms that protect civilian shipping. When merchant ships become targets, it is not only seafarers who are at risk, but the maritime order that has long kept the world's commerce afloat.

WITH EYE ON CHINA, QUAD COMMITS TO STRENGTHEN 'FREE & OPEN INDO-PACIFIC'

With an eye on China's assertive behaviour in the region, the foreign ministers of India, the United States, Australia, and Japan met in the Philippines on Wednesday, pledging to work together to keep the Indo-Pacific region stable while stressing support for the Association of Southeast Asian Nations (ASEAN).

Key Takeaways:

- The Quad (Quadrilateral Security Dialogue) foreign ministers' meeting in Manila was attended by External Affairs Minister S Jaishankar, US Secretary of State Marco Rubio, Australian Foreign Minister Penny Wong, and Japanese Foreign Minister Toshimitsu Motegi.
- In its joint statement, the Quad foreign ministers reaffirmed their commitment to a free and open Indo Pacific and expressed strong support for ASEAN's "unity and centrality". "We are deeply invested in the region's success and in cooperating with ASEAN and its member states," it added.

**Do You Know:**

- Quadrilateral Security Dialogue (Quad) is the informal strategic dialogue between India, USA, Japan and Australia. The four nations share a common objective to ensure and support a “free, open and prosperous” Indo-Pacific region.
- Jaishankar is visiting Manila for the foreign minister-level meetings under the ASEAN framework, including the ASEAN-India, East Asia Summit, and ASEAN Regional Forum meetings.
- The Ministry of External Affairs said that the visit “underscores India’s deepening engagement with ASEAN under the Act East Policy and reaffirms our strong commitment to further strengthening the ASEAN-India Comprehensive Strategic Partnership. It is of particular significance that 2026 has been designated as the ASEAN-India Year of Maritime Cooperation”.
- ASEAN is central to India’s Act East policy, which focuses on the extended neighbourhood in the Asia-Pacific region. The policy was originally conceived as an economic initiative but has gained political, strategic and cultural dimensions including the establishment of institutional mechanisms for dialogue and cooperation.

India is part of the ASEAN Plus Six grouping, which includes China, Japan, South Korea, New Zealand and Australia as well.

- In 2010, a Free Trade Agreement was also signed and entered into force between India and ASEAN. While India was part of negotiations to join the Regional Comprehensive Economic Partnership (RCEP) in 2020, it ultimately decided not to do so. However, in the past eight years, trade has grown in terms of value, barring the pandemic years of 2020 and 2021.

FIRST SANCTIONS, NOW WAR: INDIA’S CHABAHAR PLANS UP IN THE

A dramatic image posted on social media by US Secretary of War Pete Hegseth last week fuelled concern in India. It showed the maritime control tower at Iran’s Chabahar port collapsing after US military strikes. The image was part of a series of photographs posted by Hegseth, captioned: “Iran does not control the Strait of Hormuz”.

Key Takeaways:

- While New Delhi is already reeling under the impact of US sanctions on its strategically vital infrastructure project in Iran, where it has invested billions, the military strikes sparked fresh concerns.
- The Ministry of External Affairs (MEA) clarified that the terminal it operates at Chabahar Port, Shahid Beheshti, was not damaged in the US strikes. “We have seen some reports in that regard, but we can also tell you that the terminal itself did not face any damage,” said MEA spokesperson Randhir Jaiswal. The ministry, however, reiterated India’s position that civilian infrastructure should not be targeted during conflicts.
- In 2021, External Affairs Minister S Jaishankar told Parliament that the grant assistance for the supply of equipment (to Chabahar) had been enhanced to \$120 million. “India has also committed to provide a Line of Credit of \$250 million in rupee equivalent for the development of Chabahar Port. Since 2018, the port has handled over 450 vessels, 1,34,082 TEUs (Twenty-foot Equivalent) of containerised cargo and more than 8.7 million tons of bulk and general cargo,” he said.

**Do You Know:**

- The Chabahar port has two main terminals — Shahid Beheshti and Shahid Kalantari — with India managing the former. It is operated by India Ports Global Ltd (IPGL), a wholly owned subsidiary of India Ports Global Chabahar Free Zone (IPGCFZ), under a 10-year renewable agreement with Iran's Ports and Maritime Organisation.
- India and Iran have been developing Chabahar as a key trade and connectivity hub, particularly to improve access to Afghanistan and Central Asia. Chabahar holds strategic importance for India as it provides an alternative trade route to Afghanistan, bypassing Pakistan, which does not allow Indian goods transit through its territory. For Iran, Chabahar is vital because it is its only oceanic port with direct access to the Indian Ocean, bypassing the congested Strait of Hormuz.
- To ensure its continuous operation, India and Iran signed a landmark 10-year contract in May 2024 — replacing previous short-term contracts — to equip and operate the Shahid Beheshti terminal. To avoid financial penalties in the wake of US sanctions, India prepaid its \$120 million investment and transferred its operational stake at Shahid Beheshti to local entities.
- American sanctions on Chabahar stem from its broader economic and military measures against Tehran. Despite India's continued efforts to develop the port for regional connectivity, the history of these sanctions and waivers has severely restricted the project's progress.
- Chabahar is vital for India not only because it provides direct, secure access to Afghanistan and Central Asia, but also because it serves as a counterweight to China's development of the Gwadar Port in Pakistan, located just 140 km away. The sea-land transit route that allows India to bypass Pakistan is also viewed as an important part of the International North-South Transport Corridor, a multi-mode transport network connecting India with Iran, Russia, Europe and parts of Central Asia. In that sense, the port represents far more than maritime infrastructure.
- For Tehran, however, it also serves as a crucial economic hub in the Sistan-Baluchistan province, functioning as a gateway to connect Iran with landlocked Central Asian states, Afghanistan and Russia. As Chabahar was hit by the US military strikes last week, Iran Foreign Ministry Spokesperson Esmaeil Baqaei lashed at Hegeseth, talking about Chabahar in the same breath as the Minab school attack.

SECURITY MEETS ECOLOGY AS BSF MULLS FENCE IN SUNDARBANS

For the first time, the Border Security Force is preparing to erect a physical fence along nearly 90 kilometres of the India-Bangladesh border that runs through the Sundarbans. The Union Home Ministry has initiated a feasibility and technical study for this highly challenging stretch of mangrove forests, tidal creeks, swamps and embankments. Until now, security in this riverine frontier has rested almost entirely on Floating Border Outposts and marine patrols. The move marks a significant shift in India's approach to one of its most difficult border segments.

The Sundarbans presents a unique security challenge. The international boundary here does not follow clear land contours but meanders through waterways that expand and contract with the tides. This terrain has long facilitated smuggling, illegal fishing, cattle rustling and occasional infiltration. After the political changes in Bangladesh in 2024, the BSF intensified patrolling in the region. The proposed "smart fence" aims to integrate physical barriers with surveillance technology, searchlights and cameras, creating a more robust security grid.



Yet the project sits at the intersection of national security and ecological sensitivity. Nearly 71 kilometres of the border falls within or adjacent to the Sundarbans Wildlife Sanctuary, a UNESCO World Heritage Site and critical habitat for the Royal Bengal Tiger. Any construction here must navigate strict environmental protections. Locals have also voiced concerns over possible land acquisition and disruption of traditional livelihoods dependent on fishing and forest resources. The government has assured compensation and rehabilitation, while clarifying that sanctuary areas will remain untouched.

The larger context is important. West Bengal has recently transferred over 1,000 acres of land to the BSF for fencing across multiple border districts, ending years of delay. This has accelerated work in Murshidabad, Malda and other sectors. The Sundarbans initiative forms part of a broader strategy to create a “leak-proof” border through a mix of physical and technological solutions.

The issue highlights the classic tension between hard security measures and environmental governance. Effective border management in fragile ecosystems requires more than concrete and barbed wire. Technology-driven solutions such as electronic surveillance, drones and enhanced marine presence must complement any physical barrier. Close coordination between the BSF, state agencies, forest authorities and local communities will be essential.

National security cannot be compromised, but neither can the integrity of one of the world’s most important mangrove ecosystems. The challenge before policymakers is to design a security architecture that is both effective and environmentally sustainable. How India balances these imperatives in the Sundarbans will offer valuable lessons for managing other ecologically sensitive frontiers.

ADULT UNMARRIED DAUGHTER CAN SEEK MONEY FOR EDUCATION FROM FATHER: HC

Observing that an adult unmarried daughter is entitled to invoke Section 20(d) of the Protection of Women from Domestic Violence Act, 2005, to seek monetary relief from her father for pursuing postgraduation amid her parents’ strained relationship, the Karnataka High Court upheld a trial court order directing a man to pay ₹16 lakh towards the annual fee for his daughter’s PG medical course.

“The obligations of parents to provide basic amenities, healthcare and education cannot be said to be extinguished upon a child attaining majority. It is the custom and practice everywhere in the world that parents are morally obligated to provide basic amenities, including healthcare and education,” the High Court observed.

Two orders

Justice H.P. Sandesh passed the order while dismissing a revision petition filed by a 53-year-old man from Mangaluru. He had challenged the orders issued by two trial courts — one directing him to pay ₹16 lakh towards his daughter’s fee and another upholding the first order.

The High Court noted that the girl’s father and mother were living together when she was pursuing her MBBS course and that it was the father who had paid her fees then. The court said all three now live in the same building, with the mother and daughter on one floor and the father on another owing to the strained relationship between the couple.

The High Court also observed that the father had the financial capacity to meet his daughter’s educational expenses.



Citing the Supreme Court's recent judgment, Justice Sandesh said that it had held that a daughter has an "indefeasible, legally enforceable and legitimate right to secure educational expenses from her parents", and parents in conflict could be compelled to provide necessary funds for higher education of the daughter within their financial limit.

WHAT IS THE LEGAL TUSSLE SURROUNDING THE TAJ MAHAL?

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.

HC: OPENAI'S USE OF COPYRIGHTED MATERIAL TO TRAIN CHATGPT 'FAIR'

The Delhi High Court ruled on Friday that OpenAI training its large language models (LLMs) on original retrieved copyrighted works constitutes fair dealing and does not amount to copyright infringement. News agency ANI Media Pvt Ltd had moved the Delhi High Court in 2024 against Open AI Inc (OAI) and Open AI OpCo LLC, raising issues of infringement of its copyrighted material for LLM training by OpenAI.

Key Takeaways:

- The observation on fair use of copyrighted material is a first for an Indian constitutional court.
- “I am of the prima facie of the view that OpenAI's act of storing ANI's original retrieved works for training LLMs underlying ChatGPT falls under Section 52(1)(a) of the Copyright Act (fair dealing) and therefore does not amount to infringement...,” Justice Amit Bansal said on Friday, pronouncing his ruling in the open court.
- “I am also of the prima facie view that outputs generated by ChatGPT using RAG (retrieval-augmented generation) technique does not amount to infringement under the Copyright Act since the outputs generated by OpenAI were not substantially similar to ANI (inputs),” Justice Bansal added.
- ANI, he held, had failed to satisfy the court that “any memorisation or regurgitation of ANI's original retrieved works has happened through the responses generated by ChatGPT”.
- Further observing that the balance of convenience lies in OpenAI's favour, the court reasoned that “irreparable injury would be caused not only to OpenAI but also to the public at large” if any interim injunction was granted in ANI's favour.
- ANI had opposed OpenAI's use of its publicly available copyrighted material to train its LLMs, verbatim replication of copyrighted material when a query is put in ChatGPT, as well as hallucinatory responses being provided by ChatGPT, while falsely attributing it to ANI.
- OpenAI had submitted that it was not storing data directly and that there was no general prohibition on the use of data under copyright law– akin to the way in which reading a book could not be equated with “using it”.



— OpenAI had also argued that the pre-training process took place outside India, that training data was stored on foreign servers, and that OpenAI, over time, had refined its models to prevent regurgitation. It also said that following the pre-training phase, OpenAI's models did not have access to the original training data after a cut-off date.

— Several other organisations, including media and publishing organisations and associations such as the Federation of Indian Publishers, Digital News Publishers Association, and the Indian Music Industry, who had raised similar objections to OpenAI's training model, were parties in the suit.

Do You Know:

— Generative AI models, such as OpenAI's ChatGPT and Google's Gemini, are "trained" on vast amounts of data scraped from the internet — books, news articles, images and music. Much of this data is protected by copyright.

— The central legal question is whether using this data to train a machine constitutes copyright infringement or if it falls under exceptions like "fair dealing" in India or "fair use" in the US.

— The fair dealing exception permits limited use of copyrighted material without the owner's consent for specific purposes, such as research, criticism, review, reporting or teaching. The objective of this exception is to ensure a balance between protecting creators' rights and promoting public access to information and ideas.

— "There are only two issues when copyright is implicated with the AI business," as per Prashant Reddy T, an intellectual property lawyer. "One is when companies make copies of copyrighted works to create a dataset and train the AI program. The second is when a GenAI prepares an answer for a reader that contains copyright-infringing material."

— While the output stage — where an AI platform might spit out a replica of a copyrighted work — is easier to adjudicate as copyright infringement, the input stage is legally murkier. AI companies argue that reading data to learn patterns is akin to human learning; creators argue it is industrial scale-theft.

— To resolve this, the DPIIT Committee's working paper, titled 'One Nation One License One Payment', proposes a departure from traditional copyright management. Rejecting both a blanket exception for AI, which tech companies wanted, and a pure voluntary licensing model, as was demanded by content owners, the committee has recommended what it calls "hybrid model."

— Under this proposed framework, copyright holders will not have the option to withhold their works from AI training, and instead, a mandatory blanket license will be imposed. In exchange, AI developers must pay a "statutory remuneration" — likely a percentage of their global revenue — to a centralised collecting society, the Copyright Royalties Collective for AI Training.

INSURANCE FIRMS USING 'AMBIGUOUS', 'SLOPPY' TERMS TO EVADE LIABILITY: SC

The Supreme Court on Monday observed that the practice of insurers drafting "ambiguous" and "sloppy" insurance policies to escape liabilities they ought to bear had caused ordinary policyholders to suffer. The court said such "uncertainty" was also creating hurdles in the timely disposal of motor accident compensation claims.



A Bench of Justices Sanjay Karol and N. Kotiswar Singh observed that insurance companies must use clear and precise language while drafting standard-form insurance contracts to avoid multiple interpretations.

“When the party with all the drafting power writes an ambiguous policy, it is the ordinary policyholder who suffers. Insurers have, in many cases, exploited this ambiguity, either to escape liability which they should rightfully bear, or, conversely, found themselves burdened with liability they never intended to assume simply because their policy language was sloppy,” the Bench observed.

The observations came while the court was hearing an appeal filed by the Oriental Insurance Company against a February 4, 2025 judgment of the Chhattisgarh High Court directing it to pay ₹32.67 lakh as compensation in a motor accident claim.

The case arose from an accident involving a vehicle insured with the company, which was carrying passengers on a religious tour to various destinations in Nepal. The vehicle collided with a hill, killing three persons, including the driver, Riaz Khan, and passenger Harish Yadav.

Following the accident, Mr. Yadav’s wife, children and mother filed a claim petition before the Motor Accident Claims Tribunal (MACT) seeking compensation of ₹48.99 lakh.

The Tribunal directed the owner of the vehicle to pay the compensation along with interest at 6% per annum from October 22, 2011, the date of institution of the claim petition.

However, the High Court modified the award and held the insurer liable to satisfy the claim instead of the vehicle owner.

The Bench also expressed reservations about the manner in which orders were being passed by MACTs, observing that many were devoid of “adequate and clear reasoning”.

It said that unless this was addressed, claim petitions would continue to be delayed and appeals would continue to rise.

“In certain cases that have come up before this Court, including the present one, the tone, tenor and extent of the orders passed by the concerned Tribunals has caused us considerable disturbance. In this case, for example, the Tribunal elaborately recorded the submissions and evidence. However, their correlation with the facts of the case, and the effect of this correlation on the ultimate outcome, was lacking,” the judgment by Justice Karol said.

The insurance company had contended that since the accident had occurred outside the territory of India, the policy did not cover the claim. The Bench, however, rejected the contention, holding that if the insurer intended to exclude coverage for accidents occurring outside India, it ought to have “expressly mentioned” so in the policy. It noted that the offending vehicle had been lawfully permitted to travel into Nepal only after the authorities at the international border post were satisfied that all legal requirements had been complied with.

“It should have effectively and clearly communicated the terms of the contract, as the terms are unilaterally drafted by the insurer only. Essentially, ‘Cover what you want. Exclude what you want. But make sure you do it clearly. Sloppy drafting could cost you something’..,” the Bench said.



It added that where the terms of an insurance policy are capable of more than one interpretation, courts should adopt the interpretation that best advances the beneficial object of the Motor Vehicles Act, 1988.

Accordingly, the top court directed that if cross-border coverage is excluded, insurance policies must expressly state so and inform policyholders that they would be required to obtain a separate endorsement before undertaking inter-country travel.

‘No clarification’

The court also pointed to a regulatory vacuum governing cross-border insurance coverage. It observed that while the Inter-Country Transport Vehicles Rules, 2021 provide a legal framework for Indian vehicles to travel abroad under valid inter-country permits, they do not clarify whether a domestic insurance policy extends to the country where the vehicle is permitted to operate.

“It appears that there is, as of today, no clear statute, binding precedent or regulatory clarification in force that clarifies the extension of insurance policies for cross-border travel. This uncertainty causes hurdles in deciding motor accident claims in a timely and efficient manner, thereby affecting the claimants the most,” the Bench said.

To address this lacuna, the Bench advised the Insurance Regulatory and Development Authority of India (IRDAI), the regulatory authority for the insurance sector, to consider issuing a master circular standardising cross-border coverage clauses across all motor insurance policies.

The court accordingly directed the insurance company to deposit the claim amount within four weeks and disposed of the appeal.

IS YASHWANT VARMA STILL A JUDGE?

Parliament is set to take up in the coming Monsoon Session the report of the committee appointed by the Speaker of the Lok Sabha under the Judges (Inquiry) Act, 1968, to investigate charges of misbehaviour against former judge of the Allahabad and Delhi High Courts, Yashwant Varma, who has since resigned. The allegations against him arise from the discovery in March 2025 of partially burnt currency notes in an outhouse at his official residence. Mystery surrounds his current status and the future course of the pending proceedings in Parliament.

On one hand, three months after his resignation, Mr. Varma continues to be listed by the Allahabad High Court and by the Department of Justice of the Union government as a sitting judge. This has given rise to misgivings about whether his resignation has taken effect or remains subject to acceptance by the President.

On the other, it has been reported that following Mr. Varma’s resignation on April 9, 2026, his status at the Bar was changed to “active” on resumption of practice. Some of his dues and benefits as a sitting judge have reportedly been stopped since the resignation.

Four questions follow.

(1) Is Mr. Varma’s resignation subject to acceptance by the President?

Our Constitution vests 13 constitutional functionaries with the “power to resign at will”, without their resignation being subject to acceptance by any authority. They may resign merely by writing under their hand addressed to an authority specified in the Constitution. Needing no acceptance,



the power to resign at will is an essential safeguard for the independence of these offices. It protects incumbents from being forced to work under coercion.

The offices vesting incumbents with this power are: the President; the Vice-President; the Deputy Chairman of the Rajya Sabha; the Speaker and Deputy Speaker of the Lok Sabha; a judge of the Supreme Court; a judge of High Courts; the Governor; the Speaker and Deputy Speaker of a State Assembly; the Chairman and Deputy Chairman of a State Legislative Council; and a member of Public Service Commissions.

In contrast, Article 101 (3)(b) of the Constitution expressly says that the resignation of Members of Parliament is subject to acceptance by the Speaker of the Lok Sabha or the Chairman of the Rajya Sabha. Under Article 190(3)(b), the resignations of members of State Legislative Assemblies and Legislative Councils are subject to acceptance by the Speaker or the Chairman.

A five-judge Constitution Bench of the Supreme Court in *Union of India vs Gopal Chandra Misra* (1978) unanimously reaffirmed the power of Supreme Court and High Court judges to resign at will.

Justice S. Murtaza Fazal Ali dissented from majority judges who held that a resigning judge could choose a future date and withdraw the resignation before that date. But Justice Ali reflected the unanimous view of the Bench that no acceptance was needed for resignation of judges. He wrote categorically that “the effectiveness of the resignation does not depend upon the acceptance of the resignation by the President...the resignation acts *ex proprio vigore*” (automatically without requiring any external action). At least 12 High Court judges have resigned since 2017. One Supreme Court judge, Justice Dalveer Bhandari, resigned in 2012 to join the International Court of Justice. Publicly available data suggests that these resignations have been handled in compliance with the law described above.

(2) Can Mr. Varma still be held out as a sitting judge?

Since Mr. Varma ceased to be a judge on April 9, describing him after that date as a sitting judge of the Allahabad High Court in the Department of Justice’s list or on the website of the Allahabad High Court is clearly wrong.

There is no justification for retaining the name of a person who is not a judge in lists of sitting judges for over three months. It would only be proper for the Union Department of Justice and the Allahabad High Court to correct the error and delete his name. It would, needless to say, be illegal for him to receive any salary or benefit as a sitting High Court judge.

(3) Do the proceedings survive the resignation, now that removal from office is moot?

The Committee’s report pertains to Mr. Varma’s conduct prior to his resignation. The resignation, therefore, does not affect the laying of the report before both Houses and its being made public. Indeed, there is a statutory duty to do so. The public also has a legitimate right to know whether the Committee found any proved misbehaviour on the part of a sitting judge of a constitutional court.

If the report finds Mr. Varma not guilty of the charges, the matter ends there. Even if the report finds him guilty, the motion for his removal can no longer be moved. Having resigned, Mr. Varma does not hold the office of a judge and cannot be removed from it. Under Section 6, the report is to be discussed by Parliament along with the motion. As the motion lapses and cannot be discussed, the report too cannot be discussed by Parliament under the Act.



(4) Should the Constitution be amended so that judges facing removal cannot evade accountability by resigning?

There is a genuine concern that the framework for judicial accountability through removal proceedings under the Judges (Inquiry) Act, 1968 suffers from a loophole. Judges may resign at will before Parliament takes up the motion for their removal, halting the entire process.

This loophole is best addressed by amending the Constitution, rather than by executive or judicial interpretation of the Constitution or of the 1968 Act. The amendment may provide that the resignation of a judge facing removal proceedings is subject to acceptance during their pendency. To safeguard judicial independence, the power to accept the resignation of a judge should vest in the Chief Justice of India rather than in the President. Should Parliament want to discuss the report submitted by the Inquiry Committee set up under the Act despite the judge's resignation, it should be amended to enable it for the purpose. Interpreting inadvertent silences in the Constitution or the Act to suit the concerns of Parliament or the Executive would be against the rule of law.

HOW SHOULD CITIES RECLAIM FOOTPATHS?

The story so far:

Following the Supreme Court's recognition of the right to walk on safe, obstruction-free footpaths as a fundamental right, Bengaluru Development Minister Krishna Byre Gowda directed the five city corporations under the Greater Bengaluru Authority to launch a 10-day 'Safe Footpath' drive. The drive removed thousands of street vendors from pavements and cleared encroachments. While many welcomed the initiative, it also raised questions over whether the removals complied with the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014, which seeks to balance pedestrians' right to walk with street vendors' right to livelihood.

Why was the Street Vendors Act enacted?

The Supreme Court's recognition of the right to walk does not mean street vending has no place on public streets. Long before the latest ruling, the court had repeatedly held that street vending is a 'legitimate' occupation protected under Article 19 of the Constitution, while making it clear that it can be regulated in the public interest.

Those judgments were born out of a recurring pattern — municipal bodies and police evicting vendors, mostly without notice, reducing years of livelihoods to rubble overnight.

The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014, was enacted to end such arbitrary removals by laying down the process for regulating street vending.

Contrary to popular perception, the Act is neither an anti-encroachment law nor one that gives vendors an unrestricted right over public spaces. Instead, it seeks to balance two competing rights — the public's right to safe, obstruction-free footpaths and a street vendor's right to earn a livelihood. It lays down a step-by-step process that every city is expected to follow before deciding who can vend, where they can vend and when they can be removed or relocated.

What process does the Act prescribe before vendors can be removed?

The first step is the constitution of a Town Vending Committee (TVC), the backbone of the law.



The committee includes officials, police, planning authorities, resident representatives and street vendors themselves, who must make up at least 40% of its members, with representation for women and other marginalised communities. The idea is that decisions affecting vendors should not be taken without vendors having a seat at the table. Every subsequent step is expected to flow through this committee.

Once the committee is constituted, the Act requires it to survey all street vendors. The survey is meant to identify existing vendors before the authorities decide who can continue vending and under what conditions.

Moreover, the Act protects existing vendors during this process. It states that no street vendor should be evicted or relocated until the survey has been completed and Certificates of Vending have been issued. The protection was built into the law to prevent exactly the kind of arbitrary removals that had prompted its enactment.

Once the survey is completed, eligible vendors are issued a Certificate of Vending. It is official permission to vend at a specified location and under specified conditions. The certificate does not give a vendor ownership over public land. It only recognises the right to vend in accordance with the Act.

The Act does not prohibit the removal of street vendors. It only requires that such action follow the process laid down under the law.

Why has Bengaluru's footpath drive come under scrutiny?

In Bengaluru, corporations started removing vendors before putting in place the mechanism through which the Act is meant to work.

Although Karnataka Chief Minister D.K. Shivakumar later promised relocation, the Act requires a TVC to identify vending and no-vending zones. Bengaluru does not have one.

While the Karnataka government acted on the Supreme Court's recognition of pedestrians' right to safe footpaths, the Street Vendors Act makes it equally clear that reclaiming those footpaths cannot become a justification for bypassing the safeguards enacted to protect street vendors' livelihoods. That balance, not the primacy of one right over the other, is the very foundation of the law.

SC PROHIBITS UNAUTHORISED RECORDING, MONETISATION OF COURT VIDEOS ON SOCIAL MEDIA

Observing that the misuse of video clips from livestreamed court proceedings was "trivialising" the administration of justice, the Supreme Court on Friday barred the extraction, editing, dissemination, reposting, uploading and monetisation of audio and video recordings of judicial proceedings on social media and other digital platforms without prior permission from the court registrars concerned.

A Bench comprising Chief Justice of India (CJI) Surya Kant and Justices Joymalya Bagchi and V. Mohana passed the interim order while issuing notice on a public interest litigation (PIL) petition seeking safeguards against the misuse of livestreamed court proceedings through selective clipping and "commercial exploitation".



The petition, filed by journalist Harshita Grover, contended that “isolated excerpts” of judicial proceedings were being clipped, circulated and monetised in a manner that undermined the sanctity and dignity of the judicial process.

It argued that while livestreaming has advanced transparency and public access to the justice system, the absence of adequate safeguards has enabled courtroom exchanges to be taken out of context and disseminated for “sensationalism” and “commercial gain”.

‘Not a gag order’

The Bench, however, clarified that the embargo would not extend to news reporting of court proceedings. It also directed the Supreme Court and all High Courts to upload the order on their official websites.

Justice Mohana also remarked that the court was not attempting to pass a “gag order” on the press, but was merely giving effect to the Supreme Court’s 2022 ‘Model Rules for Live Streaming and Recording of Court Proceedings’, which prohibit the recording, sharing or dissemination of livestreamed court proceedings by unauthorised persons.

FAST AND COMPOSED

Right as Sonam Wangchuk entered the 21st day of his fast, authorities whisked him away, covering his path from the stage at the Jantar Mantar protest site to the waiting ambulance with a wall of white curtain. Mr. Wangchuk tried to raise his hand beyond the curtains, and it appeared for a split second, before he was ushered in and sped off.

Mr. Wangchuk, 59, has emerged as an unlikely symbol of the Cockroach Janta Party (CJP)’s weeks-long youth-led protests across the country, now centred in the heart of the capital. The mythology surrounding Mr. Wangchuk is ever evolving: from stories of how he concealed his family pedigree — his father Sonam Wangyal, a mountaineer and former MLA — to gain admission to an engineering college as an ordinary student, to becoming the face of climate demonstrations in ecologically sensitive Ladakh in 2023, and, last year, to championing the region’s demand for greater autonomy.

On both occasions, Mr. Wangchuk undertook a lengthy fast, setting him on a path that would lead him to Delhi. In 2025, as Mr. Wangchuk participated in a walk from Leh to Delhi, authorities arrested him after violence broke out, leaving four persons dead. While Mr. Wangchuk was held under the stringent National Security Act, he was released midway through his detention period, as the government sought to earn Ladakhis’ trust. His record as an educator precedes his recent streak of resistance. His Ramon Magsaysay award citation in 2018 recognised his “uniquely systematic, collaborative and community-driven reform of learning systems in remote northern India, thus improving the life opportunities of Ladakhi youth, and his constructive engagement of all sectors in local society to harness science and culture creatively for economic progress.”

Social issues

In recent years, Mr. Wangchuk has brought national attention to the causes he championed, such as worries around Ladakh’s autonomy following the abrogation of Article 370 of the Constitution. In that sense, it was not far-fetched for Mr. Wangchuk to fuse the real-world impact he was recognised for with his growing social media savvy.



After the CJP's Abhijeet Dipke landed in Delhi from the U.S. on June 7, announcing that he would protest at Jantar Mantar, Mr. Wangchuk showed up, too. On June 28, when the CJP returned there, Mr. Wangchuk started his fast, anchoring the movement — threatened with displacement by police, which was urging protesters to clear out — in place.

For the most part, Mr. Wangchuk has been most commonly associated with 3 Idiots, the 2009 Hindi film whose effortlessly smart Phunsukh Wangdu character, essayed by Aamir Khan, was widely read as a nod to him and his solar-powered SECMOL campus. Neither Aamir Khan nor Mr. Wangchuk seemed to relish in the comparison. Mr. Wangchuk distanced himself from the film, while Mr. Khan denied the link when asked about it in London, and side-stepped a question on the fast.

On more than one occasion, Mr. Wangchuk has stated that this protest is not political, an assessment that flies in the face of the goal of the protest: Education Minister Dharmendra Pradhan's resignation, and accountability for blunders in two separate crucial examinations [NEET and CBSE]. As the face of the CJP's protest, Mr. Wangchuk has attracted growing concern over his health, and a fair amount of scepticism from would-be sympathisers, who see him as a misfit in the current movement at best, and a diversion from the issues at worst.

That has not stopped crowds from thronging at Jantar Mantar, from where Mr. Wangchuk was whisked away on Saturday morning. As of Saturday evening, Mr. Wangchuk had refused, even out of sight from anyone but his wife Gitanjali J. Angmo, being hooked up to an intravenous fluid or oral medication that would compromise his fast. On Monday [July 20], Mr. Wangchuk was due to lead a march to Parliament to push the issue of Mr. Pradhan's resignation.

THE RIGHT TO PROTEST AND THE LIMITS OF POLICE POWER

The story so far:

People from across the country gathered at Jantar Mantar in central Delhi on July 20 for the Cockroach Janta Party's (CJP) "Chalo Sansad" march, carrying placards demanding reforms in the National Testing Agency (NTA) and the resignation of Union Education Minister Dharmendra Pradhan. Within hours, the demonstration descended into clashes. Police used tear gas and lathi charges to disperse protesters attempting to march towards Parliament. Tear gas enveloped parts of the protest route as demonstrators ran to escape the crackdown. Several nearby Metro stations were temporarily closed, and many demonstrators reported losing mobile connectivity during the march, making communication and coordination difficult.

The incident has again brought an old question into focus: how should a democracy police public protest?

Is the right to protest absolute?

The Constitution guarantees citizens the right to assemble peacefully under Article 19(1)(b). But that right is subject to "reasonable restrictions" under Article 19(3) in the interests of public order, the sovereignty and integrity of India, and other constitutionally recognised grounds. In practice, these restrictions are implemented through laws governing public order and policing.

The legal authority to regulate protests, however, comes from a range of statutes.



Was the CJP march unlawful?

Whether a protest is “unlawful” is a legal question that depends on the facts and circumstances of each case. Under the Bharatiya Nyaya Sanhita (BNS), an assembly of five or more persons becomes an unlawful assembly only if its common object falls within specific categories, such as using criminal force, resisting the execution of law, committing an offence, or compelling another person by force or threat. A gathering that begins lawfully may also become unlawful if its conduct changes over the course of the event.

Ahead of the march, Delhi Police said the CJP had not sought permission for a procession to Parliament. It also pointed to prohibitory orders issued under Section 163 of the Bharatiya Nagarik Suraksha Sanhita (BNSS), which barred protests, marches and demonstrations in the New Delhi district, except at the designated Jantar Mantar protest site with prior permission. As demonstrators attempted to march towards Parliament, officers stopped the procession and eventually used tear gas and lathi charges to disperse the crowd. The authorities’ response has since come under judicial scrutiny, with the Delhi High Court seeking responses from the Centre and the Delhi Police on petitions alleging police brutality and excessive use of force.

What standards govern police action?

The National Human Rights Commission’s Manual on Human Rights for Police Officers emphasises that effective policing and respect for human rights are complementary rather than conflicting objectives.

It states that “A democratic country like India needs democratic policing, which is based on the idea of the police as protectors of the rights of citizens and the rule of law, while ensuring the safety and security of all equally.” The manual also notes that human rights violations by police can have “a multi-dimensional impact” by eroding public confidence, bringing institutions into disrepute and “even escalating civil unrest at times.”

The principles are consistent with the UN Basic Principles on the Use of Force and Firearms, which require force to be lawful, necessary and proportionate.

When can police use force?

Under the BNSS, an Executive Magistrate or an authorised police officer may order an unlawful assembly, or an assembly likely to disturb public peace, to disperse. If the assembly does not comply, the law permits it to be dispersed by force.

The Code of Conduct for the Police in India states that police should, as far as practicable, “use the methods of persuasion, advice and warning. When the application of force becomes inevitable, only the irreducible minimum force required in the circumstances should be used.” Beyond the use of force itself, the protests also raised questions about police accountability after videos appeared to show some police personnel without visible name tags or with their faces covered. While the BNSS requires every police officer arresting to bear an accurate, visible and clear identification of his or her name, it contains no corresponding requirement for police personnel engaged in crowd-control or the dispersal of assemblies.

How has the Supreme Court viewed protests?

A day after the clashes, a lawyer urged the Supreme Court to take suo motu cognisance of the alleged police excesses, citing videos circulating online. Chief Justice of India Surya Kant orally



declined the request, saying, “We are not interested in videos... Don’t waste our [court’s] time, and don’t waste your time.”

Over the years, however, the Supreme Court has repeatedly laid down principles governing both the right to protest and the limits of police action.

In *Anita Thakur v. State of Jammu & Kashmir* (2016), the court held that the use of excessive force violates fundamental rights and awarded compensation to the injured protesters, emphasising that police action must remain reasonable and accountable.

More recently, in *Mazdoor Kisan Shakti Sangathan v. Union of India* (2018), the court reiterated that while authorities may regulate demonstrations to maintain public order, they cannot extinguish the right to protest altogether. In *Amit Sahni v. Commissioner of Police* (2020), arising from the Shaheen Bagh protests, it affirmed that dissent is a constitutional right but cannot result in the indefinite occupation of public spaces.

ARE PELLET GUNS BEING USED AT PROTESTS?

The story so far:

At least one of the 80 protesters injured in police action during the march to Parliament on Monday (July 20), called by the Cockroach Janta Party (CJP) sustained pellet gun injuries. The victim identified as Shaikh Irshad Mansoori (25), a resident of Gurugram, underwent surgery at a government hospital to remove the pellets lodged under his eye. Most pellets were lodged in the upper part his body.

Another video of a woman being stunned by a “shock baton,” also emerged on Tuesday (July 21). The use of pellet guns and shock batons against civilian protesters, appears to be the first in Delhi.

What are pellet guns?

Pellet guns, whose technical name is ‘pump action guns’, are a form of non-lethal crowd-control method used by police and military worldwide. The other popular measures are tear gas, water cannon, pepper spray and taser guns among others.

Pellet guns are also popular in hunting and pest control. Intended to immobilise an individual, they are effective over short ranges of up to 500 yards but when fired from close quarters can be lethal, particularly when sensitive parts like the eyes are hit. The pellets can penetrate soft tissues.

What happened during the July 20 protest in Delhi?

There are standing instructions to open minimal fire at protesters and if necessary “below their waist.” A cartridge of a pellet gun contains a few hundred pellets made of lead, which disperses a few hundred metres when fired. Pellets can be of various shapes either like ball bearings or irregular. They are manufactured at the Ordinance Factory, Ishapore.

While the Delhi Police have denied its use against protesters, pellets guns and shock batons are part of the gear of the Rapid Action Force (RAF) —the anti-riot unit under the Central Reserve Police Force (CRPF)— which was deployed alongside police personnel on July 20 and continues to be deployed near the Jantar Mantar protest site.



On Monday, the victim Shaikh Irshad Mansoori was hit near Palika Bazaar by a RAF official. His friend said that there are around 30-40 injuries on his face and across his body. Four of them, including one in the neck, had penetrated deeply, which is why he underwent surgery.

Originally from Jabalpur in Madhya Pradesh, Mr. Mansoori works at a private company in Gurugram and was attending the protests in solidarity. He also had some visa-related work in New Delhi, which he was supposed to finish after the protest.

What is the first known usage of pellet guns?

Pellet guns were first deployed in Jammu and Kashmir after Kashmir Valley's summer unrest of 2010 that claimed the lives of 112 protesters in police firing. The then Congress-led government at the Centre deployed pellet guns as a "non-lethal" measure to avoid civilian fatalities.

After violent protests broke out in the Kashmir Valley post July 8, 2016 — when the Hizbul Mujahideen (HM) commander Burhan Wani was killed in an encounter with security forces — several people were blinded due to injuries inflicted by pellet guns, used by the CRPF as a crowd control measure.

Why were its specifications changed?

In 2016, the BJP-PDP government faced severe criticism for using pellet guns, with several political parties asking for its complete withdrawal. Due to the use of pellet guns, 13 people were killed in 2016 and more than 250 were injured, while some lost their vision.

In 2017, a year later, the first batch of less lethal "plastic bullets" were dispatched to the Kashmir Valley. The plastic bullets were tested at the Terminal Ballistics Research Laboratory (TBRL) in Chandigarh and could be fired from the weapons that the security forces already possessed. Instead of metal, this round of ammunition had a plastic head.

In 2016, 1,022 CRPF personnel were also injured in stone-pelting by protesters. Of these, 956 were injured in the Valley between July 8 and 16 during the unrest.

What is the last definitively known use of pellet guns in the country?

They were last known to have been used during the 2024 farmers protest at Khanauri and Shambhu barriers along the Punjab-Haryana border. Though the police denied using pellet guns, farmer leaders had alleged that several persons were injured.

In 2023, they were used against protesters in the ethnic-strife torn Manipur, leading to a massive public outrage.

What about shock batons?

Shock batons are also a part of the RAF personnel gear.

In 2021, the Ministry of Home Affairs (MHA), through the Border Security Force (BSF), prescribed Qualitative Requirements (QRs) for handheld 'Shock Batons' intended for self-defence and operational use by security personnel. It said that the equipment should be light weight, with a maximum weight of 1 kg and a length of 450 mm to 700 mm, ensuring ease of carriage and handling. It must be constructed from high-impact resistant material, capable of functioning reliably in temperatures ranging from -20°C to +50°C and offering a minimum level of water resistance.



The shock baton should have a service life of at least five years and be powered by a rechargeable battery. Additional requirements include the capability to deliver at least 1,000 quarter-second shock bursts on full charge, thereby ensuring sustained operational effectiveness in field conditions.

ALL IS NOT WELL

The violent incidents following youth protests in Delhi were entirely avoidable

Issue-driven mobilisation by civil society groups tends to remain orderly so long as the government of the day signals that it is willing to listen and engage with genuine concerns. The scenes from Delhi on July 20, when mostly young demonstrators were chased, tear-gassed, and baton-charged within sight of the new Parliament building, with some allegedly struck by pellet guns, while mobile Internet was switched off and Metro stations were shut across the area, were avoidable. The Cockroach Janta Party (CJP) march escalated only after the police resorted to force. Had the Union government engaged with the protesters earlier, including activist Sonam Wangchuk, who was on an indefinite fast and forcibly hospitalised two days earlier, the confrontation could have been avoided. A meeting was eventually conceded through Union Minister J.P. Nadda, but only after thousands had reached Parliament's doorstep. It came too late. That a movement born as online satire could gather millions of digital followers and bring thousands to the street says a great deal about the government's own record, which has become the source of a litany of grievances. Recurring paper leaks in entrance examinations, the re-conducting of NEET, and the friction over the three-language formula have led to deep concerns that higher education is being administered without accountability by the government.

Yet, it would be a mistake to read the anger as being about examinations alone. Increasingly, the protests have crystallised into a wider discontent over joblessness, stagnant wages and rising prices that weigh on the young across the country. The intensity of the protests also owes much to the Narendra Modi-led BJP government's disinclination to address genuine civil society concerns except when an election is in view. Course corrections over the last 12-plus years have tended to be timed to the ballot rather than parliamentary sessions or to public disquiet, even as narrow electoral wins in Assembly and parliamentary elections are read as expansive mandates and a licence for an increasingly authoritarian style of rule. The protests, which have drawn support beyond Delhi, are reminiscent of Sri Lanka's Aragalaya, Nepal's Gen Z revolt and Bangladesh's student uprising against authoritarian rule, though their scale and demands remain far narrower in comparison. That should not tempt the government to wait them out. Instead of correcting course, it has sought to reduce the protests to a political duel with the Congress-led Opposition, and to deflect attention from its failures through proxies in civil society and the media. This is self-defeating as it will only deepen youth disillusionment with the democratic system itself. An immediate step is in order. The Union Education Minister, Dharmendra Pradhan, must own the failures on his watch and resign. The alternative is an unceremonious dismissal.

CAUGHT ON CAMERA

Police brutality was on public display at the Jantar Mantar protests

The massive use of force by the Delhi Police, and unidentified people, on student protesters in the national capital clearly breached all known protocols of crowd control. After its initial reluctance, the Supreme Court of India has now agreed to hear complaints of police excesses on Monday, July 27. Meanwhile, multiple video clips that have surfaced online show personnel, both in uniform

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



and in normal clothes, using violence with an apparent intent to harm and terrorise protesters rather than to disperse them. Some protesters have sustained pellet injuries that the police and the authorities have yet to explain. In one video, an identifiable senior official of the Delhi Police is seen slapping a girl who was standing nearby; in another, an unidentified person in uniform with three stars is seen poking a girl from behind while she was walking away. In a third video, personnel are seen surrounding a girl, with one of them groping her while others leer and laugh. Some people not in uniform but wearing helmets are seen in video clips on social media beating protesters. Some have been caught on camera carrying sticks with long nails, while others are seen smashing vehicles. All this has happened while the protesters were, barring a stray incident or two, peaceful. Those who unleashed violence, whether authorised police personnel or vigilantes who infiltrated the student protests, need to be identified, pursued, and held accountable.

The police violence against student protesters in Delhi followed a pattern. In 2020, a mob entered the JNU campus and attacked students even as the police looked away. No serious investigation or arrests followed. In 2019, personnel of the Delhi Police entered the library of Jamia Millia Islamia and beat up students during the protests against the Citizenship (Amendment) Act. The crackdown on protesters demonstrating against recurring paper leaks in various examinations marked a new low in this trend. There is no evidence that the protesters, who included teenagers, families with toddlers, and women, were involved in large-scale violence that warranted the level of police force used. It is heartening that the Chief Justice of India has clarified that his earlier reluctance to hear the complaints was only technical in nature and that the Court is open to those who seek justice. The Court now has before it two petitions documenting the nature and extent of the force used by the police. There must be a thorough investigation to find out exactly who was involved and whether the use of force was authorised and proportionate. There must be special attention paid to complaints of assaults of a sexual nature and to those targeting women and children. Those found guilty must face the full force of the law.

CAN POLICE HIDE IDENTITY IN PROTESTS? THE PROCEDURE AND PRACTICE

When tens of thousands of protesters attempted to march from New Delhi's Jantar Mantar to Parliament on Monday (July 20) as part of the "Sansad Chalo" protest, videos emerged showing Delhi Police and Rapid Action Force (RAF) personnel in civilian clothes or without visible nameplates. This raised questions over police identification and accountability.

Do You Know:

- The maintenance of public order and tranquillity is governed by Chapter XI of the BNSS (Sections 148 to 160, formerly Chapter X of the CrPC). While it does not specifically state whether policemen or armed forces personnel are required to identify themselves during a law and order situation, sources said, the very fact that the law allows only a magistrate or a "police officer" to disperse a crowd implies identification. The argument is that an unidentified crowd of armed men cannot legally demand a public gathering to disperse. "If a police officer is unidentifiable, his command to disperse cannot carry statutory weight," said a criminal lawyer practising in Delhi.
- In *DK Basu vs State of West Bengal* (1997), the Supreme Court laid down detailed safeguards for arrests and detention, including the requirement that the arresting officer bear clear and visible identification. Although the ruling addressed arrests rather than crowd control, lawyers say it reflects the broader judicial emphasis on the identifiability of police officers while exercising coercive powers.



- In August 2025, the Andhra Pradesh High Court, while hearing a petition filed by YSRCP MLA Nallapareddy Prasanna Kumar Reddy, questioned how citizens were expected to recognise plainclothes personnel as police officers while they were performing official duties. Reddy, who was facing charges of obstructing a police officer in discharging his duty, had argued that the police officers were not in uniform.
- Police officers argue that visible identification can expose individual personnel to prolonged litigation, online harassment and even threats to their families.

WHERE DOES THE LAW STAND ON INTERNET SHUTDOWNS?

The story so far:

Mobile internet services were shut down in parts of Central Delhi during the 'Chalo Sansad' protest organised by the Cockroach Janta Party (CJP). The internet shutdown, which remained in place until the evening, drew condemnation from the Internet Freedom Foundation (IFF) and the Software Freedom Law Centre, India (SFLC).

What is an internet shutdown?

According to web rights advocacy organisation Access Now, an internet shutdown is defined as "an intentional disruption of internet or electronic communications, rendering them inaccessible or effectively unusable, for a specific population or within a location, often to control the flow of information." They take many forms, from full network disruptions to slowing down internet speed or blocking platforms.

Most internet shutdowns are ordered when large numbers of people are expected to gather for political reasons, peaceful demonstrations, violent protests or religious celebrations, according to the International Federation of Journalists.

Under Section 20(2)(b) of the Telecommunications Act, 2023, telecommunication services may be suspended only on the occurrence of a public emergency or in the interest of public safety, on the grounds specified in that provision, and for reasons recorded in writing. "A protest, by itself, is not a lawful ground for suspending internet services. Under Section 20(2) of the Telecommunications Act, 2023, a suspension may be ordered only during a public emergency or in the interest of public safety, and only for specified purposes such as maintaining public order. The order must be reasoned, published, limited in area and duration, and issued by the competent authority under the Telecommunications Suspension Rules, 2024. The government must also consider whether less restrictive measures would be sufficient," said Apar Gupta, Advocate and Founder of the Internet Freedom Foundation.

Which law governs internet shutdowns?

Internet shutdowns in India were earlier governed by Section 5(2) of the Indian Telegraph Act, 1885 and the Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules, 2017. These have now been replaced by Section 20 of the Telecommunications Act, 2023 and the Telecommunications (Temporary Suspension of Services) Rules, 2024.

Despite the updated legal framework, a review by the Digital Defenders Network found that several shutdown orders issued by State governments since late 2024 continue to invoke the Indian Telegraph Act, 1885 and the 2017 Rules.



For instance, the Secretary, Home Department, Uttar Pradesh, issued an internet suspension order applicable to the district of Bareilly on October 2, 2025, invoking Section 7 of the Telegraph Act read with Rule 2(1) of the 2017 Rules.

By continuing to rely on these outdated provisions, some States appear to have bypassed the procedural safeguards introduced under the 2024 Rules.

The current suspension order accessed by The Hindu as released by the Ministry of Home Affairs, was imposed across 150 cell sites according to an Industry source. It stated that the order was imposed under Clause (b) of Sub-section (2) of Section 20 of The Telecommunication Act, 2023 read with 2024 Rules.

Where does India stand in terms of internet shutdowns?

India continues to record one of the highest numbers of internet shutdowns in the world. Access Now's 2025 report recorded 65 shutdowns across 12 States and Union Territories.

Jammu & Kashmir has recorded the highest number of internet shutdowns in the country, with about 449 since 2012, followed by Rajasthan (115) and Manipur (62), as per the SFLC Internet Shutdown Tracker. India has recorded about 24 shutdowns in 2026 (as of July 22).

What limits has the SC placed?

In *Anuradha Bhasin v. Union of India* (2020), the Supreme Court held that access to the internet is closely connected to the freedoms of speech and trade under Articles 19(1)(a) and 19(1)(g).

The Court held that any shutdown must be backed by law, pursue a legitimate objective, be necessary and proportionate, and be the least restrictive measure available. Orders must also be limited in scope and duration, accompanied by detailed reasons, published and reviewed by a competent committee. The Court observed that "complete broad suspension of telecom services, be it the internet or otherwise, must be considered by the State only if 'necessary' and 'unavoidable'.

Can orders be challenged in court?

Yes. A shutdown may be challenged before a High Court under Article 226 or, in an appropriate case, before the Supreme Court under Article 32. Courts can examine whether the order was lawful, proportionate and properly limited in area and duration.

"Indefinite suspensions are unlawful. The government must publish its orders and provide reasons capable of judicial review. Under the 2024 Rules, a suspension order cannot remain in force for over 15 days," Mr. Gupta said.

JAIL UP TO 10 YEARS, RS 10-CR FINE FOR EXAM LEAK: NOD FOR TOUGH NEW LAW

A day after Prime Minister Narendra Modi announced fast-track courts and a tough new law to punish those involved in exam paper leaks, the Union Cabinet Friday approved a draft Bill with provisions for a jail term up to 10 years, penalty up to Rs 10 crore, statutory backing for fast-track courts and a five-month timeline for investigation and trial of cases, official sources said.

**Key Takeaways:**

- As per sources, the cabinet approved a proposal to amend The Public Examinations (Prevention of Unfair Means) Act, 2024. Under Section 10 of the Act, the punishment for individuals resorting to unfair means is imprisonment of three to five years and a fine up to Rs 10 lakh.
- Section 11 provides for imprisonment of five to 10 years and a fine of at least Rs 1 crore for those involved in organised crime.
- Without specifying if it would be applicable to individuals or organised crime, sources said the Bill would increase the imprisonment term up to 10 years and a fine up to Rs 10 crore.
- Among the proposed amendments in the Bill is a time-bound investigation and trial of paper leak cases within five months. According to sources, the proposed amendments in the law provides a two-month time frame for investigation of paper leak cases and three months for completion of trials of such cases.
- Thus, the paper leak cases will be fast-tracked and will be taken to conclusion within five months, the sources said. The fast-track courts to be set up for such cases would be given statutory backing through the Bill, the sources said.

Do You Know:

- The existing law that came into effect on June 21, 2024 aimed to curb leaks, malpractices as well as organised malpractices in public examinations conducted by the Union Public Service Commission, the Staff Selection Commission, the Railway Recruitment Board, the Institute of Banking Personnel Selection and the National Testing Agency which, among others, conducts the NEET exam.
- Under Section 2(k), a “public examination” is defined as any examination conducted by a “public examination authority” listed in the Schedule of the Act, or any “such other authority as may be notified by the Central Government”.
- Regular university examinations for state-established institutions and state board education examinations are covered under respective state government acts. State laws such as individual State Universities Acts and Secondary Education Board Acts legally establish these institutions and empower them to conduct academic evaluations.
- Furthermore, separate state-level anti-cheating and public examination acts penalize malpractices during these tests.

ALONGSIDE CENTRE, STATES' EDUCATION EXPENDITURE TOO DECLINED OVER THE PAST 12 YEARS

The ongoing youth protests at Jantar Mantar in Delhi and in several other cities, demanding the resignation of Education Minister Dharmendra Pradhan, have brought attention to the state of education in India.

**Key Takeaways:**

- The Education Ministry's share of the Union Budget had sharply declined over the past 12 years — from 4.6% in 2013-14 (the last year that the Congress-led UPA government was in power) to 2.5% in 2025-26.
- However, as a subject of policymaking, education is not the sole preserve of the Union government. States and the Union both have roles to play as Education falls under the Concurrent list in the Seventh Schedule of the Indian Constitution.
- The schedule essentially divides powers and responsibilities between the Union government and the state governments through three lists — Union, State and Concurrent. Both the Centre and state governments can legislate on subjects under the Concurrent list.
- So, how do states act on the subject of education and what policy significance do they attach to it? A broad marker of priority is to examine the share of a state's total expenditure on education.
- For instance, Bihar's GER is 45 while that of Kerala is 94. A low GER also reveals the distance any state has to cover to achieve a better level of education in the state. This is especially relevant when one considers the population difference in states such as Bihar and Kerala. In essence, it gives a sense of the need for the state government to spend on education.
- While Bihar spends 20 percent of its aggregate expenditure on education, Kerala spends 12 percent of its total expenditure on education as per RBI.
- As against the average for all states and UTs, Bihar and Delhi stand out. To be sure, both these states were spending even higher than this in the years preceding 2025-26. In the same period, states such as Kerala and Tamil Nadu have shares below the national average.
- Looking at longer-term data — going back all the way to 2008-09 — shows that Tamil Nadu has largely tracked and then fallen just behind the national level. Kerala used to allocate a higher share than the national average until the Covid year of 2020, and has lagged since then. Gujarat, too, has lagged behind the national average more often than not.
- What is concerning is that the national average of all states and UTs itself has been trending down. After staying at around 17% in 2013-14, the average share of expenditure on education has gradually fallen since then. This fall is crucial, since it mirrors the fall in the share of money spent by the Union government as well.

Do You Know:

- Data from CMIE and Indian Express research show that the Education Ministry's share in the Union Budget fell from 4.6% in 2013-14 to 2.5% in 2025-26.
- The share of the Department of School Education is less than half of what it was 12 years ago, while the Department of Higher Education's share is just around 60% of what it used to be.
- Education and health together receive only about 4.5% of the annual Budget while the Ministry of Road Transport & Highways received 5.8% alone.
- The decline in the share of allocation to the Ministry of Education is worrying for the future of India's youth and their growing aspirations. And while spending more money is no guarantee for



the quality of expenditure — as many cases of sinking new roads and falling bridges attest — it is often a necessary first step towards improving the situation.

— The total public spending combining Centre and states' share on education was 4.1 percent of India's GDP in 2022, as per World Bank Education Statistics.

— As per National Education Policy (NEP) 2020, the targeted public expenditure on Education by Centre and States/UTs is 6% of GDP.

— The picture emerging from this data echoes the words of noted economist John Kenneth Galbraith, who said, "I am worried about our tendency to over invest in things and under invest in people."

FOR THE FIRST TIME, UNDERGRADUATE ENROLMENTS DECLINE IN INDIA

AISHE reports released after a prolonged delay show a drop in students enrolled in undergraduate courses, particularly in States such as Maharashtra and U.P.

Even as issues around education have momentarily taken centre-stage amid the protests led by the Cockroach Janta Party and activist Sonam Wangchuk, the reports of the All India Survey on Higher Education (AISHE) for two years released together after a prolonged delay by the Union Ministry of Education (MoE) has largely gone unnoticed.

Importantly, the strange trend that has gone unreported is the inexplicable decline in the total number of students enrolled in undergraduate courses across the country. Such a decline has happened for the first time ever since the Union government started publishing AISHE reports from 2011.

In the government's own words, AISHE "serves as the primary source of official statistics on higher education in India and provides critical insights for policy formulation, planning, and monitoring of the sector". Yet, the MoE inordinately delayed the release of these reports. The AISHE report for 2021-22 had a delayed release in January 2024. More than two years later, the Ministry released the reports for 2022-23 and 2023-24 together earlier this month without much fanfare.

The total enrolment in higher education, which include undergraduate, postgraduate, diploma, Ph.D and other types of courses, increased by 3.7 lakh (0.8%) in 2023-24 compared to 2022-23, which is the lowest-ever increase. However, the number of students enrolled in undergraduate courses, who account for over 75% of all enrolments, declined by 93,000 (0.27%) in the same period (Chart 1). This is despite the fact that the youth population in the eligible age group saw an increase, along with an increase in the number of Higher Education Institutions (HEIs) that participated in AISHE, which went up from 56,180 in 2022-23 to 59,533 in 2023-24.

Neither the 2023-24 report, which played up the marginal increase in Gross Enrolment Ratio from 29.5 to 30, nor the Minister for Education Dharmendra Pradhan, who cited the report to highlight the increased enrolment of female students in STEM courses, have offered an explanation for this decline. Interestingly, the decline is seen only among male students since the number of female students enrolled in undergraduate courses saw an increase although they were fewer in numbers than the males. The enrolment of male students dropped by 2.2% between 2022-23 and 2023-24 while that of female students increased by 1.8%.



In absolute numbers, two States — Maharashtra (-6%) and Uttar Pradesh (-3%) — accounted for the highest drop in undergraduate enrolments. While the chart shows only 10 States with the highest number of enrolments, several other States such as Jammu and Kashmir and West Bengal saw steep falls in undergraduate enrolments by 13% and 8% respectively. Delhi, a major hub for education, registered a decline of 6%.

The States that saw declines accounted for a drop of over six lakh enrolments. The overall decline in the country would have been far higher, if not for the increase reported in few other States such as Tamil Nadu, Bihar, Karnataka and Odisha. Tamil Nadu in particular recorded the highest increase of 1.6 lakh, which is more than the 1.53 lakh decline reported in Uttar Pradesh. The latter in particular saw a sharp decline in undergraduate enrolments, accompanied by an almost similar increase in enrolments in Diploma courses — a trend not noticed in other major States.

Programme type-wise analysis showed that the decline was in Arts, Sciences, and Commerce.

HOW A NEW LAW AIMS TO PLACE 'VANDE MATARAM' ON A PAR WITH 'JANA GANA MANA'

Union Home Minister Amit Shah is set to introduce the Prevention of Insults to National Honour (Amendment) Bill, 2026, in Rajya Sabha during the monsoon session starting Monday (July 20). This will amend the Prevention of Insults to National Honour Act, 1971, to grant the national song, 'Vande Mataram', the same statutory protection currently given to the national anthem, 'Jana Gana Mana'.

Key Takeaways:

- According to Section 3 of the Act, intentionally preventing the singing of the national anthem or causing a disturbance to any assembly engaged in such singing is a criminal offence punishable with imprisonment of up to three years, a fine or both. The Bill proposes to include the national song within the ambit of this section.
- Earlier this year, the Union Ministry of Home Affairs issued guidelines regarding the singing and playing of the national song. The "orders relating to the National Song of India" detailed the authorised lyrics, written by Bankim Chandra Chatterjee, and specified occasions for its mass singing, such as "on the unfurling of the National Flag, on cultural occasions or ceremonial functions".

Do You Know:

- Vande Mataram (Mother, I bow to thee) was composed in sanskritised Bengali by Bankim Chandra Chattopadhyay in 1875, and was first published in 1882 as part of his novel, Anandmath. Chatterjee had been inspired by freedom movements such as the 18th-century Sannyasi Rebellion and the 1857 revolt.

The song became popular during the freedom struggle and was adopted by the Indian National Congress in 1905 to rouse nationalist sentiment for the motherland.

- President Rajendra Prasad bestowed equal honour on Vande Mataram and Jana Gana Mana in the 1950 Constituent Assembly debate.

- "The composition consisting of the words and music known as Jana Gana Mana is the National Anthem of India, subject to such alterations in the words as the Government may authorise as

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



occasion arises; and the song Vande Mataram, which has played a historic part in the struggle for Indian freedom, shall be honoured equally with Jana Gana Mana and shall have equal status with it," he said.

- For one, the National Anthem enjoys constitutional privileges that the National Song does not. Article 51A(a) of the Constitution makes it a fundamental duty for every citizen to respect the National Anthem, while the decorum for playing or singing the National Anthem is regulated by 'Orders relating to the National Anthem of India' and 'The Prevention of Insults to National Honour Act, 1971'.
- Jana Gana Mana was chosen as the national anthem for its secular, inclusive nature, celebrating the nation's unity in diversity.

LISTS OF FOLLY

A flawed SIR should not be the basis for distribution of benefits

The Supreme Court has reiterated its position that exclusion from the electoral rolls cannot have consequences unrelated to voting. The Court was responding to West Bengal government orders, issued in May-June, that linked welfare benefits and official caste certifications to the outcomes of the Special Intensive Revision (SIR) of electoral rolls. Those removed would become ineligible for certain welfare benefits and certifications under these orders. A May 19 notification directed that persons removed from the electoral roll should not continue as beneficiaries of the Annapurna Yojana, a cash transfer scheme for women, unless they had filed appeals before the SIR tribunal. A June 4 order directed the deletion of beneficiaries from the Public Distribution System. On May 14, the government decided to re-verify and cancel caste certificates of those persons whose names had been deleted from the rolls. These decisions run contrary to the clear instructions of the Court in the Bihar SIR case, which specifically barred authorities from using SIR outcomes for any purpose other than determining voting rights. The Court has now issued notices to the Election Commission of India, the West Bengal government and the State's Chief Electoral Officer. Approximately 34 lakh appeals have been filed against SIR outcomes in West Bengal, and only a tiny fraction of them has been disposed of, leaving millions in a precarious state of uncertainty. Their exclusion from welfare benefits, including food support, is unconscionable.

There is a legal paradox in the relationship between citizenship and the electoral roll. The roll is meant to include only citizens, but enrolment on the roll is not, by itself, proof of citizenship. This paradox apart, it is a sound and commonsensical assumption that many citizens are not enrolled as voters. In other words, all those enlisted as voters must be citizens, but not all citizens are necessarily enrolled as voters. While this may be a simple and straightforward proposition, for the State to link the absence of a person's name from the electoral roll to other aspects of civic life — especially subsistence benefits — is both illogical and cruel. In its Bihar SIR judgment, the Court clearly stated that exclusion from an electoral roll cannot by itself determine citizenship status and that SIR outcomes are linked only to electoral purposes. The specific facts and legal principles relating to the SIR notwithstanding, larger issues are also at stake. These include universal human rights that must apply to all persons, citizens and non-citizens alike. Clean electoral rolls and targeted welfare delivery can contribute to better governance. But the state must not take leave of logic and common sense.



CENTRE HAS TO ALIGN WHAT IT SAYS ON DELIMITATION WITH WHAT IS WRITTEN IN THE BILL

Though there is no official word on it yet, the Centre appears eager to initiate the delimitation exercise by amending the Constitution and passing a Delimitation Bill. In April, the Centre moved the 131st Constitutional Amendment Bill and the Delimitation Bill, which in combination proposed the following:

Increase the strength of the Lok Sabha to a maximum of 850 seats.

Allot those seats among States based on the population figures of the “latest Census” (which happens to be that of 2011) and delimit individual constituencies within each State immediately. As per the existing provisions of the Constitution, a fresh allocation among States and delimitation can happen only after the Census of 2027.

Reserve one-third of the Lok Sabha seats for women, which would otherwise happen along with the fresh delimitation after the 2027 Census.

The Bills moved by the government did not align with the oral promises made by Prime Minister Narendra Modi and Home Minister Amit Shah on the floor of Parliament and in interactions with representatives of political parties. The government has publicly maintained that its delimitation plans would not affect the existing proportion of individual States in the Lok Sabha, and that the proposed 50% increase in the size of the Lok Sabha would translate into a 50% increase in the number of seats in each State. Since that promise was in conflict with the text of the proposed amendments in April, no consensus could be reached for the passage of the Constitution amendment, which requires a two-thirds majority in the Lok Sabha. The amendment Bill was defeated in the Lok Sabha, and the Delimitation Bill was not put to vote.

The question, therefore, as Parliament convenes for a new session, is how the text of the Constitution can incorporate the promise of maintaining the current proportional distribution of Lok Sabha seats.

The existing proportion of seats for each State is a constitutional guarantee written into Articles 81 and 82 of the Constitution. That guarantee has a sunset clause — the existing arrangement comes to an automatic end once the data of the first Census after 2026 is published.

In Articles 81 and 82, there are references to three Censuses: the first Census after 2026; the Census of 1971; and the Census of 2001. The next delimitation is tied to the first Census after 2026; the existing proportion of Lok Sabha seats among States is tied to the 1971 Census; and the population of individual constituencies within the States is tied to the 2001 Census. The April amendments and the Delimitation Bill, in combination, proposed to remove all these separate references and tie the allotment of seats to the States and the delimitation of constituencies to the “latest Census”.

If the Centre wants to make good on its verbal assurance of maintaining the existing proportional share of each State in the Lok Sabha, it must extend the freeze that ends in 2026 into the future. The last two times, the freeze was imposed for 25 years each — in 1976 until 2001, and in 2001 until 2026. If the Centre plans to freeze the current arrangement for another 25 years, the references to the first Census after 2026 in Articles 81 and 82 can be amended to read “after 2051”. Or it can be any other date into the future, as the case may be.



To ensure that each State gets a 50% increase in seats, the reference to the 1971 Census in Articles 81 and 82 would also need to be retained, unless the government has another formulation to achieve that objective. If the Centre wants to propose a fresh delimitation while retaining the existing proportion of seats and only redrawing constituency boundaries within each State, it can retain the references to the 1971 Census where they exist now in Articles 81 and 82 and amend the references to the 2001 Census to the 2011 Census. This way, the constitutional guarantee of the proportional strength of States can be extended while paving the way for a fresh delimitation of constituencies within State boundaries, and kicking off women's reservation.

ALLOWING DISSENT

Using criminal law to protect reputation of rulers is condemnable

At the heart of democratic disposition is tolerance of dissent and upholding of the rule of law; threats to these can undo the knit of a democracy. In the first couple of months of the Tamilaga Vettri Kazhagam (TVK)'s rule in Tamil Nadu, at least 10 people have been subject to police action, on account of speaking against the Chief Minister or his cabinet colleagues. While the case of former Minister Anitha Radhakrishnan's arrest for criticising Chief Minister C. Joseph Vijay gained the spotlight, there were several others who were arrested or faced police action over the course of this period. This includes James Raja of Tirunelveli; V. Vishnuprabhu and T. Manojkumar, residents of Coimbatore, for a Facebook post criticising the Chief Minister; and Thangamani of Karur. In the case of the Dravida Munnetra Kazhagam (DMK)'s Gen Z wing leader A. Anbanantham, police searched his residence claiming that he made 'derogatory' posts regarding Mr. Vijay and his family. YouTuber Maridhas was arrested by the Chennai Cyber Crime police for his remarks against the Chief Minister and Industries Minister S. Keerthana. DMK MLA Markandayan was arrested in Thoothukudi over an alleged threat he made against the Chief Minister. Others arrested include Vinodh Suryakumar who commented on HR&CE Minister S. Ramesh and RJ Saran Jayaraman who was arrested by the police for content posted on Instagram targeting a woman who supported the TVK. A case was also filed against Indrani Sudalaimuthu for remarks made against S. Ramesh.

Political actors of all hues have normalised using the police and criminal law as a shield to protect their reputation, whenever they come to power. This creates a structural risk for democracy. The actions of the police indicate a wider pattern of speech-related arrests, and authoritarianism under the TVK government, where defamation, the IT Act and cyber crime provisions are invoked at will for any criticism against individuals in the government or the ruling party. Complaints being filed by the TVK cadre and the suo motu action of the police targeting dissenters could run the administration off the rails. The alacrity with which the government is ready to treat allegations against Ministers as criminal misinformation or defamation, rather than let them take the natural course of civil suits or political contestation, is disheartening. A new government has the opportunity to rewrite the rules of engagement with the public, to be tolerant of dissent, and not to misdirect the power it is vested with, just to curb opposition. Every government keen on development could be enriched by criticism and dissent articulated on public platforms, if it is willing. It must remember that the restriction of harmful, obscene and indecent content must be balanced with the overwhelming supremacy of freedom of speech.



BURIED QUESTIONS

The costs of projects in environmentally fragile zones are many

India is grappling with another Himalayan tragedy. Workers in an under-construction tunnel at the Teesta Stage-VI hydroelectric project of NHPC Limited (formerly National Hydroelectric Power Corporation Private Ltd.), in Sikkim's Namchi district, struck a pocket of suspected trapped methane. The resulting burst partially damaged the tunnel, killing at least 15 of an estimated 25 workers, with rescue operations still under way. The NHPC has announced a detailed investigation. Methane is a well-recognised hazard in underground excavation, and the geology of the Teesta basin makes it a likely one. The basin sits in a seismically active zone, with young and heavily fractured rock, and where compressed pockets of gas laid down long ago can lie hidden until an excavation breaks into them. The presence of the gas, in that sense, is not in itself surprising. What remains unclear is far more consequential: the precise circumstances in which the pocket was breached, whether its risk was assessed and modelled during project planning, and whether the gas-detection and ventilation safeguards that such conditions demand were in place and functioning.

Underground work in India's difficult terrain has always been perilous. In February this year, an explosion at an illegal coal mine in Meghalaya killed about 30 workers, and in 2023, a stretch of a road tunnel under construction in Uttarakhand collapsed, trapping 41 workers for 17 days before they were pulled out. The circumstances vary, but together they underscore how lethal underground and tunnelling work remains across the country. A series of hydropower projects along the 400-kilometre stretch of the Teesta that links Sikkim, West Bengal, and Bangladesh have varied histories with environmental clearances but share a common feature — their location in the fragile Himalayan belt. That vulnerability was demonstrated tragically in October 2023, when a glacial lake outburst flood from the South Lhonak lake destroyed the Teesta-III dam and killed more than a 100 people downstream. Teesta-VI was absorbed by the public-sector NHPC Limited after its private developers, unable to afford escalating costs, went into insolvency. Relief and rescue must remain the immediate priority, and every effort to reach those still trapped is warranted. But once the emergency has passed, the government cannot treat the disaster as an isolated misfortune. It must order a thorough, independent review of whether the conditions attached to the project's environmental clearance were, in practice, strictly met.

IN ASSAM, FLOODS SHIFT COURSE. STATE RESPONSE IS STATIC

Flooding is a chronic feature of Assam's monsoon. This year, however, parts of the state far removed from the banks of the Brahmaputra and its tributaries have borne the brunt of the raging waters. According to the state government, the scale of devastation in the Upper Assam districts of Sivasagar, Charaideo, Jorhat and Golaghat is "unprecedented". More than 20 people lost their lives within 24 hours on Monday after a wall of water from Nagaland's Mon district spilled into Assam and surged over embankments. It is now draining into the Brahmaputra over open terrain rather than just through the tributaries. The Assam government has reportedly told the state assembly that "no one could have been prepared" for the calamity. That isn't a convincing explanation. The trajectory of the floods over the past few days is a fallout of Assam's topography and the Brahmaputra's well-known tendency to shift course. At a time when climate change is amplifying natural vulnerabilities, the authorities need to be more vigilant to minimise suffering.



After emerging from the mountains near Pasighat in Arunachal Pradesh's East Siang district, the Brahmaputra enters the relatively flat Assam valley. The sharp reduction in gradient causes the river to slow down and deposit sediment. Over time, this has raised the riverbed, reducing the channel's capacity to contain floodwaters. The result is that Upper Assam is increasingly exposed to flood risks once associated primarily with downstream areas. The Brahmaputra also periodically abandons old channels and carves out new ones, making it impossible to confine the river within embankments permanently. Yet Assam's flood management strategy continues to rely on this approach.

On Sunday, Mon district received more than a third of its average July rainfall in about eight hours. With hills in the region already saturated with water from heavy rains earlier this month, slopes collapsed, triggering landslides that killed nine people in Nagaland. The destruction that followed in Assam underscores the need for an institutional mechanism that treats rivers as shared ecological systems and ensures timely warning and coordinated action across states. The Brahmaputra Board has long been hampered by staff shortages and inadequate technical capacity. With extreme weather becoming more frequent, the Centre and state governments need to reinvestigate the agency.

SHAH UNVEILS INDIA'S FIRST IMMERSIVE LANGUAGE MUSEUM

Highlighting that a country's language carries its heritage and offers a window into its culture, Union Home Minister Amit Shah on Sunday inaugurated the Museum of Word at the National Library campus here and called it a step to preserve the virasat of India.

Developed by the National Library under the aegis of the Union Culture Ministry, the first immersive language museum in the country, also known as Shabdlok, celebrates India's rich linguistic heritage and showcases the evolution of its oral and written traditions through interactive and technology-driven exhibits.

The museum features nine galleries exploring different facets of the history of languages and their influence on India's civilisation and culture. It seeks to present language as a living entity that has continuously shaped society while also being shaped by it.

Linguistic diversity

The first phase of the museum chronicles the diversity of Indian languages, scripts, and literature.

Rather than a conventional repository, it has been designed as an immersive cultural experience using digital displays, holograms, and motion-sensor technology to engage visitors.

Shabdlok celebrates India's 22 official languages and traces their journey from oral traditions and ancient manuscripts to printed works and modern electronic texts, highlighting the country's enduring linguistic diversity.

HOW DOES INDIA'S NEWLY LAUNCHED TRAIN POWERED BY HYDROGEN WORK?

The story so far:

On July 17, Prime Minister Narendra Modi flagged off India's first train powered by hydrogen. It operates on an 89-km stretch between Jind and Sonipat in Haryana.



What is a hydrogen-powered train?

India's hydrogen fuel cell-powered train is a 10-coach train with a capacity of carrying around 2,600 passengers. Unlike conventional electric trains that draw power from overhead lines, it generates its own electricity onboard using hydrogen, known as the cleanest fuel.

Unlike conventional diesel locomotives that burn fuel to generate mechanical power, a hydrogen train carries a small power plant onboard in the form of a proton exchange membrane fuel cell. Hydrogen stored in the train's cylinders combines with oxygen from the surrounding air inside the fuel cell, producing electricity that powers the traction motors and turns the wheels. The only direct by-products of this electrochemical reaction are water vapour and heat. There is no combustion, no smoke, and no tailpipe carbon emissions.

The train consists of two Hydrogen Driving Power Cars (DPCs) and eight Trailer Coaches. Each DPC houses fuel cells, lithium iron phosphate batteries, and hydrogen storage cylinders that work together to provide traction power, while ensuring reliable operation under varying operating conditions. The two power cars, one at each end, each produce 1,200 kW (1,600 hp) of power. Their combined 2,400 kW output enables the train to reach its design speed of 110 km/h.

Where does the hydrogen come from?

The dedicated hydrogen storage, compression and dispensing facility established at Jind will support refuelling operations, the Indian Railways has stated. Just like a petrol pump or a CNG station, the train needs a place to refuel.

First, hydrogen is produced on site through electrolysis, in which water is split into hydrogen and oxygen using electricity at the green hydrogen plant, and is then stored safely in dedicated storage tanks. In the second step, the hydrogen is compressed to 500 bar, enabling a larger quantity to be stored in a smaller volume. Finally, it is dispensed through two independent hydrogen dispensers at a regulated pressure of 350 bar, allowing both DPCs to be refuelled simultaneously and reducing turnaround time. The facility stores nearly 3,000 kg of hydrogen at a time, sufficient to support regular operations of the train set, and its storage and supply system has been approved by the Petroleum and Explosives Safety Organisation.

Is it safe to travel on a hydrogen-powered train when hydrogen is an inflammable fuel?

Hydrogen is colourless, odourless, tasteless and non-toxic. However, it is inflammable and needs to be handled with care. Since it cannot be seen or smelled, the project's safety design focuses on detecting even the smallest leak instantly.

The train and the plant are fitted with devices that continuously watch for hydrogen leaks, unusual heat, flames, or smoke. Continuous ventilation keeps air moving through the train at all times, so that even if a tiny amount of hydrogen were to leak, it is safely carried away and diluted in the open air.

There is also an automatic shut-off system. If any unusual activity is detected, the system can automatically cut off the hydrogen supply on its own, without waiting for a person to react.

The Jind hydrogen plant has protections, including leak detectors, flame detectors, automatic shutdown systems, water sprays to control any fire, and fire alarms.



Before being commissioned, the entire system underwent an independent third-party safety assessment by TÜV SÜD, Germany, one of the world's leading technical inspection and certification agencies, an Indian Railways spokesperson said.

What is the status of hydrogen-powered trains globally?

They are still at a nascent stage. Germany was the first country to introduce commercial hydrogen passenger trains, while France, Italy, China, Japan and others are pursuing pilot projects or limited deployments. However, these trains typically have two to four coaches and serve mainly regional routes.

What is the future of such trains in India?

Indian Railways is exploring the deployment of hydrogen technology on heritage railways, including the Kalka-Shimla route. They intend to transition to a structured national programme for hydrogen-powered rolling stock, which will contribute to the National Green Hydrogen Mission and the country's long-term Net Zero goal, an Indian Railways spokesperson said.

HOW MAGNETIC LEVITATION LIFTS AND PROPELS HIGH-SPEED MAGLEV TRAINS

'Maglev' is a portmanteau of 'magnetic levitation'. Instead of running on wheels, maglev technology uses strong magnetic fields to lift the train and move it forward. Since the train floats above the track, there is no rolling friction during normal operations, nor are operations affected by inclement weather, like rain or snow. The result: the train can move at extremely high speed, topping 400 km/hr, while also giving passengers a smooth ride.

How is a train lifted?

Nature has four fundamental forces: the two nuclear forces, the electromagnetic force, and gravity. Of them, gravity is the weakest by far — around 10³⁹ times weaker than the electromagnetic force. This is why a small magnet can stay stuck to your fridge despite having the entire gravitational force of the earth pulling it down. The same idea applies to lifting a train weighing somewhere from 150 to 500 tonnes.

Engineers get the train to float above the tracks using electromagnetic suspension (EMS). The train has two 'arms' that wrap around the guideway over which it runs. Strong electromagnets on these arms point magnetic fields up towards the protruding parts of the guideway. Say you are lifting a bag with your hand. Your fingers wrap around the bag's strap. The train's arms do something like this — they wrap only just halfway, and from the bottom part, i.e., where the tip of your finger would be, exert a magnetic field into the underside of the strap. When these electromagnets are turned on, they exert a magnetic field that attracts them towards the guideway, i.e., your fingers would be attracted towards the strap. As a result, the train is pushed upwards. The train is fit with sensors that help it float around 10 mm above the guideway at all times.

In a closely related technology called electrodynamic suspension (EDS), there are superconducting magnets on the train that are cooled to a very low temperature. When the train moves, the magnets that move with it induce an electric current in coils built into the sides of the tracks. (The phenomenon is called electromagnetic induction.) The result is a repulsive force that pushes the train up. Since the magnets have to move to induce the current, the train often needs



to be travelling at around 100 km/hr before the effect can kick in, and until then it uses wheels. The train also hovers higher above the track, at around 100 mm.

But in exchange for requiring wheels, EDS can support higher speeds. EMS systems operate at around or under 500 km/hr whereas the SCMagLEV EDS system in Japan achieved 603 km/hr during testing in 2015.

How does the train move forward?

The walls of the guideway are lined with coils that carry an alternating current (AC). This current creates a magnetic field that constantly shifts its poles (north to south) along the track. The magnets on the train are attracted to the 'opposite' pole ahead and repelled by the 'like' pole behind. As a result, the train is simultaneously pulled forward from the front and pushed forward from the back. And to make the train go faster, engineers just need to increase the frequency of the AC.

Similarly, the current is used to switch the direction of the magnetic field to slow the train or altogether stop it. This process may also use regenerative braking to divert the energy 'saved' by braking to the electric grid.

If a fast-moving maglev train starts to drift, there are magnets on the sides that repel/attract accordingly to ensure it stays centered. For emergencies or when the magnetic braking fails, the system is also fit with friction brakes. They come in two forms, although there are other technologies as well. One: the maglev train is also fit with 'regular' auxiliary wheels, and these wheels have a braking system akin to those in other trains and cars. Two: braking pads between the guideway and the train apply friction to further slow it down.

What are the downsides of maglev?

The maglev system including the guideway cannot reuse existing guideways and stations vis-à-vis non-maglev trains. It needs its own. And this infrastructure is very expensive as the guideway needs to have magnets and coils with precision engineering.

The Shanghai Maglev, which was completed in 2004, cost ₹580 crore to ₹720 crore per kilometre (adjusted for inflation). This is excluding the cost of preparing the local terrain first — and operational costs like maintenance. Ergo, there needs to be very high and consistent passenger demand. Otherwise, the economics won't work out.

On the engineering front, while there is no rolling friction, a train moving very fast — especially over 300 km/hr — experiences aerodynamic resistance due to the flow of air around the train's body. This is why maglev trains have aerodynamic designs (which can add to the cost), including a front portion that resembles a bird's beak.

Is maglev technology used elsewhere?

Maglev is essential about using magnetic fields to support or move objects — a use-case that arises in many enterprises. High-speed turbines and compressors suspend their rotating shafts in a magnetic field instead of conventional bearings, minimising mechanical contact and allowing the blades to turn faster. Similarly, modern aircraft carriers use the linear motor technology that pushes maglev trains forward to accelerate aircraft on the vessels' runways.



Factory automation systems also use it to achieve the rapid, precise motion crucial in semiconductor manufacturing, food and medicine packaging, CNC machining, inspection cameras involving lasers or X-rays, and DNA sequencing, among others.

Scientists have also used magnetic fields to levitate biological samples, liquid droplets, molten metals, and even small animals for experiments. Following a suggestion by his wife, the British physicists Andre Geim and Michael Berry used a magnetic field to levitate a frog in 1997. This was possible because a form of magnetism called diamagnetism gives all materials a very weak magnetic field. The duo had to work out the strength of the field required to 'cancel out' the gravitational force exerted on the frog by the earth. Thus, they were able to get the frog to float using a 10-tesla magnet.

For this work the duo won an Ig Nobel Prize in 2000. Today, Geim remains the only scientist to have won both an Ig Nobel Prize and a Nobel Prize. Berry is also a noted physicist, known for his work on semi-classical physics.

DATA BREACH REVIVES MEMORIES OF 2019 CYBER ATTACK AT KUDANKULAM

A data breach has exposed information linked to the Kudankulam Nuclear Power Plant (KKNP), India's flagship nuclear project located in Tamil Nadu's Tirunelveli district.

Key Takeaways:

- For nearly a month, numerous documents purportedly linked to the plant — including engineering drawings, inspection records, minutes of meetings, technical reports and official correspondence — have been circulating on the dark web after it was leaked by ransomware group World Leaks.
- The Nuclear Power Corporation of India Ltd (NPCIL), which operates the plant, has downplayed the leak, maintaining that documents relate only to non-critical facilities outside the 'reactor island' and pose no risk to nuclear safety.
- Reactor island refers to the central, highly protected section of a nuclear power plant where all nuclear processes and critical safety operations take place.
- Yet, the breach has renewed cybersecurity concerns over India's critical and strategic infrastructure, particularly at a time when the government has begun opening up the tightly regulated civil nuclear sector to private participation.
- The incident has also drawn particular attention because it is not the first time the Kudankulam plant has been linked to a cyber incident. In 2019, malware attributed to a North Korean hacking group was detected within the plant's administrative network, highlighting the persistent cyber risks facing India's strategic nuclear assets.
- The 2019 cyber incident was not confined to the KKNP. It also affected the Indian Space Research Organisation (ISRO). The breach became public on October 28, 2019, after some of the plant's data showed up on virustotal.com, an online malware scanning service..
- Subsequent investigations by multiple cybersecurity agencies and experts attributed the intrusion to DTrack malware, which was linked to the North Korea-backed Lazarus Group, "an umbrella name that typically describes hacking activity which advances Pyongyang's interests".



— According to cybersecurity analysts, Dtrack belongs to the same family of malware that was linked to the 2016 cyberattack on an Indian private bank's ATM network. It spread across the banking system and forced the replacement of an estimated 2.9-3.2 million compromised debit and credit cards.

— Most high-security setups operate on two "air-gapped", or separate, networks. The first is a standalone control system that runs the core function — reactors in the case of a nuclear power plant. The other is an online network responsible for the rest of the functions.

— Air-gapped networks, however, are not considered foolproof. Such systems have been compromised in the past, including at the Davis-Besse Nuclear Power Station in Ohio in 2003, and in breaches involving classified US military networks in 2008.

VIKRAM-1: INDIA'S FIRST PRIVATE ORBITAL ROCKET LAUNCH

Why in News

On 18 July 2026, Skyroot Aerospace's Vikram-1 lifted off from ISRO's First Launch Pad at Sriharikota and reached a roughly 450-km orbit under Mission Aagaman, becoming the first orbital flight built and flown by an Indian private company. The launch makes India only the third country, after the United States and China, whose private industry has independently reached orbit — and is being read as a defining test of India's six-year space-sector liberalisation, with commercial viability now the real challenge ahead.

Background / Context

For roughly six decades, ISRO held a state monopoly over Indian launch activity; private firms were confined to supplying components.

2020 Space Sector Reforms opened the sector to private participation; IN-SPACe (Indian National Space Promotion and Authorisation Centre) was established in June 2020 as a single-window nodal agency under the Department of Space to promote, authorise and supervise private space activity, including access to ISRO infrastructure.

Indian Space Policy, 2023 further institutionalised private participation and freed ISRO to focus on R&D and deep-space/human-spaceflight missions (Chandrayaan, Gaganyaan), while private players absorb commercial launch demand.

In 2024, up to 49% FDI in launch vehicles was permitted via the automatic route.

Government target: grow India's space economy from about \$8 billion to \$44 billion by 2033, spanning launch vehicles, satellite manufacturing, communications, navigation and earth observation.

Key Facts

A. Company and Milestones

- **Founding:** Skyroot Aerospace, Hyderabad, founded 2018 by former ISRO engineers Pawan Kumar Chandana and Naga Bharath Daka
- **2020:** successful test-fire of India's first privately-made solid rocket propulsion stage



- **November 2022:** Vikram-S suborbital flight (Mission Prarambh) — first privately developed Indian rocket to reach space (apogee ~89.5 km); did not enter orbit
- **18 July 2026, 12:05 pm IST:** Vikram-1 orbital launch (Mission Aagaman) from ISRO's First Launch Pad, SDSC-SHAR, Sriharikota, after a 35-minute technical hold; reached ~450 km orbit about 15-17 minutes after liftoff

B. Vikram-1 — Technical Profile

- Configuration: four-stage rocket, about 22 metres tall (seven storeys); three solid-fuel stages plus a liquid-propellant fourth stage (Orbital Adjustment Module), broadly comparable to a miniature version of the PSLV's PS4 stage
- Airframe: carbon-composite structure; Stage-1 is India's longest single-piece composite rocket stage; claimed weight saving of about five times over conventional rocket-grade steel
- Engines: 3D-printed (e.g., the 'Raman' engine), cutting parts count and lead time versus conventionally machined and welded engines; enables complex internal cooling channels but demands tight quality control against porosity and batch-to-batch variability
- Payload capacity: reported as 350 kg to Low Earth Orbit (LEO) across most sources (see Exam Alert for a variant figure)
- Naming convention: Skyroot names its rockets and engines after Vikram Sarabhai, C.V. Raman, and A.P.J. Abdul Kalam

C. Mission Aagaman — Objectives and Payloads

A developmental/test flight meant to validate stage separation, propulsion, guidance and navigation, structural performance, avionics, fairing deployment, upper-stage separation and orbital insertion.

- **Payloads:** EMBRACE (robotic-arm space-debris capture demonstrator, CosmoServe Space), SOLARAS satellite (Grahaa Space), SCOPE (Skyroot's own experimental satellite), and uD3PP/mD3RN deployable-technology demonstrators (Dcubed, Germany)
- **Symbolic payloads:** a lab-grown diamond ('Cosmic Bloom') and an 18-karat gold micro-rocket bearing rice-grain sculptures of Sarabhai, Raman and Kalam

Skyroot has stated that all payloads were successfully deployed.

D. Enabling Policy Ecosystem

- IN-SPaCE (established June 2020) and the Indian Space Policy, 2023 are the two pillars enabling private entry into launch activity.
- India now has more than 400 registered space start-ups; the sector is currently valued at roughly ₹70,000 crore, with the government projecting four- to five-fold growth over the coming decade.
- ISRO continues to provide critical infrastructure to private players — motor casting and testing facilities, liquid-engine testing, trajectory analysis, and range/safety support —

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



distinguishing India's public-private model from the US model, where firms such as SpaceX build independently and sell services to NASA.

E. Comparative Landscape

- **Domestic competitor:** AgniKul Cosmos (IIT-Madras incubated) flew its Agnibaan SOrTeD suborbital mission in May 2024 from India's first private launchpad, using the world's first single-piece 3D-printed semi-cryogenic (liquid oxygen-kerosene) engine; it is now working towards Mission 02, targeting India's first sea recovery of an orbital-class booster
- **Global peers:** SpaceX, Rocket Lab, Firefly Aerospace, and a cluster of Chinese firms are the only other private entities to have demonstrated orbital launch capability
- **Cautionary precedent:** US small-launch firms Vector Launch and Virgin Orbit both collapsed despite technical progress, underlining that engineering success alone does not guarantee commercial survival
- **Future in-house competitor:** ISRO's own Small Satellite Launch Vehicle (SSLV) targets the same small-satellite segment

Comparison: PSLV vs SSLV vs Vikram-1

Parameter	PSLV	SSLV	Vikram-1
Developer / Owner	ISRO (state-owned)	ISRO; production licensed to HAL (₹511 crore)	Skyroot Aerospace (privately owned, VC-financed)
Stages	4 (alternating solid-liquid)	3 solid + liquid Velocity Trimming Module	4 (3 solid + liquid Orbital Adjustment Module)
Height / Class	~44 m, ~320 tonnes	Compact, smaller than PSLV	~22 m ('featherweight')
Payload to LEO/polar orbit	1,750 kg (polar orbit)	500 kg (LEO)	350 kg (LEO, as declared)
Structure	Conventional metallic	Conventional casings	All-carbon composite
Status (as of report)	Operational; two recent consecutive failures	Operational	One successful test flight (July 2026)



- **Unicorn status:** In May 2026, Skyroot raised about \$60 million in a round co-led by Sherpal Ventures and GIC, taking its valuation past \$1.1 billion and making it India's first space-technology unicorn
- **Vikram-2 progress:** its planned cryogenic upper-stage engine, 'Dhawan-III' (LNG/LOX-fuelled, 3D-printed), completed a 145-second endurance static fire test in February 2026; Vikram-2 is projected to carry about 900 kg to LEO, with a maiden test flight targeted for late 2027
- **Flight cadence:** Skyroot has indicated a further Vikram-1 test flight is planned later in 2026, ahead of a move to fully commercial launches from 2027
- **Upgraded variant:** Vikram-1U, fitted with strap-on boosters, is reported to raise payload capacity to about 550 kg to LEO

Analysis

Significance

- Ends roughly six decades of state monopoly on Indian orbital launch; positions India as only the third nation with demonstrated private orbital launch capability.
- Frees ISRO to concentrate on deep-space and human-spaceflight missions while private players absorb commercial small-satellite launch demand.
- Reinforces investor confidence in India's 400+ space start-up ecosystem, evidenced by Skyroot's subsequent unicorn valuation.
- Strengthens India's positioning in the fast-growing LEO small-satellite economy (earth observation, communication, navigation) beyond legacy GEO applications.

Implications

- Potential for job creation, downstream manufacturing (satellite components, ground systems) and increased FDI inflows.
- Could shift ISRO's institutional role from 'gatekeeper' of launch access towards 'landlord' providing shared infrastructure while private players compete for launch contracts.

Challenges / Criticisms

- Engineering success does not equal commercial viability: Skyroot must demonstrate repeatable, reliable, low-cost launches in a globally crowded small-satellite market where rideshares on larger rockets (e.g., SpaceX Falcon 9) remain cheaper per kilogram.
- Domestic demand is limited — even ISRO does not launch a dozen comparable small satellites annually — making international customers essential to Skyroot's business case.
- India lacks a dedicated Space Activities Act; liability and regulatory matters currently rest on policy, contracts and international commitments rather than statute, creating long-term regulatory uncertainty, particularly around mishap liability.



- Launch services are low-margin and capital-intensive relative to satellite manufacturing and downstream data/applications businesses.
- Recent back-to-back PSLV failures (causes undisclosed by the Centre) have separately raised concerns about India's state launch programme even as the private sector notches a success.
- Global precedents such as Vector Launch and Virgin Orbit show that technically capable small-launch firms can still fail commercially.

Exam Alert

EXAM ALERT — High-Stakes Facts & Common Confusions

- Discrepancy flagged — Vikram-1 payload capacity: most sources state 350 kg to LEO; one source specifies 290 kg to a 500-km sun-synchronous orbit and 480 kg to a low-inclination orbit at similar altitude. This is reported variably across sources — do not fix a single figure; note the range if asked in an answer.
- Correction on verification — IN-SPACe's establishment year: one source implies 2022; officially, per PIB and IN-SPACe records, IN-SPACe was established in June 2020 as part of the Space Sector Reforms — well ahead of AgniKul's private launchpad inauguration in November 2022. Do not conflate the two dates.
- Do not confuse Vikram-S (2022, suborbital, first private Indian rocket to reach space) with Vikram-1 (2026, orbital, first private Indian rocket to reach orbit).
- India is the third country whose PRIVATE industry has independently reached orbit (after the US and China) — this is NOT the same as being the third country overall with orbital launch capability; several countries achieved state orbital capability earlier.
- Two consecutive PSLV failures (causes undisclosed by the Centre) preceded the Vikram-1 launch — a frequently tested contrast between state and private launch reliability narratives.

Do You Know

DO YOU KNOW

- LEO extends roughly 160-2,000 km in altitude; the International Space Station orbits here, completing one revolution in about 90 minutes.
- GEO/geostationary satellites orbit at about 36,000 km above the equator, matching Earth's rotation once every 24 hours.
- Polar orbits (a LEO sub-type) pass near both poles — a deviation of up to about 10° is still classed as polar — giving global coverage as Earth rotates beneath the satellite.
- Vikram-1's payloads included a lab-grown diamond and an 18-karat gold micro-rocket bearing rice-grain sculptures of Vikram Sarabhai, C.V. Raman and A.P.J. Abdul Kalam — the namesakes of Skyroot's rockets and engines.
- Skyroot's Infinity Campus factory in Hyderabad is designed for a capacity of about 12 Vikram-1 rockets a year — more than ISRO currently launches of comparable small satellites annually.



Current Affairs at a Glance

Field	Detail
Event	Vikram-1 orbital launch (Mission Aagaman)
Date	18 July 2026
Launch site	ISRO First Launch Pad, SDSC-SHAR, Sriharikota
Company	Skyroot Aerospace (Hyderabad; founded 2018)
Founders	Pawan Kumar Chandana, Naga Bharath Daka (ex-ISRO)
Orbit achieved	~450 km
Payload capacity	~350 kg to LEO (reported variably — see Exam Alert)
Significance	India's 1st private orbital launch; 3rd country globally with private orbital capability
Enabling policy	Space Sector Reforms 2020; IN-SPACe (June 2020); Indian Space Policy 2023
Next milestones	Further Vikram-1 test flight (2026); commercial launches (2027); Vikram-2 (~900 kg to LEO, targeted late 2027)
Latest update	Skyroot valued at over \$1.1 billion (May 2026) — India's first space-tech unicorn

QUICK REVISION

- Vikram-1, built by Hyderabad-based Skyroot Aerospace, became India's first privately developed rocket to reach orbit on 18 July 2026 (Mission Aagaman), placing payloads in a ~450 km orbit.
- This makes India the third country, after the US and China, with private orbital launch capability — a result of the 2020 Space Sector Reforms, IN-SPACe (est. June 2020), and the Indian Space Policy 2023.
- The four-stage, carbon-composite, 3D-printed-engine rocket can carry about 350 kg to LEO.



- Update: Skyroot has since become India's first space-technology unicorn (valuation over \$1.1 billion, May 2026) and is targeting commercial Vikram-1 launches from 2027, alongside development of the larger Vikram-2.

Possible PYQ Angle

- GS III / Essay-style: "Discuss the significance of private-sector participation in India's space programme in the context of recent reforms."
- GS III: "Examine the challenges facing India's private space-launch industry despite recent technological breakthroughs."

DENGUE

TOPIC 1: DENGUE — DISEASE, VECTOR AND VIRUS BIOLOGY

Why in News

India's Central Drugs Standard Control Organisation (CDSCO) approved Qdenga, the country's first dengue vaccine, in July 2026, against the backdrop of India accounting for a very large share of the global dengue caseload and worsening urban/semi-urban outbreaks. This makes dengue biology and epidemiology directly examinable as static-plus-current-affairs content.

Background / Context

Dengue is a mosquito-borne viral disease caused by the dengue virus (DENV), a member of the genus *Flavivirus*, family *Flaviviridae* — the same family as the Zika, yellow fever, Japanese encephalitis and West Nile viruses. It is a small, enveloped, single-stranded positive-sense RNA virus.

- Four antigenically distinct serotypes exist — DENV-1, DENV-2, DENV-3 and DENV-4. Infection with one serotype gives lifelong immunity to that serotype but only short-term, partial cross-protection against the other three.
- Vector: transmitted solely by the bite of infected female *Aedes* mosquitoes, chiefly *Aedes aegypti* (primary vector) and *Aedes albopictus* (secondary vector, the 'Asian tiger mosquito'). *Aedes* is a day-biting mosquito that breeds in small clean-water collections (coolers, tyres, flowerpots), unlike *Anopheles* (malaria vector, breeds in stagnant water, night-biting) or *Culex* (filariasis/Japanese encephalitis vector, breeds in dirty water).
- Clinical spectrum ranges from asymptomatic infection (a large proportion of cases in India) to classic dengue fever ('breakbone fever'), and in a minority, to severe dengue — Dengue Haemorrhagic Fever (DHF)/Dengue Shock Syndrome (DSS), marked by plasma leakage, bleeding and organ impairment.
- Antibody-Dependent Enhancement (ADE): a secondary infection with a different (heterologous) serotype can produce more severe disease. Non-neutralising antibodies from the first infection bind the new serotype and facilitate its entry into Fc-receptor-bearing immune cells, amplifying viral replication. This is the central scientific obstacle to dengue vaccine design.
- Diagnosis: NS1 antigen test detects a viral protein from day 1 of fever (before antibodies appear); IgM/IgG antibody ELISA tests detect antibodies from around day 3–7 of fever



and can distinguish primary from secondary infection. Both are rapid card-based ELISA tests.

- Institutional architecture in India: the National Centre for Vector Borne Diseases Control (NCVBDC), under the Ministry of Health and Family Welfare, runs the National Vector Borne Disease Control Programme; the Indian Council of Medical Research (ICMR) leads dengue-related research (e.g., National Institute of Virology, Pune); the CDSCO, headed by the Drug Controller General of India (DCGI), is the statutory drug/vaccine regulator under the Drugs and Cosmetics Act, 1940 and Drugs Rules, 1945.

Dynamic layer (from the article/current reporting): the news report notes that Aedes mosquitoes are now expanding into semi-urban and rural districts where conventional vector control (fogging, source reduction) is harder to sustain, and that some of India's worst dengue years on record have coincided with better surveillance — meaning rising case counts partly reflect improved detection, not only a genuine rise in transmission. Official NCVBDC data show India recording over 100,000 reported dengue cases every year between 2021 and 2025, with 233,519 cases and 297 deaths reported in 2024.

Key Facts

- Causative agent: Dengue virus (DENV) — genus Flavivirus, family Flaviviridae; an RNA virus, NOT a bacterium or parasite.
- Serotypes: DENV-1, DENV-2, DENV-3, DENV-4 (all four co-circulate in India, per ICMR).
- Vector: female Aedes aegypti (primary) and Aedes albopictus (secondary); day-biting, breeds in clean stagnant water.
- Global burden (WHO estimate): 100–400 million infections annually; nearly half the world's population (about 3.8–4 billion people) at risk in over 125–129 countries.
- India: NCVBDC recorded over 1,00,000 cases every year from 2021 to 2025; 2,33,519 cases and 297 deaths in 2024. News reports describing India as accounting for 'nearly one-third' of the global dengue burden should be treated as a media-cited figure pending confirmation from an official WHO/ICMR bulletin, since global under-reporting makes exact burden-share estimates contested.
- Diagnostic tests: NS1 antigen test (day 1–7); IgM/IgG antibody ELISA (from day 3–5 onward).

Static-Dynamic Linkage

- Mains GS-II (Health): burden of vector-borne diseases, National Health Mission components, NCVBDC/National Vector Borne Disease Control Programme, health infrastructure and surveillance gaps in semi-urban/rural India. Mains GS-III (S&T): biotechnology applications in vaccine and diagnostic development; India's public health research ecosystem (ICMR).

Analysis

Dengue's four-serotype structure and the ADE phenomenon make it scientifically one of the hardest vaccine targets among vector-borne viral diseases — any candidate vaccine must generate balanced, durable immunity against all four serotypes simultaneously, or risk sensitising recipients to more severe disease on natural infection. The reported rise in India's dengue



caseload is a case study in the surveillance paradox: better diagnostic access and NS1/ELISA testing genuinely raises reported incidence even where transmission intensity may be stable, complicating trend interpretation for policymakers. The geographic spread of Aedes into semi-urban and rural belts also exposes the limits of conventional vector control (fogging, larvicide, source reduction), which depends on dense urban civic infrastructure that rural/semi-urban local bodies often lack — reinforcing the case for a vaccine as a complementary, not substitute, tool.

EXAM ALERT

- Dengue = VIRUS (Flavivirus). Malaria = PARASITE (Plasmodium, a protozoan). Cholera, plague = BACTERIA (Vibrio cholerae, Yersinia pestis). This virus-bacteria-parasite triad is a classic UPSC distractor.
- Vector ≠ Pathogen: Aedes mosquito is the VECTOR (carrier); dengue virus is the PATHOGEN (causative agent). The same Aedes aegypti vector also transmits Zika, Chikungunya and Yellow Fever — frequently confused with each other in MCQs.
- Aedes (day-biting, clean water) vs Anopheles (night-biting, malaria vector, stagnant/dirty water) vs Culex (filariasis/JE vector) — a recurring Prelims trap.
- 'Second infection is always more dangerous' is an oversimplification frequently used as a distractor — severity depends on which heterologous serotype sequence occurs and individual immune response (ADE), not a universal rule.

DO YOU KNOW?

- Dengue is popularly called 'breakbone fever' because of the severe joint and muscle pain it causes.
- WHO has listed dengue among its top ten threats to global health (2019 list), reflecting its rapid geographic spread linked to urbanisation and climate change.
- Aedes albopictus is called the 'Asian tiger mosquito' for its black-and-white striped body — not to be confused with Aedes aegypti, the primary dengue vector, which has a lyre-shaped white marking on its thorax.
- NS1 is a non-structural viral protein secreted by infected cells — detecting it allows diagnosis before the immune system has mounted a detectable antibody response.

Possible PYQ Angle: A statement-based Prelims question could test: (i) dengue's viral (not bacterial) etiology, (ii) the vector-pathogen distinction, (iii) the ADE mechanism explaining why a second infection can be more severe. Mains: 'Vector-borne diseases remain a public health challenge in India despite decades of control programmes. Discuss the systemic and ecological reasons.' (GS-II/III, 10–15 marks).

QUICK REVISION

Dengue: viral (Flavivirus) disease, 4 serotypes (DENV-1–4), spread by Aedes aegypti/albopictus.

No lasting cross-serotype immunity; second infection with a different serotype risks severe disease via Antibody-Dependent Enhancement (ADE).

Diagnosis: NS1 antigen (early) + IgM/IgG ELISA (later).

India: >1 lakh cases/year (2021–25); 2,33,519 cases & 297 deaths in 2024 (NCVBDC).

Nodal bodies: NCVBDC (control programme), ICMR (research), CDSCO/DCGI (drug & vaccine regulation).



QDenga (TAK-003) — INDIA'S FIRST APPROVED DENGUE VACCINE

Why in News

On 20–21 July 2026, the CDSCO granted marketing authorisation to Takeda's Qdenga, making it the first dengue vaccine ever approved in India. The approval followed the vaccine's licensing in over 40 countries and WHO prequalification, and arrives amid a sharp public debate on pricing, serotype-specific efficacy, and rollout logistics, as reflected in The Hindu's editorial 'On Guard'.

Background / Context

A vaccine against dengue must overcome the same immunological hurdle described in Topic 1 — the need for balanced protection against all four serotypes without provoking ADE. Two broad platform approaches have been tried globally: chimeric live-attenuated vaccines built on a flavivirus backbone (Dengvaxia, Qdenga) and live-attenuated vaccines using naturally attenuated dengue strains (DengiAll, Butantan's Brazilian vaccine).

- Qdenga (development code TAK-003) is a live-attenuated, tetravalent vaccine built using recombinant DNA technology on a DENV-2 genetic backbone, into which genes encoding the surface (envelope) proteins of the other three serotypes are inserted. It is produced in Vero cells and supplied as a freeze-dried powder for reconstitution.
- It differs from the world's first licensed dengue vaccine, Sanofi's Dengvaxia (2015), which required pre-vaccination screening to confirm prior dengue infection — because Dengvaxia given to a dengue-naïve (seronegative) person could itself act like a 'silent first infection' and heighten the risk of severe disease on a subsequent natural infection. This was the scientific basis of the 2017 Philippines controversy, after which WHO restricted Dengvaxia's use to persons aged 9–16 with confirmed prior dengue infection in endemic settings.
- Qdenga's tetravalent design is intended to work without pre-screening, though real-world serotype-specific efficacy data (especially the TIDES trial) show its protection is uneven across serotypes and by baseline serostatus — the central caveat flagged in the editorial (see Analysis).

Dynamic development: CDSCO's Subject Expert Committee on vaccines reviewed Takeda's dossier, including data from an Indian Phase III safety and immunogenicity study, in March 2026, and recommended import permission for ages 4–60, subject to a mandatory post-marketing safety and effectiveness study within six months of launch in India.

Key Facts

- Approving authority: CDSCO (under Ministry of Health & Family Welfare), via the Drug Controller General of India (DCGI), under the Drugs and Cosmetics Act, 1940 and Drugs Rules, 1945.
- Approved: July 2026; India's first-ever approved dengue vaccine.
- Manufacturer: Takeda GmbH, Germany; imported and marketed by Takeda Biopharmaceuticals India Pvt. Ltd.
- Approved age group in India: 4 to 60 years.



- Dosage/schedule: two subcutaneous doses of 0.5 mL each, three months apart (month 0 and month 3); can be given regardless of prior dengue exposure, without pre-vaccination screening.
- Global status: licensed in over 40 countries (~42, including the EU, UK, Switzerland, Indonesia, Malaysia and Thailand); WHO-prequalified since May 2024; over 24 million doses distributed worldwide with a favourable post-marketing safety record reported so far.
- WHO's position (May 2024 paper): recommends programmatic (routine public-programme) use primarily for children aged 6–16 years in settings of high dengue transmission intensity; does NOT currently recommend routine use in children below 6 years, citing lower observed efficacy in that age group. WHO prequalification enables UN-agency procurement but is distinct from a universal-use recommendation — an important nuance the editorial's caution about differential efficacy builds on.
- Condition attached to India's approval: Takeda must conduct a post-marketing safety and effectiveness study in the Indian population within six months of the vaccine's introduction.
- The approval is a market authorisation, not yet inclusion in India's public immunisation programme — rollout, pricing and access remain separate policy decisions.

Static-Dynamic Linkage

- Prelims GS-III (Science & Tech/Biology): vaccine platforms (live-attenuated vs chimeric recombinant), immunogenicity vs efficacy, WHO prequalification process, drug regulatory bodies (CDSCO/DCGI).
- Mains GS-II (Health): vaccine regulation and access, health financing/affordability, integration of new tools into the National Vector Borne Disease Control Programme, equity in access to healthcare technologies.
- Mains GS-III (S&T): India as a hub for vaccine trials and eventual local manufacturing (Takeda–Biological E collaboration), technology transfer, biotechnology regulation.

Analysis

Significance: this is a genuine public-health milestone — India, which carries a disproportionate share of global dengue cases, has for the first time a licensed vaccine tool to complement vector control, surveillance and case management under the National Vector Borne Disease Control Programme.

Criticisms/challenges

- Serotype-specific efficacy gap: Qdenga's protection is strongest against DENV-2, followed by DENV-1, with more uncertain protection against DENV-3 and DENV-4 in dengue-naïve (seronegative) recipients — significant because DENV-3 prevalence is reportedly rising in India even as DENV-2 remains common.
- Two-dose, three-month interval regimen: the first dose alone protects unevenly (better against DENV-1/DENV-2 than DENV-3/DENV-4), creating a window of incomplete



protection; ensuring a highly mobile population (e.g., migrant workers) returns for the second dose is a logistical challenge.

- TIDES trial signal: raised concern about a 'negative efficacy' (i.e., possible increased risk) against hospitalisation related to DENV-3 among seronegative children — underscoring why WHO restricts routine recommendation to specific age/transmission-intensity settings.
- Pricing/access: Takeda's globally tiered pricing strategy could make Qdenga unaffordable for residents of dense urban slums with poor drainage — precisely the population at greatest risk — unless the government negotiates a lower price or the vaccine enters a subsidised public programme.

The editorial's core argument is that administering the vaccine correctly in the population that needs it most is as complex a challenge as the science of developing it — approval is a necessary but not sufficient step toward reducing India's dengue burden.

EXAM ALERT

- Do not conflate 'CDSCO/DCGI marketing approval' with 'inclusion in India's public/universal immunisation programme' — these are two distinct decisions; Qdenga has only cleared the first.
- Do not confuse 'WHO prequalification' with a 'WHO recommendation for all ages' — WHO recommends Qdenga's programmatic use mainly for 6–16-year-olds in high-transmission settings, while CDSCO's Indian approval covers ages 4–60.
- Dengvaxia required pre-vaccination screening (seropositivity confirmation); Qdenga does not require screening — a frequently tested point of difference.
- Qdenga is a two-dose vaccine (0, 3 months); do not confuse with DengiAll, which is designed as a single-dose vaccine (Topic 3).

DO YOU KNOW?

- Qdenga received European Medicines Agency approval in 2022 before its Indian approval in 2026 — India followed global regulators by several years, partly because of the additional requirement for an Indian-population Phase III bridging study.
- Qdenga is manufactured using Vero cells — a continuous cell line derived from African green monkey kidney cells, widely used in vaccine manufacturing (also used for polio and rabies vaccines).
- Takeda has a manufacturing collaboration with Hyderabad-based Biological E to expand Qdenga's production, linking this approval to India's vaccine-manufacturing capacity story.

Possible PYQ Angle: Mains GS-II: 'The approval of a vaccine is only the first step in addressing a disease burden; equitable access determines its actual public health impact.' Discuss with reference to a recent example. Prelims: distractor-style MCQ on 'which of the following statements about Qdenga is/are correct' testing dose number, screening requirement, and approved age group vis-à-vis Dengvaxia.

QUICK REVISION

Qdenga (TAK-003), Takeda: India's first CDSCO-approved dengue vaccine (July 2026), ages 4–60, 2 doses (0.5 mL) 3 months apart, no pre-screening needed.



Live-attenuated, tetravalent, DENV-2 backbone + genes of other 3 serotypes; Vero-cell produced.

WHO-prequalified (May 2024); ~42 countries approved; >24 million doses given globally.

Efficacy uneven across serotypes — strongest vs DENV-2/DENV-1, weaker/uncertain vs DENV-3/DENV-4 in seronegative persons; TIDES trial flagged a DENV-3 hospitalisation risk signal in seronegative children.

Market approval ≠ public programme inclusion; pricing/affordability for high-risk slum populations remains an open policy question.

DENGIALl — INDIA'S INDIGENOUS SINGLE-DOSE CANDIDATE & VACCINE COMPARISON

Why in News

While Qdenga became India's first approved dengue vaccine, an indigenous single-dose candidate, DengiAll, developed by Panacea Biotech with ICMR, is in the final stage of Phase III trials — positioning it as a potential 'Atmanirbhar Bharat' alternative and making a comparison of the two candidates examinable.

Background / Context

DengiAll is based on a tetravalent live-attenuated strain (TV003/TV005) originally developed by the U.S. National Institutes of Health (NIH)/NIAID. Panacea Biotech, one of three Indian firms licensed to use this strain, has developed the most advanced formulation and holds a process patent.

- Phase I/II trials (completed by 2019–2022) in India showed the single-dose formulation to be safe, well-tolerated and capable of inducing a balanced, multivalent neutralising-antibody response against all four serotypes in the large majority of recipients.
- Phase III trial: initiated August 2024, jointly by ICMR and Panacea Biotech, across 19 sites in 18 States/UTs, enrolling more than 10,335 healthy adult participants, with two-year follow-up; primarily ICMR-funded. Enrollment was reported complete by early 2026, with results expected later in 2026.
- If successful, DengiAll would need separate DCGI/CDSCO review and approval before rollout — industry reporting has floated an indicative rollout target as early as 2027, but this is not a confirmed regulatory timeline and should be treated as provisional.

This gives India two distinct pathways to dengue vaccination: an already-approved imported two-dose vaccine (Qdenga) available now, and a domestically developed single-dose candidate (DengiAll) still in trials — a live illustration of the 'import now, indigenise later' pattern seen in other health technologies.

Key Facts

- Developer: Panacea Biotech (India), in collaboration with ICMR; strain licensed from U.S. NIH/NIAID.



- Type: tetravalent, live-attenuated, single-dose (0.5 mL, subcutaneous) vaccine — a key design difference from Qdenga's two-dose regimen.
- Trial status (as of 2026): Phase III trial ongoing/enrollment complete; not yet approved by CDSCO. Results and any regulatory decision were pending at the time of this note — exam-takers should verify the latest status closer to the exam date via PIB/ICMR releases.
- Target age group under trial: reported as approximately 1–60 years, broader than Qdenga's approved 4–60 years, though this remains subject to final trial data and regulatory review.
- Significance if approved: would be one of the world's first single-dose dengue vaccines and India's first indigenous one, potentially easing the logistical/compliance burden associated with multi-dose regimens.

Static-Dynamic Linkage

- Mains GS-II/III: India's push for self-reliance in vaccine manufacturing (Atmanirbhar Bharat in healthcare), ICMR's role in public-funded clinical research, technology transfer from international research bodies (NIH) to Indian manufacturers.

Analysis

A successful, affordable, single-dose indigenous vaccine would directly address two of the criticisms levelled at Qdenga in the editorial — the compliance risk of a multi-dose regimen and the affordability concern tied to a multinational's tiered global pricing. However, DengiAll remains unproven at Phase III efficacy stage; policy and exam analysis should not treat it as a settled alternative. The coexistence of an approved imported vaccine and a trial-stage domestic one also raises a genuine policy question of sequencing — whether India should scale up Qdenga access now while awaiting DengiAll, or wait for a potentially cheaper single-dose domestic option.

Comparison: Qdenga vs Dengvaxia vs DengiAll

Parameter	Qdenga (TAK-003)	Dengvaxia (CYD-TDV)	DengiAll
Developer/Origin	Takeda, Japan	Sanofi Pasteur, France	Panacea Biotech, India (NIH strain)
Platform	Live-attenuated, chimeric, DENV-2 backbone	Live-attenuated, chimeric, Yellow Fever (17D) backbone	Live-attenuated, naturally attenuated tetravalent strain (TV003/TV005)



Parameter	Qdenga (TAK-003)	Dengvaxia (CYD-TDV)	DengiAll
Doses	Two (0, 3 months)	Three (0, 6, 12 months)	Single dose
Pre-vaccination screening	Not required	Required (only for seropositive persons)	Under trial evaluation
India regulatory status	CDSCO-approved (July 2026), ages 4–60	Not approved in India	Phase III trial ongoing; not yet approved
WHO status	Prequalified (2024); recommended mainly for ages 6–16 in high-transmission settings	Restricted to seropositive persons aged 9–16 in endemic areas	Not yet WHO-evaluated (pre-approval stage)
Key concern	Uneven serotype efficacy (weaker vs DENV-3/4 in seronegatives); pricing	Risk of severe disease if given to seronegative persons (2017 Philippines issue)	Efficacy/safety data awaited from ongoing Phase III

EXAM ALERT

- Three distinct dengue vaccine candidates are now in play for India — do not conflate their names, dose schedules or approval status: Qdenga (approved, 2 doses), Dengvaxia (not approved in India, 3 doses, screening required), DengiAll (in trial, 1 dose).
- 'DCGI approval for a Phase III trial' is not the same as 'DCGI/CDSCO marketing approval' — DengiAll has only the former so far.



Parameter	Qdenga (TAK-003)	Dengvaxia (CYD-TDV)	DengiAll
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DO YOU KNOW?

- A dengue vaccine developed by Brazil's Instituto Butantan (also derived from the NIH TV003/TV005 strain family) was approved in Brazil, making Brazil an early mover on a single-dose dengue vaccine ahead of India.
- DengiAll's development traces back roughly 15–17 years at Panacea Biotec, illustrating the long gestation typical of vaccine R&D.

Possible PYQ Angle: Prelims: a table-based 'match the vaccine with its feature' question (doses/screening requirement/origin) across Qdenga, Dengvaxia and DengiAll is a strong likelihood given three live candidates now exist. Mains: 'Discuss the role of public-funded research institutions like ICMR in indigenous vaccine development in India.' (GS-III).

QUICK REVISION

DengiAll: India's indigenous single-dose tetravalent candidate (Panacea Biotec + ICMR, NIH-licensed strain).

Phase III trial since Aug 2024, >10,335 participants, 19 sites/18 States-UTs; not yet approved by CDSCO.

Key edge over Qdenga (if approved): single dose, likely lower cost, indigenous manufacturing.

Three-way distinction to remember: Qdenga (approved, 2-dose), Dengvaxia (unapproved in India, 3-dose, screening needed), DengiAll (trial stage, 1-dose).

CURRENT AFFAIRS AT A GLANCE

Item	Detail
First dengue vaccine approved in India	Qdenga (TAK-003), Takeda — approved by CDSCO, July 2026
Approved age group / dosage	4–60 years; 2 doses of 0.5 mL, subcutaneous, 3 months apart
Pre-screening required?	No (unlike Dengvaxia)



Item	Detail
WHO prequalification	May 2024; recommended mainly for 6–16-year-olds in high-transmission settings
Global approvals	~42 countries incl. EU, UK, Switzerland, Indonesia, Malaysia, Thailand; >24 million doses distributed
Condition of Indian approval	Post-marketing safety & effectiveness study within 6 months of launch
Serotype efficacy pattern	Strongest vs DENV-2 & DENV-1; weaker/uncertain vs DENV-3 & DENV-4 in seronegatives
Key trial referenced	TIDES trial — flagged possible risk signal for DENV-3 hospitalisation in seronegative children
Indigenous alternative	DengiAll (Panacea Biotec + ICMR) — single-dose, Phase III trial stage, not yet approved
Regulatory/nodal bodies	CDSCO/DCGI (approval), ICMR (research), NCVBDC (vector-borne disease control programme), WHO (prequalification)
Central policy concern (editorial)	Affordability/tiered pricing may put Qdenga out of reach for high-risk urban-slum populations
Causative organism	Dengue virus (DENV), genus Flavivirus — an RNA virus, not a bacterium or parasite
Vector	Female Aedes aegypti (primary), Aedes albopictus (secondary)



INDIA USING TOO MANY POWERFUL ANTIBIOTICS MEANT FOR SPECIFIC INFECTIONS: STUDY

India may be using too many powerful ‘watch’ antibiotics — medicines that should be reserved for specific infections when simpler antibiotics are unlikely to work — while underusing both first-line ‘access’ antibiotics and last-resort ‘reserve’ drugs, according to a major international study published in The Lancet Public Health.

Key Takeaways:

- Researchers estimate that India’s antibiotic use is skewed towards broader-spectrum drugs, suggesting that some patients are being exposed unnecessarily to ‘watch’ antibiotics even as others may not receive the most appropriate medicines for their infections. The findings come from the first global framework that estimates how much of each category of antibiotics countries actually need based on their infection burden and antimicrobial resistance patterns.
- The India findings are part of a wider global picture that shows nearly three-fourths of countries are using more antibiotics overall than needed, while almost every country is overusing the antibiotics that contribute most to antimicrobial resistance. At the same time, millions of people worldwide still lack access to the antibiotics they need.

Do You Know:

- The World Health Organisation (WHO) groups antibiotics into three categories:
 - Access: First-choice antibiotics for common infections that have a lower risk of driving resistance.
 - Watch: Broad-spectrum antibiotics that should be used only for specific infections because they carry a higher risk of promoting antimicrobial resistance.
 - Reserve: Last-resort antibiotics reserved for treating multidrug-resistant infections.
- The study estimates India would ideally require 14.7 defined daily doses (DID) of antibiotics per 1,000 people per day, comprising 7.8 DID of ‘access’ antibiotics, 6 DID of ‘watch’ antibiotics and 0.99 DID of ‘reserve’ antibiotics. Actual consumption, however, paints a different picture. India currently uses 18.3 DID overall, comprising 4.5 DID of ‘access’ antibiotics, 9.3 DID of ‘watch’ antibiotics and 0.19 DID of ‘reserve’ antibiotics. Only 27 per cent of antibiotic use currently comes from the ‘access category,’ against an estimated requirement of 52.3 per cent.
- Researchers analysed antibiotic use across 186 countries and territories, representing 99.8 per cent of the world’s population. They found that 72 per cent of countries used more antibiotics overall than estimated to be necessary. Ninety-nine per cent prescribed excessive quantities of antibiotics that contribute most to antimicrobial resistance. Sixty per cent continued to use antibiotics the World Health Organisation (WHO) considers should no longer be routinely prescribed.
- The study estimates that around 43 billion antibiotic treatment days were needed globally in 2019 — roughly one antibiotic course per person per year — to appropriately treat bacterial infections. It also found that 77 per cent of global antibiotic use should come from the WHO’s access group, suggesting the United Nations target of 70 per cent ‘access’ antibiotic use by 2030 is reasonable.



KEN, BETWA AND A LINE DRAWN ON WATER

After decades of uncertainty, the Ken-Betwa river linking project, India's first inter-basin river transfer that aims to irrigate the parched Bundelkhand region, is now racing to meet new deadlines.

Key Takeaways:

- After decades of uncertainty, the project to link the Ken and Betwa rivers has entered a decisive phase, triggering a race to evacuate nearly 2,000 families across 10 villages — a rushed deadline that has fuelled protests across the submergence zone as residents challenge compensation surveys, eligibility lists and the terms on which they are being asked to leave.
- For the administration, the remaining months are about meeting engineering timelines, completing rehabilitation and clearing the reservoir before the next phase of construction. For the many families still living in the shadow of the Daudhan dam — one of the main architectural features under the project — it's a struggle of a different kind: proving, through Aadhaar cards, school certificates, revenue records and decades-old family registers, that they belong to the places they are being asked to abandon.

Do You Know:

- The idea of linking India's rivers dates back to the early 1980s. The National Water Development Agency, set up in 1982 to examine the feasibility of interlinking river basins, identified the Ken-Betwa Link, as a priority project. The project, India's first inter-basin river link, aims to transfer water from the Ken to the Betwa basin.
- A feasibility report followed in 1995, and in August 2005, Madhya Pradesh, Uttar Pradesh and the Centre agreed to prepare a Detailed Project Report. The Union Cabinet finally approved the project in December 2021, transforming the landscape around the rivers into construction sites.
- Officials say that once ready, the project will irrigate 9.04 lakh hectares, utilise more than 4,843 million cubic metres of water, generate 103 MW of hydropower and 27 MW of solar energy, and supply nearly 194 million cubic metres of drinking water each year.
- At the heart of the project is the Daudhan dam planned across the Ken river in Madhya Pradesh — a structure that stretches for more than 2 km. The reservoir of the dam is designed to hold 2,853 million cubic metres of water, while two proposed power stations at the site are expected to generate more than 219 million units of electricity annually.
- Water from the Daudhan reservoir will flow through a 218.6-km link canal (which gives the Ken-Betwa Link project its name) into the Betwa basin. The network also includes other irrigational structures such as the Lower Orr Project, the Kotha Barrage, the Bina Complex Multipurpose Project across Sagar and Raisen districts and the restored Ken Canal System in Uttar Pradesh.

INDIA'S RAREST HERON FACES A SILENT END AS NEW DAM IGNORES ITS HOME

The white-bellied heron (*Ardea insignis*) is amongst the world's most elusive birds, nesting along fast-flowing rivers lined with old growth forests.



“India has a population of six to nine individuals distributed in three rivers: Noa-Dehing River, Lahm River and Lohit River,” Yumlam Benjamin Bida, project manager, Ashoka Trust for Research in Ecology and the Environment, Bengaluru, said. “Out of these three rivers, Lahm is a tributary of the Lohit River and the river basin harbours 70% of India’s white-bellied herons.”

Yet on the Lohit, the Forest Advisory Committee under the Union Environment Ministry has granted in-principle clearance to a 1,200-MW hydroelectric power project that will fell more than 33,000 trees. The environmental impact assessment for the project also omitted white-bellied herons.

Borrowed time

“White-bellied herons have a very unique foraging strategy due to their huge body size” — up to around four-feet-tall, Mr. Bida said. “They hunt in shallow water and their dietary composition is only fish. They wait for the fish to come near and then strike it.”

He added that the dam, once it is built, will alter the water’s turbidity and flow, which could lead to the bird’s “local extinction”.

In 1878, the British ornithologist and naturalist Allan Octavian Hume first scientifically described the white-bellied heron based on specimens from the Teesta region in eastern India. The species is not known to occur there today.

According to Mr. Bida, it is not unknown for substantial changes in river conditions to lead to highly specialised species vanishing from that landscape.

Also, “The riparian mature forest plays a critical role for white-bellied herons, both for rooting and nesting. The hydroelectric power project will clear the mature riparian forest and let it get submerged, impacting the breeding of the species.”

‘No human disturbance’

White-bellied herons are in Schedule I of the Wildlife Protection Act of 1972, thus enjoying the highest level of legal protection. Even so, their range and population have declined significantly in the last century.

A 2019 review by the Tropical Resources Institute recorded the birds in parts of Sikkim, Nepal, Bhutan, and Myanmar at the beginning of the 20th century. Today, they are restricted to pockets of Arunachal Pradesh, Bhutan, and Myanmar.

“The white-bellied heron is known to inhabit Himalayan river systems up to elevations of about 1,500m above sea level,” Murali Krishna, a wildlife ecologist who has worked extensively in the Eastern Himalaya, said.

“Based on my several years of observation in Arunachal Pradesh, the species appears to avoid even minimal anthropogenic disturbance and usually uses tall trees for nesting, in those areas where there is no human disturbance.”

Overlooked in assessment

The project is being developed by Tehri Hydro Development Corporation India, Ltd. in partnership with the Arunachal Pradesh government. Its environmental impact assessment was prepared by WAPCOS, Ltd, a consultancy firm under the Ministry of Jal Shakti.



Although the Lohit River basin harbours most of these birds in India, the species did not feature in the project's impact assessment. According to the minutes of the Forest Advisory Committee meeting on December 19, 2025, State officials told the committee the birds had not been included because they had not been recorded within the project's diversion area.

The project also faced sustained opposition from local communities. Roshman Tawsik, resident of the Nukung Village and president of the District Congress Party Committee, said residents opposed the project since it was first proposed in 2008. "We do not want to sacrifice so much of our land and watch it getting submerged," he said.

During a public hearing in August 2025, community members questioned the reliability of the baseline data WAPCOS used in its assessment and said the draft assessment did not accurately reflect local realities. One participant noted that important flora and fauna, including a medical plant, had been excluded. Mr. Tawsik also criticised the report for not documenting the tribe's cultural practice of using natural indicators.

The draft also left out the affected villages of Nukung and Mla as well as the amended social impact assessment.

UNWANTED GUESTS TURN SWEET HOSTS FOR ASSAM BUTTERFLIES

Butterflies have revealed that some invasive plant species, disliked by conservationists and farmers, and avoided by herbivores, serve an ecological purpose.

Bishal Basumatary, a research scholar at Bodoland University, set out to document the butterflies and their nectar sources in Raimona National Park. The university is on the outskirts of Kokrajhar, the administrative headquarters of the Bodoland Territorial Region, about 220 km west of Guwahati.

The research was conducted under the supervision of Kushal Choudhury, an associate professor at the university's Department of Zoology, between 2022 and 2025.

Their study documented 220 species of butterflies, 56 species of larval host plants, and 41 species of nectar plants in the 422 sq. km national park that forms a large transboundary conservation landscape with Bhutan's Phibsoo Wildlife Sanctuary.

"One of the most significant findings is that *Lantana camara*, *Chromolaena odorata*, and *Ziziphus mauritiana*, which are generally regarded as invasive exotic species and are often excluded from forest management practices, serve as major nectar sources for a large number of butterfly species in the park," Mr. Choudhury said. *Lantana camara* and *Chromolaena odorata* are recognised among the world's most aggressive invasive plant species and regarded as ecologically undesirable because of their negative impacts on native vegetation and ecosystem functioning.

Abundant nectar

Larval host plants serve as the food source for butterfly larvae during their developmental stages, whereas nectar plants provide nectar, the principal nutritional resource for adult butterflies. The study revealed that some invasive plant species provide abundant nectar supply for adult butterflies, particularly during periods when native wildflowers are scarce in the park. Their prolonged flowering period and high nectar availability were also found to have helped sustain butterfly populations during seasons of limited floral resources.



The researchers observed that *Lantana camara* attracted exceptionally large numbers of butterflies. “The species produces flower clusters that change colour as the flowers age, resulting in multi-coloured inflorescences that serve as highly conspicuous visual cues for foraging butterflies. Coupled with its continuous nectar production, this characteristic likely contributes to its high attractiveness and frequent visitation by diverse butterfly species,” they noted.

The study showed *Lantana camara* alone attracted more than 30 butterfly species between April and October, while *Chromolaena odorata* supported 24 butterfly species from December to February.

In addition to serving as nectar sources, several invasive plant species were also found to function as larval host plants, highlighting their multifaceted ecological importance. These include *Ricinus communis*, *Senna alata*, *Portulaca oleracea*, *Sida rhombifolia*, *Cleome rutidosperma*, *Gomphocarpus physocarpus*, *Ageratum conyzoides*, *Chromolaena odorata*, *Tridax procumbens*, *Mikania micrantha*, *Mesosphaerum suaveolens*, *Spermacoce latifolia*, *Cyanthillium cinereum*, *Heliotropium indicum*, *Persicaria hydropiper*, *Persicaria sagittata*, *Sida acuta*, *Leucas aspera*, and *Urena lobata*.

The researchers recommended maintaining small, carefully managed patches of *Lantana camara*, *Chromolaena odorata*, and *Ziziphus mauritiana* in suitable areas of protected landscapes to provide a continuous nectar supply for butterflies.

STONE AGE TO SANGAM ERA, TENKASI SETTLEMENT THRIVED ACROSS MILLENIA

On the banks of the Vaippar river in Tamil Nadu’s Tenkasi district, archaeologists are slowly uncovering the story of a settlement that appears to have survived — and evolved — for thousands of years.

Key Takeaways:

- At Malayadipatti near Karivalamvathanallur, where excavations have been underway since April, each trench is adding another layer to a remarkably continuous sequence of human occupation.
- From tiny microlithic stone tools left behind by some of the region’s earliest inhabitants to expansive Sangam-era brick structures, iron-working evidence and craft-production debris, the site is emerging as one of southern Tamil Nadu’s most significant archaeological landscapes.
- Unlike northern Tamil Nadu, where archaeology has established a clearer transition from the Microlithic to the Neolithic and then the Iron Age, Karivalamvathanallur appears to follow a different trajectory.
- Archaeologists say the evidence points to continuous occupation from the Microlithic period through the Iron Age and into the Early Historic and Historic periods, bypassing the Neolithic or Chalcolithic phases — a cultural sequence that mirrors discoveries at sites such as Mangudi, Sivagalai and Adichanallur.
- The excavation, being carried out by the Tamil Nadu State Department of Archaeology (TNSDA), has opened 18 trenches so far and forms part of the state’s broader archaeological programme that also includes Keeladi.



— The site's importance was first recognised nearly a century ago after Roman coins were reported from the region. The then Tirunelveli Deputy Collector, L A Cammiade, surveyed the area, while the Madras Museum's 1932-33 annual report documented glass beads and burial urns collected from local residents. Those early references have now acquired fresh significance as archaeologists uncover evidence suggesting the settlement was not merely inhabited over centuries, but also functioned as a manufacturing centre.

— The discoveries made so far point towards an organised industrial settlement. Archaeologists have recovered hematite used for iron extraction, iron implements, large quantities of glass beads, terracotta figurines, graffiti-marked pottery, hopscotch pieces, black-and-red ware and other ceramics associated with the Early Historic period.

Do You Know:

— Recognised as the earliest literature from South India, Sangam refers to a group of texts written in old Tamil. The corpus includes eight anthologies of poems, 10 idylls, a work on grammar, and 18 minor works. Altogether, there are about 2,381 poems by 473 poets and 102 poems by anonymous authors.

— While scholars are divided about the precise dates of the Sangam texts, there is a general understanding that they were composed between the third century BCE and the third century CE.

— The Sangam poems are classified into two types: akam and puram. While akam poetry focuses on love, puram poems explore subjects like war, death, community, and kingdom.

COMING SOON IN GUJARAT: A LIFE-SIZE HARAPPAN TOWN WITH MARKETS, DOCKYARDS

Very soon, visitors to Lothal, one of the most prominent outposts of the Indus Valley Civilisation, will be able to get a feel of walking through Harappan streets, dockyards, markets and civic spaces.

Key Takeaways:

- Just a few minutes away from the archaeological site, about 80 km from Ahmedabad, architects are recreating parts of the historic town for a museum that will be part of the Rs 4,000-crore National Maritime Heritage Complex (NMHC), whose first phase will be inaugurated within weeks.
- According to officials, the first phase of the complex cost an estimated Rs 775 crore, and includes six museum galleries, a jetty walkway, and a display of maritime artefacts spanning ancient, medieval, colonial and modern times.
- But the centrepiece of the 375-acre project, cleared by the Union Cabinet in 2024, remains the recreation of Lothal town.
- "Rather than displaying history behind glass, we wanted people to physically walk through reconstructed Harappan streets, dockyards, markets, and civic spaces to understand how advanced these settlements were," Karl Wadia, Principal Architect at Architect Hafeez Contractor, who is heading the project, told The Indian Express.
- The firm was signed on to design the project by the Union Ministry of Ports and Shipping, the nodal ministry involved, with the total project cost pegged at around Rs 4,000 crore, officials said. "The idea was to create a world-class cultural and educational destination where visitors can experience India's 4,500-year maritime history in an immersive, engaging way," Wadia said.



- The museum comprises monumental stone-clad forms raised on elevated plinths, reinterpreting the flood-resistant citadels of Harappan settlements. Two inclined forms at the top resemble ship hulls, inspired by the righting-lever principle used in naval engineering, according to the concept.

- India has already signed MoUs with over a dozen countries, including the Netherlands, Denmark, Germany, South Korea, UAE, Portugal, Vietnam, Oman, Israel and Thailand, for collaboration in developing NMHC as a global centre of maritime history, according to the Union Shipping and Ports Ministry.

Do You Know:

- Lothal is believed to have existed around 4,500 years ago, with excavations at the site revealing the world's oldest known artificial dock, connected to an old course of the Sabarmati river.

- Lothal is a prominent Harappan port city located in Gujarat, along the Bhogava River in the Gulf of Khambhat. Discovered by archaeologist S.R. Rao in 1954, it was a thriving trade center dating from 2400 BCE to 1600 BCE. It is most famous for housing the world's earliest known tidal dockyard.

- Lothal is currently the site for developing the National Maritime Heritage Complex (NMHC). Led by the Ministry of Ports, Shipping, and Waterways in collaboration with the Netherlands, this flagship project aims to showcase India's rich 5,000-year-old maritime legacy.

SHORT NEWS**MOUNT OLYMPUS, HOME OF ANCIENT GREEK GODS, NOMINATED FOR UNESCO WORLD HERITAGE LIST**

— Snow-capped for much of the year, Mount Olympus, the mythological home of ancient Greece's 12 Olympian gods, has captured the imagination through the millennia. Rising to 2,918 metres from a base practically at sea level, the ancient Greeks believed the throne of Zeus, king of the gods, stood on the highest of its craggy, often mist-shrouded peaks.

— Now, modern-day Greeks hope their tallest mountain will be inducted into UNESCO's World Heritage List as a mixed cultural and natural site. The nomination will be discussed when the World Heritage Committee meets in Busan, South Korea, from Sunday through July 29.

SARNATH NOW A UNESCO WORLD HERITAGE SITE

— Sarnath, the ancient site where Lord Buddha delivered his first sermon after attaining enlightenment, has been inscribed on UNESCO's World Heritage List, becoming India's 45th and Uttar Pradesh's fourth World Heritage Site.

— The announcement came Saturday (July 25) during the 48th session of the UNESCO World Heritage Committee held in Busan, South Korea.

— Sarnath, one of the holiest sites of Buddhism, has recorded its significance on the global platform for heritage recognition. The state government stated this would strengthen Uttar Pradesh's Buddhist Circuit on the international tourism and cultural heritage map.



What is a World Heritage Site?

World Heritage Site is a location recognised for its “outstanding universal value”. This signifies “cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity”. The Sites fall into three categories: cultural heritage, natural heritage, and mixed heritage (cultural as well as natural).

— According to the UP Tourism Department, Sarnath was included in UNESCO’s tentative list on July 3, 1998. Twenty-eight years on, it has been officially designated a World Heritage Site. Until now, the state’s three World Heritage Sites were the Taj Mahal, Agra Fort and Fatehpur Sikri — all in the Agra region.

— Sarnath is the sacred land where Lord Buddha, after attaining enlightenment, delivered his first sermon to humanity and set in motion the ‘Dharmachakra Pravartan’. Counted among the holy pilgrimage sites of Buddhism, Sarnath is described in ancient Buddhist scriptures such as Rishipattan.

ANDY BURNHAM

— Andy Burnham was appointed the UK’s new Prime Minister on 20th July, following the resignation of his predecessor, Keir Starmer.

— Burnham was elected as Mayor of Manchester in 2017 and was re-elected twice, but his standout moment came during a Covid-era lockdown standoff in 2020 with the Central government.

— He organised an unscripted press conference in response to the then Conservative government’s attempts to force Greater Manchester into strict tiers without requisite financial support.

— His strongly worded statement branding the central government’s approach as “brutal” and “disgraceful” earned him the moniker “King of the North” while cementing his position as a leader looking out for smaller, forgotten communities.

KANISHKA NARAYAN

— Kanishka Narayan, the India-born MP who made history as Wales’ first ethnic minority MP, has kept his post as Minister of State for AI in Andy Burnham’s new cabinet.

— Narayan, who was born in Bihar and moved to Cardiff as a child, is one of several familiar faces retained as Burnham assembles his top team following Sir Keir Starmer’s resignation on Monday.

JIZAN AND YANBU

— Yemen’s Iran-aligned Houthi militants fired on Saudi oil installations in two ports on the Red Sea coast on Saturday (July 25), but the U.S. held back from launching air strikes on Iran for the first night in two weeks.

— Houthi military spokesperson Yahya Saree said the group had successfully struck sites belonging to Saudi state oil giant Aramco in Jizan and Yanbu.



— Yanbu is Saudi Arabia's main Red Sea oil port, where millions of barrels a day are loaded, and has become the main route out for Saudi oil skirting the Strait of Hormuz, which has been blockaded by Iran.

— Jizan, on the Red Sea close to the Yemeni border, is the site of a refinery with a capacity of 400,000 barrels per day.

EU IMPOSES \$1BN FINE ON GOOGLE OVER ANTI-TRUST BREACHES

— Alphabet's Google was fined a total of €890 million (\$1 billion) on Thursday for flouting European Union rules aimed at reining in the power of Big Tech, the European Commission said. The fines underscored Europe's determination to prevent Big Tech companies from thwarting rivals, defying U.S. criticism and retaliatory tariff threats.

— A fine of €460 million was handed out to Google by the EU under the Digital Markets Act for favouring its own services in shopping, hotels, transport and sports results in search results. A second fine of €430 million targeted Google's restrictions on its app store Google Play preventing app developers from steering users free of charge to cheaper offers on rival app stores or websites.

— However, the U.S. tech giant is likely to avoid fresh fines as EU regulators lauded good progress in its ongoing efforts to comply with the landmark legislation.

SECTION 301

— A day after US imposed fresh tariffs on 60 countries including 10% duty on India, two US small businesses have filed a case against United States Trade Representative (USTR) for the use of Section 301 to impose tariffs impacting "99.4% of all imports into the United States", case documents have shown.

— The USTR announced tariffs of 10 to 12.5 per cent on 60 economies on Thursday (July 23), directed by President Donald Trump, over what it called inadequate steps to ban the import of goods made with forced labour. India is among 17 economies placed in the lower 10 per cent band, alongside the UK, Canada, Indonesia, Bangladesh and Mexico.

— The move comes as the US administration under Donald Trump has begun its efforts to reconstruct its International Emergency Economic Powers Act (IEEPA) tariffs that were declared illegal by the US Supreme Court in February.

— Titled "Relief from Unfair Trade Practices," and collectively called "Section 301" of the Trade Act of 1974 enables US Congress to grant the Office of USTR a range of responsibilities and authorities to investigate and take action (e.g., impose a tariff) to enforce U.S. rights under trade agreements or respond to certain foreign trade practices.

— The section empowers the executive branch to unilaterally investigate, adjust, or place retaliatory tariffs on specific imports from targeted trading partners.

COULD AI CHIP BOOM TURN ASML FIRST \$TN FIRM IN EUROPE?

The global artificial intelligence (AI) boom has propelled ASML to the top of Europe's stock market, as soaring demand for AI computer chips flows to the Dutch company that dominates the



market for the equipment needed to make them. After blowout second quarter earnings, investors and analysts are asking a once far-fetched question: could ASML become Europe's first ever trillion-dollar firm?

Key obstacles include doubts over how long Google, Amazon, and other hyperscalers will keep spending heavily on data centres, and whether ASML, its suppliers and customers such as TSMC and Samsung can execute expansion plans. But after ASML shares spiked 60% this year to push the firm close to a \$700 billion valuation, investors and analysts say the trillion-dollar scenario is plausible.

ASML is the only seller of extreme ultraviolet (EUV) lithography tools required to print the minute circuitry of the most advanced logic and memory chips. Investors compare its business to selling picks and shovels during a gold rush.

CENTRE DEFERS DOMESTIC SOLAR CELL SOURCING MANDATE TILL DECEMBER 31

— One-and-a-half month after implementing mandatory domestic cell sourcing mandates for all domestic, commercial and industrial solar projects, the Ministry of New and Renewable Energy (MNRE) on Saturday exempted these projects from the mandatory cell sourcing requirement till December 31.

— The exemption comes after the government had on May 25 said that there would be “no blanket” relief for domestic cell sourcing mandates despite developers seeking an extension of the deadline.

— Cells are the building blocks of solar modules that convert sunlight into electricity. The manufacturing chain begins with polysilicon, which is processed into ingots. These ingots are sliced into wafers, which, in turn, are used to manufacture solar cells. These cells are subsequently assembled into modules, or panels.

— India has a large solar module manufacturing base, nearly 200 gigawatts (GW) per annum. But the manufacturing capacity of cells, the primary constituents of these modules, is far lower at around 30 GW. This means much of the module manufacturing capacity has been built upon imported cells.

— Even though the mandatory domestic cell sourcing mandate is aimed at reducing India's dependence on imports and strengthening the domestic solar manufacturing ecosystem, it could disproportionately affect smaller solar module manufacturers which, unlike larger companies, may not manufacture their own cells.

— The mandate also threatened to hit the country's flagship solar rooftop program, PM Surya Ghar: Muft Bijli Yojana by pushing up domestic solar cell prices and limiting the availability of rooftop solar panels.

PRESIDENT DROUPADI MURMU STATE VISITS

— To bolster ties with the Eastern European region, President Droupadi Murmu embarked on a week-long state visit to Moldova, Romania and North Macedonia, starting July 19.



Moldova

- The first leg of the visit by the President was to Moldova. President held delegation-level talks with her counterpart Maia Sandu, and met Igor Grosu, president of Moldovan Parliament.
- As a special gesture of friendship, Murmu presented a bust of Mahatma Gandhi to President Sandu. The President laid a wreath at the Monument of Stefan cel Mare si Sfânt (Stephen the Great), paying tribute to one of Moldova's most revered national figures.
- Murmu is the first Indian head of state to visit the landlocked Eastern European country since the establishment of diplomatic relations in 1992.
- It is bounded by Ukraine to the north, east, and south and by Romania to the west. The bulk of the republic lies between the great meandering Prut and Dniester rivers.
- Its capital city is Chisinau, located in the south-central part of the country.

North Macedonia

In the second part, Murmu visited North Macedonia for a two-day visit on July 21. This is also the first ever visit by an Indian President to the nation. The President held bilateral talks with President Gordana Siljanovska-Davkova, met Prime Minister Hristijan Mickoski, and also addressed the Assembly of North Macedonia.

Romania

In the final leg of the three-nation tour, President Murmu landed in Romania on July 23, a visit by an Indian President after three decades. She met her counterpart Nicușor Dan and interim PM Ilie Bolojan. Murmu also addressed the India-Romania Business Forum and interacted with the members of the Indian diaspora.

INVESTMENT FRIENDLINESS INDEX

- Gujarat, Maharashtra, Tamil Nadu, Goa and Odisha have emerged as top-performing states in NITI Aayog's new Investment Friendliness Index 2026, which ranks states based on quality of infrastructure, business climate, government policy and regulatory ease among other parameters seen as key to attracting investment.
- The index covers all 28 states and eight union territories (UTs) and evaluates what makes a state attractive for investors, as well as the challenges investors face.
- The Index uses 8 pillars for evaluating the 28 states and eight union territories (UTs). It comprises 84 indicators, incorporating both secondary data and perception-based measures derived from a primary survey of investors.
- The highest weight of 25% is assigned to infrastructure, followed by business climate, resources, government policy, regulatory ease, financial health, institutional environment and environmental resilience.
- The index categorises Andhra Pradesh, Assam, Chandigarh, Chhattisgarh, Delhi, Haryana, Himachal Pradesh and Karnataka among other states as "frontrunners" and Bihar, Jammu and



Kashmir, Jharkhand, Meghalaya, Nagaland, Puducherry, Punjab, West Bengal as “emerging performers”.

— Andaman and Nicobar Islands, Arunachal Pradesh, Dadra & Nagar Haveli and Daman & Diu, Ladakh, Lakshadweep, Manipur, Mizoram and Sikkim were categorised as “aspiring states”.

KARGIL VIJAY DIWAS

— Prime Minister Narendra Modi on Sunday (July 26) opened his monthly “Mann Ki Baat” radio address by commemorating Kargil Vijay Diwas, which marked the successful conclusion of the 1999 Kargil war.

— The Kargil War officially ended on July 26, 1999, with the eviction of the last remaining Pakistani troops and infiltrators from positions on the Indian side of the Line of Control (LoC).

— The conflict was triggered when infiltrators from Pakistan crossed the LoC and occupied high positions in Ladakh’s Kargil district. First reported to the Indian Army on May 3, the infiltrators were initially thought to be jihadis. But over the next few weeks, as the sheer scale of the invasion came to light, the role of the Pakistani state became undeniable.

— Between mid-May and July, the Indian forces slowly recaptured critical positions from the Pakistanis, in the face of heavy casualties. On July 26, the Army announced the complete withdrawal of all Pakistani regular and irregular troops from Kargil.

— Kargil is located at the northern edge of the LoC, some 200 km northeast of Srinagar and 230 km west of Leh. Kargil town lies at an altitude of 2,676 m (8,780 ft), Dras lies at a height of 3,300 m (10,800 ft), and the surrounding peaks rise to altitudes of 4,800 m (16,000 ft) to 5,500 m (18,000 ft).

APAAR ID

— The Supreme Court has asked the Central Board of Secondary Education (CBSE) to implement on a pan-India basis the Orissa High Court’s direction that parents be provided with the option to refuse consent to sharing Aadhaar details of their children for creation of Automated Permanent Academic Account Registry (APAAR) ID or to opt out of the scheme.

— APAAR IDs are unique, 12-digit identifiers for students in India, part of the “One Nation, One Student ID” initiative under the National Education Policy 2020.

— It is a special ID system for all students in India, starting from childhood. Under the initiative, each student gets a lifelong APAAR ID, making it easy for the learners, schools, and governments to track academic progress from pre-primary education to higher education.

— APAAR also serves as a gateway to Digilocker, a digital system where students can store their important documents and achievements, such as exam results and report cards, digitally, making it easier to access and use them in the future for, say, pursuing higher education or finding a job.

INS MALVAN

— INS Malvan, the second vessel in the Mahe-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC) series, was commissioned in Karwar, Karnataka on 22nd July.



— INS Malvan is the second of eight ASW-SWCs, being indigenously built by CSL, Kochi, and the sixth of 16 ASW-SWCs to be commissioned into the Indian Navy.

— With over 80 per cent indigenous content, the ship reinforces the Government of India's vision of Aatmanirbhar Bharat and India's expanding ecosystem of naval design, equipment, system integration, and growing self-reliance in defence shipbuilding.

— The vessel is equipped for underwater surveillance, anti-submarine warfare (ASW) operations, and low-intensity maritime operations (LIMO), along with mine warfare capability.

— INS Malvan derives its name from the historic coastal town of Malvan in Maharashtra, a region associated with the illustrious maritime heritage of Chhatrapati Shivaji Maharaj. The vessel also encapsulates the legacy of her predecessor, an inshore Indian Naval Minesweeper that remained in service until 2003.

KUSHA

— In a major step towards the development of indigenous long-range air defence capabilities, the Defence Research & Development Organisation (DRDO) on 23rd July successfully conducted the first flight test of the 'Kusha' Long-Range Surface-to-Air Missile (SAM), at the APJ Abdul Kalam Island off the coast of Odisha. A long-range SAM typically has a range of over 200 km.

— The DRDO has been developing Project Kusha — an indigenous long-range SAM system — to protect strategic military and civilian assets and infrastructure from a range of aerial threats, including fighter jets, missiles, unmanned aerial vehicles and large enemy aircraft within a wide range and altitude envelope.

INTEGRATED AIR DEFENCE WEAPON SYSTEM (IADWS)

Last year, the DRDO successfully conducted maiden flight tests of the Integrated Air Defence Weapon System (IADWS) — a multi-layered air defence system comprising all indigenous Quick Reaction Surface to Air Missiles (QRSAM), Advanced Very Short Range Air Defence System (VSHORADS) missiles, and a high-power laser-based Directed Energy Weapon (DEW).

— Together, Kusha and the Integrated Air Defence Weapon System are understood to be major steps towards bringing India closer towards developing a home-grown nationwide security shield from multi-domain enemy attacks under Mission Sudarshan Chakra in the next 10 years.

NSE'S AHIMSA INDEX

— Launched on July 10, the Nifty 500 Ahimsa index is a thematic index designed to provide investors with exposure to the top 500 companies on the NSE whose business practices are aligned with the principles of "Ahimsa" or non-violence.

— The index was developed by the exchange in collaboration with the Ahimsagain Foundation, a non-profit organisation started in November 2024 by ethical finance advocates to provide a transparent medium to invest in animal cruelty-free companies.

— The new index consists of companies that meet Ahimsagain Foundation's Ahimsa Investment Movement (AIM) framework. This framework classifies companies into green, orange, and red



bands, with the green band signifying companies that are fully compliant with its animal-cruelty-free criteria. The index comprises companies belonging only in the green band.

— The index comes after the BSE launched its Saatvik 100 index on June 17, another thematic index with a broader focus on the “Saatvik” philosophy, which stands against animal cruelty and exploitation, addictive and toxic products, and activities considered harmful or violent.

VIZHINJAM PORT AS A CUSTOMS PORT

— The Vizhinjam International Transshipment Seaport has been notified as a customs port, paving the way for export and import (EXIM) cargo operations at a facility that has so far functioned exclusively as an international transshipment hub.

— With the Central Board of Indirect Taxes and Customs notifying the port as a customs port, Vizhinjam is expected to emerge as another gateway for India’s exports and imports.

— Besides boosting container movement, the country’s first international deepwater transshipment port is expected to provide a major fillip to Kerala’s economy and generate jobs in shipping, logistics and allied sectors.

— Notably, on 2nd May, 2025, PM Modi inaugurated the Vizhinjam International Sea Port in Kerala. Currently, India has 13 major ports and 217 non-major ports, including private ports like Adani’s Mundra port and the Krishnapatnam port. Navi Mumbai’s Jawaharlal Nehru Port and the Mundra Port are the largest container ports in the country, each handling upwards of 7 million containers per annum.

What is a transshipment port?

A transshipment port includes terminals, where cargo containers are shifted from one vessel to another before they reach their final destination. Countries with robust global trade networks tend to use such ports to efficiently process large amounts of international cargo.

LIPFENDRA

— The US Food and Drug Administration (FDA) has approved a pill version called Lipfendra (enlicotide) that can bring LDL (low-density lipoprotein) down by up to 60%.

— Lipfendra is a PCSK9 inhibitor, which works differently from statins. While statins reduce the liver’s production of cholesterol, PCSK9 inhibitors help the liver remove bad cholesterol from the bloodstream.

— They do this by blocking (inhibiting) the PCSK9 protein, which normally destroys LDL receptors. With more LDL receptors available, the liver can clear much more LDL cholesterol, often reducing levels by 50-60%.

— Developed by Merck, the once-daily tablet is approved as an add-on to diet and exercise for adults with abnormally high bad cholesterol, including those with heterozygous familial hypercholesterolaemia (HeFH), an inherited condition that causes very high cholesterol levels.

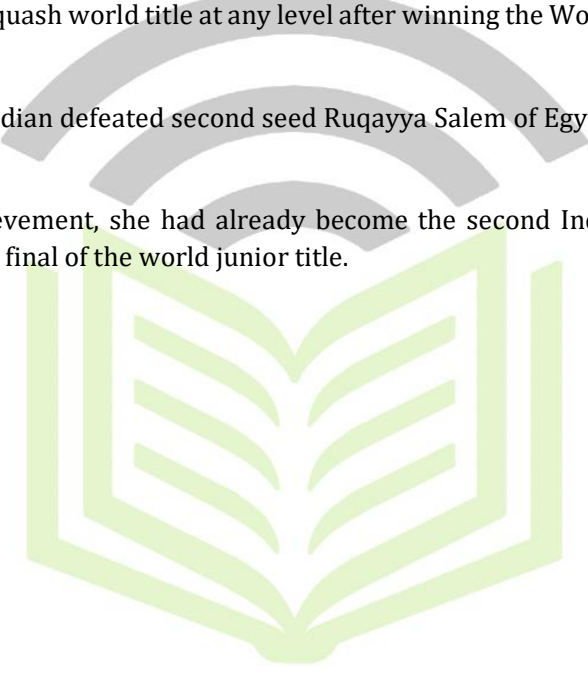


72ND NATIONAL FILM AWARDS

- The winners of the 72nd National Film Awards were announced in New Delhi on July 18, with Article 370 emerging as the Best Feature Film.
- While Yami Gautam won the Best Actress award for her performance in Article 370, Kartik Aaryan (Chandu Champion) and Mammooty (Bramayugam) shared the Best Actor honour. Rajkumar Periasamy was named Best Director for Amaran.

1ST INDIAN SQUASH WORLD JR CHAMPION

- Indian squash prodigy Anahat Singh created history on Saturday (July 25), as she became the first Indian to win a squash world title at any level after winning the World Junior Championships in Ontario, Canada.
- The 19-year-old Indian defeated second seed Ruqayya Salem of Egypt in straight games 11-3, 11-7, 11-9.
- Prior to this achievement, she had already become the second Indian woman after Joshna Chinappa to enter the final of the world junior title.


DreamIAS

**BUSINESS AND ECONOMY****INDIA & KEY WTO MEMBERS REMAIN AT LOGGERHEAD ON PLURILATERAL PACTS**

As India remains among the few large countries opposing plurilateral agreements on e-commerce and investments, a group of countries across developed and developing nations blocks such as EU, Canada, UK, Cambodia and Gambia on Tuesday questioned its approach, alleging that New Delhi was holding up the WTO reform process, The Indian Express has learnt.

Key Takeaways:

- Questions were raised during India's trade policy review, which happens once every five years. An Indian delegation led by Commerce Secretary Rajesh Agrawal presented details on India's reforms to WTO members.
- Plurilateral agreements, which are negotiated and implemented by exclusive groups rather than by all members, have begun being featured prominently in various World Trade Organisation (WTO) reform-related proposals.
- India, meanwhile, maintained that plurilateral agreements were against the core WTO principle of consensus-based decision-making process. Major trading powers like the US, EU and China are backing plurilateral negotiations, where benefits and responsibilities would be limited to the signatory members.
- While Canada most prominently opposed India's stand on plurilateral agreements, the EU said that over the past decade, India has benefited significantly from its integration into global trade and has increased its share in world trade.
- "The EU encourages India to rethink its approach to plurilateral agreements and to consider them as an opportunity to shape the agenda of the WTO and to modernise the organisation rather than as a threat to multilateralism — which they are not, if we build them properly," the EU representative said in the internal meeting as per sources.
- While Gambia and Costa Rica asked India to withdraw its opposition to the Investment Facilitation for Development (IFD) agreement, several countries asked India to join negotiations for plurilateral agreements such as the fossil fuels subsidy reform initiative, dialogue on plastics pollution and environmentally sustainable plastics trade.
- As many as 129 members have supported IFD, but India remains the primary holdout, citing systemic risks and stating that investment is not a core trade issue.

Do You Know:

- In a July 9 letter to the WTO, India questioned the "legal basis" under which the WTO DG was assigned the role to act as the "depository of the Agreement on Electronic Commerce (ECA)".
- "The Marrakesh Agreement requires consensus to add an Agreement to Annex 4. Consensus was not reached on two occasions. In the absence of consensus, we would like to understand the institutional basis on which the Interim Arrangements are operating," India said.

As per the WTO, 66 members, covering approximately 70% of global trade, have adopted a pathway to bring into force the WTO Agreement on Electronic Commerce through "interim



arrangements” while continuing to work towards its incorporation into the WTO legal framework of rules.

- The E-Commerce Agreement prohibits the imposition of customs duties on electronic transmissions between a person of one party and a person of another party.
- During the 14th Ministerial Conference (MC14) in Yaoundé, Cameroon, India was the only country opposing IFD’s incorporation into the WTO framework as an Annex 4 Agreement.

Annex 4 of the Marrakesh Agreement contains the Plurilateral Trade Agreements, and unlike multilateral agreements that bind all 164 WTO member states, these agreements are only legally binding on the specific members that voluntarily sign and accept them. Commerce Minister Piyush Goyal in March said that incorporation of the IFD agreement risks eroding the functional limits of the WTO and undermining its foundational principles.

INDIAN PHARMA SEES LITTLE IMMEDIATE THREAT IN TRUMP’S 200% TARIFF PLAN

While the Indian generic pharmaceutical industry so far remained unscathed during several rounds of US tariff announcements, US President Donald Trump on Wednesday in a Truth Social post said tariffs on economical generics from India will be raised to 200% over the next three years.

Key Takeaways:

- The president said that the current zero percent tariff would continue for a period of another two years, which is a source of relief for the Indian industry, considering US is the biggest foreign market for them. Experts, however, emphasised that unstable tariffs have led to the Indian pharmaceutical industry moving away from the US in the last year.
- Trump in his truth social post on Wednesday early morning (India time) said: “Effective August 1st, 2026, all Generic Drugs being brought into the United States will continue to have a TARIFF of ZERO PERCENT for a two year period of time, after which the TARIFF will be raised to 100% for a one year period of time, and 200% thereafter.”
- Former DG of Pharmaceutical Export Promotion Council of India (Pharmexcil) Udaya Bhaskar said: “Even during his previous presidency, at the time of Covid-19, he had said that he would support domestic manufacturing of generics and active pharmaceutical ingredients, but nobody really came forward. It is not easy for a US company to set up generic manufacturing and even if they do it is likely to cost at least 30% more than the Indian generics. Moreover, US companies would not be able to produce the kind of volumes Indian companies do.”
- And, this shift to other destinations is apparent. There has been a 7.9% decline in exports to NAFTA region in 2025-26, largely driven by exports shifting from the US, according to yet-to-be released trade data provided by sources.

Do You Know:

- The United States accounted for 34.5% of India’s total pharmaceutical export in FY2025, valued at USD 10.5 billion. To compare, the next biggest buyer was the United Kingdom that accounted for 3% of the country’s total pharmaceutical export, valued at just USD 913.9 million, according to data from Pharmexcil.



- Any increase in tariffs on Indian generic medicines will adversely affect the US citizens. Indian companies supply 47% of all generic medicines prescribed in the US. More than half of the prescriptions of five of the ten most common therapy areas — hypertension, mental health, medicines to control lipids, medicines for nervous system disorders, and anti-ulcer drugs — were supplied by India too, according to data from IQVIA. Medicines from Indian companies provided \$ 219 billion in savings to the US healthcare system in 2022, it said.
- Indian therapies have been key to expanded access in the US. An example cited by ORF said that the number of Americans, who were able to afford the cholesterol lowering drug Rosuvastatin after an Indian generic entered the US market, doubled between 2016 and 2022.

INDIA-UK COMPREHENSIVE ECONOMIC AND TRADE AGREEMENT (CETA)

Why in News

The India-United Kingdom Comprehensive Economic and Trade Agreement (CETA), signed in July 2025, entered into force on 15 July 2026 along with the companion Double Contribution Convention (DCC). Described by Indian officials as a "gold standard" FTA, it grants near-complete duty-free access for Indian goods to the UK market while carefully protecting India's sensitive sectors. The pact marks a mature shift in India's trade diplomacy amid a fragmented global trading system.

Background / Context

India and the UK launched formal FTA negotiations in January 2022. After 14 rounds, an agreement in principle was reached in May 2025; the CETA was signed in London on 24 July 2025 by Commerce Minister Piyush Goyal and UK Business Secretary Jonathan Reynolds in the presence of PMs Narendra Modi and Keir Starmer. The DCC was signed separately on 10 February 2026.

Historically, India's earlier FTAs (notably ASEAN, 2009) tilted the trade balance against India. Recent deals with EFTA and New Zealand showed greater sensitivity to domestic interests (especially dairy). CETA continues this calibrated approach-liberalising where India is competitive while shielding sensitive agriculture and certain manufacturing segments. The UK accounts for roughly 3% of India's merchandise exports and about 1% of imports, yet remains a high-income market where India traditionally enjoys a surplus.

KEY FACTS

A. Timeline & Entry into Force

- Negotiations concluded: 6 May 2025 (14 rounds)
- CETA signed: 24 July 2025, London
- DCC signed: 10 February 2026
- Entry into force: 15 July 2026 (both CETA and DCC simultaneously)
- Described by UK as the fastest implementation of a new FTA after signature in British history



B. Market Access - Goods (India's Gains)

- UK removes tariffs on 96.8% of tariff lines immediately ($\approx 97.7\%$ of trade value); additional 2% under quota to total coverage $\approx 98.8\%$ of lines / 99.5% of value (often summarised as '99% of Indian exports')
- Key zero-duty sectors for India: textiles & clothing, leather & footwear, gems & jewellery, marine products, engineering goods, processed foods, chemicals & pharmaceuticals
- Non-tariff provisions: chapters on SPS, TBT, digital trade, government procurement, SMEs, labour, environment, gender, innovation

C. Market Access - Goods (UK's Gains)

- India removes tariffs on goods covering 30.3% of trade value immediately; additional 47% phased elimination; quotas on 12.1% to total $\approx 89.5\%$ of tariff lines / 89.4% of trade value
- Whisky: tariffs cut (from 150% toward 40% over time)
- Automobiles: first FTA in which India has agreed to reduce auto import tariffs. Quota of 20,000 CBU petrol/diesel passenger vehicles in Year 1 at 30-50% duty (vs standard 66-110%), rising to 37,000 by Year 5, then tapering; in-quota duty falls to 10% by Year 5. Separate quotas for alternative-fuel and commercial vehicles
- Engineering products and other UK manufactures also benefit

D. Services & Professional Mobility

- UK grants commercial presence rights to Indian firms in computer services, consultancy, environmental services, etc.
- India opens accounting, auditing, financial services, telecom, environmental services to UK firms (cross-border supply without local presence in some cases)
- Mutual recognition of professional qualifications in law and accounting
- Services coverage spans 137 sub-sectors of interest to India (IT/ITES, professional, education, business services)

E. Double Contribution Convention (DCC)

- Indian workers (and employers) on temporary assignment in the UK need not pay UK social security if contributions continue in India
- Exemption period: 5 years (raised from an earlier 3-year proposal)
- Benefits $\approx 90\%$ of Indian workers in the UK (most stay ≤ 5 years); estimated 75,000+ workers and 900+ employers
- Avoids loss of $\approx 23\%$ of salary that previously went to UK NICs without eligibility for benefits (UK requires 10 years of contributions)

F. Government Procurement

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR

Telegram: http://t.me/DreamIAS_Jamshedpur



- UK firms may bid in eligible Indian Central government tenders as Class-II local suppliers
- Indian suppliers retain Class-I preference in the UK and gain legal access to UK government procurement market estimated at ~£90 billion (~\$122 billion)
- Reciprocal opportunities offered by India ~\$114 billion; limited to non-sensitive Central entities (excludes central PSUs and State/local procurement)

G. What Was Left Out

- No investment facilitation commitment of the EFTA (\$100 bn / 15 yrs) or New Zealand (\$20 bn / 15 yrs) type
- No investor-state dispute settlement (ISDS) mechanism; India cancelled most BITs in 2017 and prefers domestic arbitration
- No concessions obtained on the UK's upcoming Carbon Border Adjustment Mechanism (CBAM)

COMPARISON: TARIFF LIBERALISATION AT A GLANCE

Aspect	UK Offer to India	India Offer to UK
Immediate duty-free / reduced	96.8% of tariff lines (~97.7% value)	30.3% of trade value
Additional under quota / phase-out	2% lines (1.8% value)	47% phased + 12.1% quota
Total coverage (approx.)	~99% of Indian exports by value	~89-90% of UK exports by value
Sensitive sectors protected	-	Agriculture (esp. dairy), certain manufactures
Notable firsts	Near-complete market access	First auto tariff reduction by India in an FTA

Update

- CETA + DCC formally entered into force on 15 July 2026 after resolution of a last-minute steel-safeguard hurdle. UK had planned to cut duty-free steel quotas by 60% and raise over-quota tariffs to 50% from 1 July 2026; after bilateral talks (including on G7 sidelines), India secured expanded country-specific and residual quotas covering the bulk of its steel exports duty-free.
- On Day 1, India flagged off >50 consignments worth >\$140 million from 20+ locations under preferential tariffs.
- Long-run official projections: bilateral trade +£25.5 billion p.a.; UK GDP +£4.8 billion; Indian GDP +£5.1 billion.
- Target: bilateral trade of \$100 billion by 2030 (from ~\$50-60 billion range recently).



- Steel outcome (post-negotiation): India received enhanced country-specific quota plus a large share of the residual/Authorised Use Scheme quota, enabling >1.1 million mt of steel products duty-free annually under the combined framework.

Static-Dynamic Linkage (UPSC Syllabus)

- Prelims: International trade agreements; India's FTAs; WTO principles (MFN, national treatment, SPS/TBT); government procurement; social security coordination; carbon border measures.
- Mains GS-2: Bilateral relations (India-UK); effect of policies of developed countries on India's interests; international institutions & agreements.
- Mains GS-3: Indian economy - trade, industrial policy, MSMEs, services exports, employment; infrastructure & investment; environmental dimensions of trade (CBAM); inclusive growth.

Analysis - Significance, Implications & Challenges

Significance

- Reflects India's more mature FTA strategy: deep market access for competitive sectors while protecting sensitive ones, unlike the ASEAN experience where the trade deficit widened sharply (\$10 bn in 2017 to nearly \$44 bn in 2023).
- Strengthens integration into high-income value chains and supports services/IT mobility-key engines of India's growth.
- DCC is a concrete win for the large temporary Indian professional workforce in the UK.
- First Indian FTA to open automobile imports under quota, signalling calibrated openness in a politically sensitive sector.

Implications

- Export competitiveness expected to rise in labour-intensive sectors (textiles, leather, gems, marine, engineering). Benefits will be uneven; larger firms with compliance capacity stand to gain more than MSMEs.
- UK gains meaningful access for whisky, cars and professional services; Indian consumers may see lower prices on these items over time.
- Government procurement opening creates two-way opportunities but is carefully ring-fenced.

Challenges & Criticisms

- Non-tariff barriers (SPS, TBT, sustainability standards) may prove more restrictive than tariffs for MSMEs lacking documentation capacity.
- Historical under-utilisation of FTAs due to low awareness, cumbersome procedures and high compliance costs remains a risk.



- India's carbon-intensive exports face future pressure from UK CBAM (no concessions secured).
- Absence of investment commitment and ISDS may limit FDI inflows relative to EFTA/New Zealand templates.
- Merchandise surplus with the UK could narrow if UK's relatively price-inelastic exports (luxury vehicles, etc.) grow faster than India's price-sensitive exports.
- Steel-safeguard episode illustrated how unilateral non-tariff measures can dilute negotiated market access even after signature.
- Overall, success hinges on converting market access into actual market share through improved regulatory administration, IP protection, dispute resolution, and firm-level competitiveness.

EXAM ALERT - High-Stakes Facts & Common Traps

- Entry into force date is 15 July 2026 (not the July 2025 signature date).
- UK grants ≈99% duty-free/ preferential access for Indian goods; India opens ≈89-90% for UK goods - the asymmetry is deliberate and frequently tested.
- DCC exemption is 5 years (raised from 3); covers temporary workers only; does not create UK State Pension entitlement for Indian detachés.
- First Indian FTA to reduce automobile tariffs (under quota) - a common 'firsts' question.
- No investment facilitation package and no ISDS - contrast with EFTA TEPA (\$100 bn) and India-NZ FTA (\$20 bn).
- Steel safeguard quotas were a post-signature hurdle resolved before entry into force; figures on exact quota volumes vary slightly across sources - treat as 'reported variably'.
- UK CBAM remains outside the deal; India obtained no specific carve-out.
- Commerce Secretary called CETA the "gold standard" of India's FTAs - useful for quote-based questions.

DO YOU KNOW?

- India cancelled virtually all its Bilateral Investment Treaties in 2017 and now prefers domestic dispute resolution - a key reason ISDS is absent from recent FTAs.



- Under UK law, social-security benefits generally require 10 years of contributions; most Indian professionals return before eligibility, making DCC especially valuable.
- ASEAN FTA experience is the classic cautionary tale taught in Indian trade policy: large and growing deficit after liberalisation.
- CETA contains 30 chapters - unusually broad for an Indian bilateral deal (digital trade, gender, labour, environment, innovation).
- Indian suppliers will enjoy Class-I local-supplier preference in the UK while UK firms are restricted to Class-II status in eligible Indian central tenders.

QUICK REVISION

- India-UK CETA + DCC entered into force 15 July 2026 (signed July 2025 / Feb 2026).
- UK: ≈99% preferential access for Indian goods; India: ≈90% for UK goods, with auto quotas and sensitive-sector protection.
- DCC: 5-year dual-contribution relief for temporary Indian workers (≈75,000 beneficiaries).
- Notable omissions: investment commitment, ISDS, CBAM concessions.
- Strategic takeaway: mature balancing of liberalisation and domestic sensitivities; success depends on utilisation, compliance capacity and converting access into share.

Possible PYQ Angles

1. India recent FTAs mark a departure from earlier agreements such as ASEAN. Discuss with reference to CETA.
2. Examine the significance of the Double Contribution Convention for Indias services exports and professional mobility.
3. Non-tariff measures can nullify tariff concessions. Illustrate with the India-UK steel episode.
4. Compare the investment and dispute-settlement provisions of India-UK CETA with the India-EFTA TEPA.
5. How can India maximise gains from market-access agreements while protecting MSMEs? (GS-3)

Current Affairs at a Glance

Parameter	Detail
Agreement	India-UK Comprehensive Economic and Trade Agreement (CETA)



Companion Pact	Double Contribution Convention (DCC)
Signed	CETA: 24 July 2025; DCC: 10 Feb 2026
Entry into Force	15 July 2026
UK Access for India	≈99% of exports preferential / duty-free
India Access for UK	≈89-90% of trade value liberalised
DCC Duration	5 years (temporary workers)
Projected Trade Boost	+£25.5 bn p.a. (long run)
GDP Impact (est.)	UK +£4.8 bn; India +£5.1 bn p.a.
Trade Target	\$100 bn bilateral by 2030
Key Omissions	Investment package, ISDS, CBAM relief
Strategic Note	Mature, balanced approach vs earlier FTAs

PRINCIPAL PURPOSE TEST

Why it matters

India has amended its tax treaty with Sri Lanka to tighten loopholes in double taxation avoidance and to curb revenue leakage by preventing treaty abuse. The intention for amending the pact has been to eliminate double taxation without creating opportunities for non-taxation or reduced taxation through tax evasion or avoidance through treaty-shopping arrangements. The amended treaty between the two countries has included the Principal Purpose Test (PPT). In this context, let's know what PPT is.

Core Concept:

— An anti-avoidance tool, the PPT ensures denial of benefits under a double taxation avoidance agreement (DTAA), where it is reasonable to conclude that one of the principal purposes of an arrangement or transaction was to obtain a benefit, directly or indirectly, under a treaty unless the granting of the benefit was in accordance with the object and purpose of the treaty.

— The PPT is intended to ensure that DTAAs apply in accordance with the objects and purpose for which they were entered into, that is, to provide benefits in respect of bona fide exchange of goods and services, and movement of capital and persons.

— Tax authorities will now be empowered to examine the commercial intent behind an investment structure and deny treaty benefits if obtaining a tax advantage is considered one of its principal purposes, unless the arrangement is consistent with the treaty's object and purpose.

Do you Know?

The 'Multilateral Convention to implement tax treaty related provisions to prevent Base Erosion and Profit Shifting' (MLI) entered into force for India on October 1, 2019



Base erosion and profit shifting

— According to the official website of OECD, domestic tax base erosion and profit shifting (BEPS) relates to tax planning strategies of multinational enterprises that exploit the loopholes in tax rules to artificially shift profits to low or no-tax locations as a way to avoid paying tax.

— The OECD/G20 BEPS Project equips governments with rules and instruments to address these issues of tax avoidance by ensuring that profits are taxed where economic activities generating them take place and where value is created.

WILL INDIA'S PLASTIC NOTES BE A BETTER ALTERNATIVE?

India, which is among the five largest economies of the world, is still toying with the idea of introducing plastic currency, three decades after Australia put in place a full series of its denominations and as many as 60 nations use such currency in some form.

Early this month, the Reserve Bank of India's (RBI) currency printing arm invited global Expressions of Interest for supplying polymer substrates with embedded security features, signalling its most concrete step towards implementation since the original 2009 proposal.

Plastic banknotes, which last 2.5 to 4 times longer than cotton-paper notes, depending on denomination, need highly specialised biaxially oriented polypropylene — derived from petroleum and natural gas, a sector with direct correlation to environmental concerns.

Although polymer currency offers an opportunity to modernise cash management by enhancing durability, reducing lifecycle costs and strengthening security, apprehensions concern production cost as some calculations project that it can approach or even exceed the face value of low-denomination notes. Many countries found that the production cost alone was 20–24% of the currency's value for low denominations.

The supporters of plastic currency nevertheless say lower replacement frequency can justify the higher production cost. ₹10 and ₹20 notes see the highest frequency of handling and physical deterioration, leading to disproportionately high replacement costs.

Large savings

Polymer notes could potentially deliver large lifecycle savings in these lower denominations, even though they are not the largest by value since the ₹500 note has consistently been the single most widely circulated denomination in India over the last five years, both by volume and by value, as per RBI annual reports.

Sustainability concerns centered around higher initial carbon footprint, plastic waste disposal and the need for specialised recycling facilities even as a previous study commissioned by the RBI and conducted by The Energy and Resources Institute found that the extended circulation lifespan will stand in good stead as fewer notes would need to be manufactured and transported over time, giving polymer a smaller overall carbon footprint than paper.

Key queries

The logic behind RBI's latest move to revive the plastic currency comes at a time when India the country is fast going less cash-intensive and digital transactions expanding exponentially. While



the stand of both the RBI and the government may seem justifiable, some certain queries stay remain unanswered.

Why should India invest heavily in plastic currency, most importantly when there is due to the volatility in petrochemical prices owing to the West Asian crisis-led global disruptions. Since polymer is derived from polypropylene, fluctuations in crude prices could increase manufacturing costs of plastic currency over time.

India is dependent on imports for polypropylene, which constitutes for roughly a fifth of domestic consumption even as major domestic players as Reliance Industries and Indian Oil Corporation are undertaking major capacity expansion aimed at scaling capacity significantly by 2030.

Secondly, why at a time when digital payments are booming? The Unified Payments Interface (UPI) now processes more than 24,000 crore transactions annually, accounting for 85% of retail digital payments, while currency-to-GDP ratio (the percentage of total cash in circulation relative to GDP), which had hit a low of 8.7% in two decades during demonetisation in 2016-17, has stayed above 11%, reflecting a structural shift in payment behaviour.

The monetary system's dichotomy or currency demand paradox, as coined by the RBI, showed UPI grew exponentially amid steady growth in currency in circulation, which exceeded ₹41 lakh crore by 2025-26 against ₹16-17 lakh crore a decade earlier. This apparently could be due to informal sector and low digital acceptance in rural pockets where digital connectivity is poor.

Cost curve

In India, data on the cost of printing banknotes is not available per denomination but the RBI provides the cost of security printing as part of its income statement in the annual reports, which show that the aggregate expenditure on printing currency was ₹5,101 crore in FY2023-24, ₹6,373 crore in FY2024-25 and ₹4,875 crore in FY2025-26. Moreover, India reportedly spends almost ₹5,000 crore annually to replenish and maintain its stock of banknotes and destroys 20-24 billion soiled notes a year, most of them lower denominations, under its Clean Note Policy.

Polymer banknotes typically cost 30–60% more to manufacture than traditional cotton-paper notes as they use specialised polypropylene substrates, transparent windows, sophisticated anti-counterfeiting features and complex printing technologies.

Added to these costs, ATMs, currency sorting machines, vending machines and banknote processing equipment may require recalibration to handle polymer notes. Commercial banks, cash logistics firms and retailers would incur transition costs initially.

A research paper in the International Journal of Economics found the cost almost doubled in lead up to the period of demonetisation (2016), driven by the printing and issue of two new series of banknotes (₹500 and ₹2,000) to replace all prior series of the same denomination in circulation. Since demonetisation, ₹200 has also been issued, leading to an increase in the cost of printing banknotes.

Average cost per note printed, it noted, follows a similar pattern, rising from ₹1.5 pre-2016 to ₹2.7 during demonetisation and resettling to pre-demonetisation levels as of 2019 suggesting marginal costs of printing currency in India may not always decrease with increased supply.

Historical perspective



RBI first mooted in 2009 to introduce 100 crore ₹10 polymer banknotes. In 2012, the Ministry of Finance informed the Parliament the notes would be introduced on a pilot basis in five cities — Kochi, Mysuru, Jaipur, Bhubaneswar, and Shimla, selected for diverse climatic conditions.

The primary objective was to increase the shelf life but the project was shelved due to technological challenges.

In 2013 and 2014, the Parliament was informed that the Government remained committed to the pilot project, after which the project apparently went silent because of demonetisation and its appurtenant costs, including in printing new series.

What next?

Bharatiya Reserve Bank Note Mudran has now invited eligible domestic and international manufacturers to submit bids by August 18 for manufacturing opacified polymer substrate sheets designed for banknote printing.

RBI Governor Sanjay Malhotra had last month confirmed that polymer currency was again under active consideration.

As India moves towards a digital rupee and deeper financial digitisation, the long-term demand for physical cash may expand slowly, potentially reducing the economic justification for large-scale polymer adoption.

A currency is efficient only when its production and maintenance costs remain a small proportion of its purchasing power. It is not about choosing between paper and plastic; but about designing a smarter, more efficient cash ecosystem in an economy where over ₹41 lakh crore worth of currency remains in circulation despite the UPI revolution.

INDIA'S ICI GETS AN UPDATED SERIES: WHAT HAS CHANGED?

The story so far:

The Union Government has released an updated series of its Index of Core Industries (ICI), which is a key measure of how the main industrial sectors in India's economy are doing. This update now brings the ICI on a par with other recently updated metrics such as the national accounts (Gross Domestic Product and Gross Value Added), inflation, and the Index of Industrial Production (IIP).

What are the key changes in the new ICI series?

The previous ICI had a base year of 2011-12, which was significantly outdated. So, the first major update of the new series of the index was to bring forward the base year to 2022-23. This makes the data more reflective of current reality, and thus makes it a more useful gauge of industrial activity.

The second major change was to increase the number of sectors covered to nine from the previous eight. The eight sectors earlier covered were coal, crude oil, natural gas, refinery products, steel, cement, electricity, and fertilizers.

Now, the government has said that owing to the intensive use of iron ore in industrial production, it has been added to the list of core industries.



Other sectoral changes include calculating steel production on a gross output basis rather than a net output basis so as to bring this in line with the IIP, which is the other major industrial production metric.

In the coal sector, the updated series will only measure raw coal, and has excluded middling and washed coal. This change was made to eliminate the double counting that occurred in the previous series, as both middling and washed coal are made using raw coal.

Which sectors have gained or lost weight in the new ICI?

The inclusion of the iron ore sector and the resultant increase in the total number of sectors to nine would naturally lead to a redistribution of the weights among the sectors. Further, according to the government, it has revised the weights in the new series of the ICI to reflect the weights of the same sectors in the IIP.

Both of these factors have led to a significant redistribution of weights among the sectors of the ICI. The newly added iron ore sector has been assigned a weight of 4.905% in the index, leaving that much less of the total share to be distributed among the other sectors.

The coal sector has seen a big downward revision in its significance, with its weight coming down from 10.33% to 5.596%. The natural gas sector, too, saw a major downward revision from 6.88% to 3.841%. Refinery products saw its weightage reduced from 28.04% to 22.572%.

Some sectors increased in significance. The electricity sector, for example, now makes up 30.932% of the entire index, up from the earlier 19.85%. The fertilizers sector saw its weightage increase marginally to 2.731% from 2.63%.

Have these revisions changed the final growth picture?

There is certainly a difference in the data output generated from the old series and the new series for the same periods of time. However, these variations become smaller when scaled up over time and as you move further back. That is, while the May 2026 growth of the ICI has been revised from 0.5% as per the old series to 3.2% in the new series, the full-year growth for 2025-26 was only revised from 1.1% to 1%.

Hence, just because the series has been updated, it does not mean the industrial growth picture has radically changed.

WHY INFLATION IS RISING IN INDIA

Inflation, except during the COVID-19 pandemic, has remained relatively low in India for over a decade. But it is back with a bang. Wholesale Price Index (WPI) inflation is hovering close to 10% in June. After remaining low — negative, or close to 0 — until December last year, the climb started with a sharp jump since March this year.

Even those with only a fleeting connection to economics believe that prices rise when demand outpaces supply (overheating), and vice versa. But is that really the case?

Before we go into the causes, let us look at what contributed to this rise in WPI inflation in the first place. The WPI is a weighted average of three sub-categories of commodities: primary articles (food, minerals, etc.), fuel and power and manufactured products. The contribution of each to total WPI inflation. The latter two — the orange and the red bars — have contributed to this dramatic



jump in recent months. Fuel and power prices require little explanation as they are determined by oil prices purchased from abroad and are essentially imported prices. However, primary commodity and manufactured product prices need to be understood.

Structural differences in pricing

The Polish economist Michal Kalecki argued that while primary commodity prices are demand-determined, industrial prices are cost-determined. In other words, inflation of industrial commodities is not determined by a demand and supply mismatch. Come to think of it, this is commonsensical if you leave aside the quintessential demand-supply curves out of your head. After all, prices of cars, cycles, or toothbrushes do not fluctuate with a change in their demand. If more cars are demanded, more are produced and supplied to the customer instead of increasing the price. Prices of tomatoes or mangoes, on the other hand, vary quite significantly with a mismatch between demand and supply.

Viewed this way, the demand and supply curves need to be reconstructed. For primary commodities, supply is virtually fixed, represented by a vertical curve on the quantity axis, whereas demand follows the usual downward sloping curve. A decline in supply (shifting of the supply curve in panel (a) to the left) will increase its prices. In the case of food, for example, a bad monsoon will affect production adversely, thereby decreasing supply and increasing its prices. A good monsoon, on the other hand, will bring the prices down. Inflation here is demand-pull.

For the manufactured commodities (panel (b)), the supply curve is flat, which means a rise or a fall in demand (shifting of the demand curve) will bring about an equivalent supply of such commodities with no change in their prices. Again, the reason is simple. Most such commodities, except in cases of supply constraints, are produced in factories that run below capacity, so an increase in their demand simply increases their production. Demand here, quite opposite to the earlier case, has no role to play in determining their prices. Prices are determined instead by the cost of production. The supply curve is nothing but a profit markup over the cost (the vertical difference between supply and cost is the profit markup). A rise in the costs would push the cost curve up, and, unless the capitalists want to absorb this rise in cost through a lower markup, this would get passed on as higher prices in the market. Inflation here is purely cost-push.

What happened in the Indian case?

Having seen this difference, let us apply this idea to the inflationary problem currently facing India. If manufactured prices are cost-determined, what do their costs depend on? While wage cost is an important component of total costs, it is usually not the factor that pushes prices up because Indian workers do not really have space to bargain for higher wages. In other words, Indian workers are mostly price-takers; they make do with what they get. It is the material costs instead, which create the inflationary impulse.

One of the most important materials used in the production of any industrial commodity is oil. If we plot the movement of fuel and power against the manufactured prices, we can see almost a one-to-one correspondence between the two. A rise in fuel and power prices raised the manufactured inflation as well.

Food prices, too, have risen. One likely reason is the adverse impact of an inadequate monsoon, as a result of the El Niño effect, on agricultural production this year. In every instance, drought conditions were accompanied by a significant rise in food inflation, much in line with the Kaleckian structuralist idea. To be sure, there have been instances in which food price inflation



has taken place even in the absence of such supply shocks. These could perhaps be the years of high demand. Suffice to say that a drought is a sufficient, even if not a necessary, condition for food prices to soar.

What is to be done?

Given these structural differences, can something be done to control inflation? Let us start with the food prices. We believe food prices need to be decoupled from the vagaries of nature to the extent possible. That India solely depends on the rain gods to feed its population is in itself quite unscientific and an anachronism in the modern era of technology. The country must invest heavily in agriculture, particularly in irrigation infrastructure, which is not entirely dependent on the monsoon.

As for manufactured goods, controlling fuel and power costs, when crude oil prices are rising, may be difficult, but there are still ways that they can be controlled. Instead of the ill-thought-out inflation targeting framework, the government should apply a countercyclical indirect tax policy to keep fuel and power prices in check. If the government can reduce the customs and excise duties when crude prices soar, the cost at the pump can be controlled. In fact, this is exactly what the government did a few months ago, which is why pump prices were held constant despite soaring crude prices in the international markets. Unfortunately, the government has withdrawn this measure, which is one of the primary reasons WPI inflation has risen sharply.

WHAT EPFO 3.0 PROPOSES: PENSION COVER FOR ALL, SOCIAL SECURITY FOR GIG WORKERS

A universal pension cover for all workers with option of either annuity or systematic withdrawal plan, first-time social security contributions for unorganised sector workers including gig and platform workers, an upgradation of tech ecosystem to incorporate core banking solution (CBS) — these are some of the key changes being planned by the Employees' Provident Fund Organisation (EPFO) as part of its 3.0 reforms phase.

Key Takeaways:

- Over the last one year, the retirement fund body has worked on improving access to funds and easier claims settlement under EPFO 2.0, which has now taken shape in the form of a revamped portal with a centralised database merging 123 regional databases ensuring timely interest credit and visibility of eligible balance for withdrawal to members.
- The EPFO is now set to move towards the next phase of reforms through a CBS-enabled tech platform, a shift that has been seen as necessary to help it navigate payments for social security schemes covering the complete range of India's workforce — over 60 crore workers, out of which over three-quarters are in the unorganised sector, with limited or no pension coverage.
- CBS is a centralised payments software which forms the backbone of banks in India allowing operations like deposits, withdrawals, in real time across all branches.
- The new pension cover will have a defined contribution framework with contributions from multiple sources including workers themselves, employers, government co-contributions for lower-income workers, aggregators in the case of gig and platform workers, and corporate social responsibility (CSR) or third-party funds. This is the first time that the EPFO is considering such forms of contributions or withdrawals at the time of retirement: presently, it only allows advance



claims or partial withdrawals for certain categories such as education, illness, housing, and marriage during the membership tenure, or a lumpsum final settlement at the time of retirement.

Do You Know:

- Global models are being studied to incorporate similar features such as that of Singapore, which has a deferred annuity scheme that sets aside savings not just for retirement but also for housing and healthcare.
- Singapore's social security scheme, Central Provident Fund (CPF), relies not just on individual CPF contributions for the retirement income as apart from a contribution of 20% of the salary to CPF, individual efforts are supplemented by employers, loved ones, and the government, as per the information on the Singapore government website. Unlike pension schemes in other countries, CPF members have a differential interest rate, with members earning an interest of up to 6% for those aged 55 and above, and 5% for those aged below 55.
- As the EPFO expects around 2.5 crore gig workers and building and other construction workers (BOCW) over the next five years, the pension scheme is also being designed keeping in mind their inclusion into social security coverage for the first time. The scheme will incorporate "one-to-many mapping" where one Universal Account Number (UAN) will be registered with multiple employers and aggregators, showing total PF and pension contributions from all sources for these workers while maintaining their employer-wise breakdowns.
- The EPFO system plans to allow third-party contributions like NGOs, individuals, donor organisations, CSR, and track all contributions under each UAN with a configurable upper limit. The new pension initiative would operationalise this through flexible co-contribution models, ensuring inclusion of delivery partners, drivers, and other platform workers.
- The EPFO 3.0 phase will also pave the way for PF contributions for all unorganised sector workers and gig workers, in line with the Code on Social Security that brings gig and platform workers into the social security net for the first time. The Code mandates aggregator contributions of 1-2% of annual turnover for social security, with the total contribution not exceeding 5% of the amount payable by the aggregator.

CAN BIOGAS AID INDIA'S ENERGY SECURITY?

Tensions in West Asia continue to keep global energy markets on edge. India imports nearly 85% of its crude oil needs, much of it from West Asia, and supplies faced disruptions due to the Israel-U.S.-Iran war. While the government has diversified its crude oil suppliers, around 90% of India's LPG imports still transit through the Strait of Hormuz, making any instability in the region a potential risk to India's energy security.

Over the years, India has pushed several initiatives to promote alternate fuels like compressed biogas to reduce dependence on imported fuel, tackle agricultural waste and support rural incomes. But despite ambitious targets and policy support, progress has remained limited.

The search for an alternative fuel

Biogas is a mixture of methane, CO₂ and small quantities of other gases produced by anaerobic digestion of organic matter. It can be processed and compressed to get Compressed Biogas (CBG).



It is chemically identical to CNG; renewable, carbon-neutral and can be produced from waste. It can be used directly to produce electricity, heating or as an energy source for cooking.

India has also been trying to blend biogas into its gas supply for at least a decade. The push gathered pace in 2018, when the Sustainable Alternative Towards Affordable Transportation (SATAT) initiative was launched with a target of establishing 5,000 plants by 2023. Only 132 are completed as of June 3, 2026.

The Centre launched the GOBARdhan (Galvanising Organic Bio-Agro Resources Dhan) scheme to increase CBG production. Under this 'waste to wealth' programme, the government offered grants of up to ₹50 lakh per district for community biogas plants. ₹564 crore was earmarked for the purchase of biomass collection machinery, while ₹994 crore was allocated to build pipelines connecting biogas plants directly to the gas grid.

However, progress on the ground has remained limited. The lack of infrastructure, poor private investment, difficulties in accessing formal credit and high upfront cost of technologies have stalled progress. Financial support from the government can make biogas projects economically viable. Other incentives, like accelerated depreciation and tax holidays, would also help attract private players.

Impact on cultivation patterns

The development of biogas has been uneven across the world, with Europe, China and the United States accounting for 90% of global production.

Germany is one of the largest producers in Europe, along with France, Denmark and the U.K. The fillip for the sector came in 2000, when Germany introduced the Renewable Energy Sources Act to incentivise production. Over the years, it introduced schemes to guarantee income to producers, gave bonuses to help operators increase their income and encouraged small-scale biogas plants. However, the country's push for biogas triggered a "corn mania", with maize cultivation rising sharply because it was highly profitable for farmers. Maize slowly started to replace other food crops. Over a decade later, the government was forced to step in and control this by introducing a cap on the use of maize in biogas plants.

This danger hits close to home. The Economic Survey 2026 noted that maize cultivation in India has increased sharply, potentially affecting crop diversity and food security. It noted that while the national maize yield increased from approximately 2.56 tonnes per hectare in FY16 to roughly 3.78 tonnes per hectare by FY25, the yields for soybeans, sunflower, rapeseed, peanuts and millets, among other crops, have either stagnated or declined.

While this trend could be attributed to technological advancements, ethanol pricing can be an important factor.

The government fixes administered per-litre ethanol prices based on the feedstock used. The price for maize-based ethanol is higher, while the price for rice-based ethanol is lower. The price for molasses-based ethanol is fixed between the two. Between FY22 and FY25, the administered price of maize-based ethanol grew at a compound annual growth rate (CAGR) of 11.7%, making maize more lucrative for farmers.

While maize's area under cultivation and production jumped between FY22 and FY25, pulses output declined, while oilseeds and other cereals registered only modest growth.



India imports large quantities of pulses and edible oils to meet demand. Yet, instead of focusing on increasing production, the government's policy might inadvertently disincentivise farmers from cultivating them. Over time, this could increase India's dependence on imports and expose domestic food prices to greater volatility during supply shocks.

Denmark, which is targeting to use only biomethane in its gas system by 2030, offers a solution. The government discouraged the use of crops as feedstock, and the primary source is livestock manure and agricultural waste.

Government's action plan

In 2023, the National Biofuels Coordination Committee approved a mandatory blending obligation. Gas distributors have been mandated to blend CBG into their supply from FY26. It would start at 1% and rise to 5% by FY29. In her Budget speech in February 2024, Finance Minister Nirmala Sitharaman said the phased blending of CBG in CNG for transport and Piped Natural Gas for domestic purposes "will be mandated."

To meet these targets, the government is ramping up the establishment of plants.

The question is whether the government can replicate India's ethanol blending programme with CBG. In 2014, just 1.5% of petrol was blended with ethanol. By December 2025, it had hit 20%, five years ahead of the original 2030 target.



DreamIAS



LIFE AND SCIENCES

BETA PICTORIS B: HIDE AND SEEK

Astronomers have discovered a faint, elusive planet orbiting a young star after more than a decade of cosmic hide-and-seek. In an unusual twist, two groups working independently detected the cold gas giant a few days apart late last year using different telescopes. It's the dimmest planet ever directly imaged from earth, scientists said.

A Scottish and German-led team spied the new planet around the star Beta Pictoris using the European Southern Observatory's Very Large Telescope in Chile, then dug through archives to confirm its orbit. The planet had remained hidden in the data all this time, overshadowed by its considerably brighter star and two companion planets. Beta Pictoris is located in the easel-shaped southern constellation Pictor and 63 light-years from earth.

A California-led team made the discovery with NASA's Webb Space Telescope. Two observations were all it took with Webb, the biggest telescope ever launched into space. Both teams reported their findings in the *Astrophysical Journal Letters* on July 15.

Each team was studying one of the star's already identified planets when they spotted a less massive one 100-times fainter lurking farther out. They deliberately kept their work from one another so as not to bias the results.

The new planet is slightly bigger than Jupiter and takes 91 years to orbit its star, a little longer than it takes Uranus to orbit our sun. Born into a star system barely 20 million years old, the planet is probably similar to a much younger Jupiter, said the University of California San Diego's Aidan Gibbs, who led the second team.

ARE SMARTPHONES BECOMING SMARTER WITH THE RISE OF ON-DEVICE AI?

The transition of Artificial Intelligence (AI) from the cloud to the local device, often called on-device AI, is arguably the most significant shift in the smartphone industry since the inception of the app ecosystem. For over a decade, consumer AI has been synonymous with the cloud: when you asked a question to an assistant, your data travelled across the globe to a massive data centre, was processed, and then sent back to your device. Now, users are witnessing a seismic shift. Intelligence is moving from remote servers to the silicon residing in their handheld devices.

What is on-device AI?

On-device AI refers to the processing of machine learning algorithms and generative AI models directly on the smartphone's local hardware. Instead of relying on a constant connection to a remote server, the device performs the computation using dedicated silicon, primarily Neural Processing Units (NPUs).

In 2026, this is no longer a fringe feature; it is becoming the foundation of how premium smartphones function. Whether it is real-time language translation, advanced computational photography, or proactive system optimisation, on-device AI handles these tasks locally. The implications for the user experience are profound with faster response times, privacy and crucially, the ability to function without an internet connection.



How has the hardware changed?

The shift to on-device AI has been fuelled by rapid advances in specialised hardware, particularly the NPU. Unlike general-purpose CPUs or graphics-heavy GPUs, NPUs are purpose-built to handle the mathematical heavy lifting required by neural networks.

In recent years, breakthroughs in semiconductor technology have allowed for the integration of these powerful chips into mainstream consumer hardware. As a result, generative AI features that were previously thought to be impossible to run on a mobile phone such as live voice-to-voice translation or generative photo editing, are now running natively.

This has made the smartphone an intelligent, proactive companion as the device is now capable of system-wide integration, where the AI can understand the user's workflow, analyse intent and act on their behalf across different applications.

What is the most important benefit from on-device AI?

Perhaps the greatest advances of on-device AI are the easing of tension between personalisation and privacy. To provide a customised experience, AI needs massive amounts of personal data, including financial and health metrics, calendar schedules and behavioural patterns.

Under a cloud-only model, users are understandably hesitant to share their most intimate details that will be processed on remote servers. On-device AI solves this by turning the smartphone into a black box of personal intelligence. Because data never leaves the hardware, user confidence grows. The device learns from the user locally, creating a bespoke experience that improves with every interaction, without ever compromising the individual's digital footprint. This is the holy grail of user experience: having a phone that understands you intimately while keeping that understanding entirely to yourself.

What are some of the challenges in adopting on-device AI?

Despite the rapid infusion of powerful hardware, a significant gap remains between a device's capabilities and a user's adoption. Industry analysts suggest that while flagship smartphones offer an impressive suite of tools like proactive writing assistance, intelligent summarisation and real-time call translation, these features have yet to trigger a super-cycle of upgrades.

For most consumers, current AI features are perceived as nice-to-have enhancements rather than essential utilities. This reveals a critical challenge for manufacturers as they must move beyond marketing standalone AI features and integrate the technology so deeply into the system's workflow that the smartphone becomes truly indispensable.

Furthermore, there is a technical limitation. While on-device AI is incredibly efficient, it has physical constraints. It cannot yet match the sheer scale and raw power of cloud-based large language models. The industry is therefore converging on a hybrid application model. In this ecosystem, the heavy lifting, such as processing massive, multi-modal datasets, remains in the cloud, while sensitive and time-critical tasks migrate to the edge.

What is the future of on-device AI?

The smartphone industry is undergoing an identity shift. The focus has shifted from physical specifications, like the thinness of a bezel or the pixel count of a camera, to the sophistication of the AI models powering the device.



The game is now in smartphones that are powered by AI with deep, system-wide integration, that allows agents to navigate multiple applications, understand context and achieve goals on behalf of the user. As hardware becomes increasingly homogenised across brands, the soul of the smartphone will be defined by its intelligence.

The bridge to that future is on-device AI, transforming a generic piece of glass and silicon into a truly personal, private, and proactive companion. The challenge for the coming year will be to see if these devices can move from being impressive technical demonstrators to essential assistants that the average user relies on every single day.

MAKING SENSE OF EMBODIED AI: THE NEXT FRONTIER IN ROBOTICS

On April 14, Boston Dynamics and Google DeepMind announced that Spot, the yellow-colour robot dog that spent most of its life running narrowly scripted routines, is getting an AI brain. Gemini Robotics-ER 1.6 is being folded into Spot and into Boston Dynamics' Orbit inspection platform, giving both stronger spatial reasoning, autonomous decision-making, and the ability to keep learning inside complex industrial sites.

Spot's hardware has been good for years, but the intelligence needed to make it useful in a messy factory, without a human driving it frame by frame, is only arriving now. That gap — between a machine that can move and a machine that understands what it is moving through — is exactly what a decades-old field called embodied AI has been trying to close.

What 'embodied' actually means

The easy mistake is to think embodied AI just means "AI in a robot body." The deeper claim by experts working on this field is that a body is not a delivery mechanism for intelligence, but a part of the computation itself.

In their book *How the Body Shapes the Way We Think*, Rolf Pfeifer, longtime director of the Artificial Intelligence Laboratory at the University of Zurich, and Josh Bongard, computer science professor at the University of Vermont, argue that thought is not independent of the body but is tightly constrained, and at the same time enabled, by it.

Pfeifer has worked extensively on building physical robots to test behaviours that emerge from the body's design and look for results that tell something about intelligence in general.

Australian roboticist Rodney Brooks, who wrote the foreword for the book and whose own work at MIT in the late 1980s and 1990s made the case even more provocatively, asserting against the dominant symbolic-AI paradigm of the time, that robots didn't need internal world-models and elaborate planning to act intelligently. A layered "subsumption architecture" of simple reflexes, tightly coupled to sensors and motors, could produce robust, real-time behaviour without anyone programming a representation of the world at all.

You don't need to build an abstract map of a room if your sensors and body can just react to the room as it actually is, moment to moment. Practically, this plays out as "morphological computation" — offloading work that would otherwise require a brain, onto the physical structure of the body.

A passive-dynamic walker can stroll down a slight incline with no motors or control system at all, purely because the leg geometry and joints are shaped to do the computing. A soft, compliant



robot hand can grasp an oddly shaped object without a controller that has explicitly modelled that shape, because the material itself deforms and adapts.

A common thread connecting Pfeifer's Zurich lab, Brooks's robots, and today's humanoids is that intelligence is distributed between brain, body, and environment, not confined to just one part.

Why this matters now, and why it's hard

The current wave of interest is precisely about discovering how hard that distribution problem is at scale. Unlike the AI chatbots that learn from texts, images, and videos, embodied AI must master gravity and balance, which are profoundly difficult because of the countless physical scenarios a robot must face and the "simulation-to-real gap," where success in simulation rarely translates perfectly to the real world.

Industry data bears this out starkly. Though the embodied AI market is projected to reach \$23 billion by 2030, most humanoid robots still last only about 90 minutes on a charge, and policies that succeed 95% of the time in the lab drop to roughly 60% in the real world. The gap between demo and deployment is the field's central, unglamorous problem.

Embodied AI vs. neuromorphic AI

In common discussions, people tend to conflate embodied AI with neuromorphic AI as both take biology seriously. But they answer different questions.

Embodied AI is about where intelligence lives. The field views cognition distributed across brain, and body, meaning computational work is not fixed to the brain. It is largely agnostic about what kind of processor sits inside the robot; you could run an embodied robot's "brain" on an ordinary GPU cluster.

Neuromorphic AI is about how the processor itself is built — it is a hardware and algorithm paradigm that tries to mimic the physical mechanics of biological neurons, most commonly through spiking neural networks (SNNs).

SNNs operate through discrete spikes: each neuron integrates incoming signals and fires only when a threshold is exceeded, which makes them well suited to time-sensitive tasks like motion sensing. Neuromorphic chips are also notably power-efficient, since only the neurons actively spiking consume energy at any given moment.

The two areas in robotics increasingly overlap in practice as a growing body of research on "embodied neuromorphic intelligence" puts spiking, event-driven chips inside physical robots specifically because their low power draw and timely response suit real-world, always-on embodied tasks.

Where evolution comes in

If bodies do computational work, an obvious question follows: how do you design the right body for the task, instead of bolting an AI model onto whatever frame engineers have built?

This is the terrain of evolutionary computation.

Yaochu Jin, an Alexander von Humboldt Professor at Bielefeld University, makes the case that neural control and physical form should not be designed separately and then combined. Instead,



the two have to be developed together, the way biological organisms grow nervous systems and bodies in tandem.

Mr. Jin's research sits at the intersection of evolutionary algorithms, developmental biology, and computational neuroscience, focused on the interaction between evolution, learning, and artificial systems.

His research focuses on co-evolving nervous systems and morphology, and modelling how feedback from the environment shapes an organism's sensory distribution.

This matters directly for embodied AI's central bottleneck: robot bodies are frequently mismatched to the tasks and environments they end up in, and manually re-engineering hardware every time a task changes is slow and expensive.

Evolutionary methods offer a way to search body-and-brain design space automatically, letting simulated populations of robotic forms compete and replicate based on task performance before anything is built.

The unresolved problems

Even as capital and models pour into the field of embodied AI, a fairly consistent list of hard problems keeps surfacing. For instance, the gap between simulation and real-world experience in using robotic systems is still not narrow. Policies trained in simulation that can be run millions of times cheaply, degrade sharply when deployed onto real hardware.

Sophisticated reasoning models are often too slow to keep pace with a robot arm or leg that needs to react in milliseconds, forcing a split between heavy "thinking" done off-device and lighter reflexive control on it. Short runtimes due to extensive battery use and vulnerable components keep undercutting otherwise successful pilots.

These systems also lack data. Text and image models were scaled on troves of internet data; embodied systems have no equivalent. Efforts like the Open X-Embodiment dataset and Generalist AI's GEN-0, pretrained on hundreds of thousands of hours of manipulation data, are attempts to build that missing corpus. But to put these systems in real world situations they need to be trained on at least tens of millions of hours of data.

Embodied AI should be viewed as a systems challenge rather than only a software challenge as safe deployment depends on sensors, hardware robustness, operational design limits, human interaction, cybersecurity, and organisational processes, not algorithms alone. Regulators must start asking for evidence of what counts as proof for allowing learning-enabled robotics systems to be deployed in real world.

All of these problems cannot be solved by a single breakthrough. They're being chipped away in parallel with better simulators to narrow the simulation-to-real gap, larger shared datasets to address data scarcity, split "brain in the cloud, reflex on the robot" architectures to handle the speed mismatch, and slowly maturing safety frameworks to handle governance.

Evolutionary methods of the kind Mr. Jin champions add another angle to that effort.

Instead of only improving how a fixed body learns, they ask whether a different form factor would make the problem easier to solve in the first place.



Embodied AI systems have come a long way. Boston Dynamics' humanoid robot Atlas on the football field during FIFA World Cup 2026 shows how robots are able to adapt to uneven surfaces. In a separate event, on America's Got Talent Season 21, China's Unitree G1 robots performed alongside Wu Yufei, a 26-year-old Chinese dancer. Spot is now powered by an AI brain and can assist e-commerce delivery agents.

It is starting to become clear that intelligence was never just a matter of better software sitting inside better computers. It was also, at least partly, a matter of testing out new form factors. And these designs are starting to get better with advances in quadruped and avian design-inspired robots.

CONVERGENT PERILS: LUMINARIES AGAINST HUMAN ETHICS BEING OUTSOURCED TO AI

The view that artificial intelligence (AI) can pose an existential threat to humankind using technologies like nuclear weapons has been around for some years now. Last year, after examining such threats and risks, one study from the Rand Corporation, a global policy think-tank, argued that such risks could not be ruled out.

The study also went on to identify four capabilities that it said AI will have to possess in order to pose an existential threat: "(i) integration with key cyber-physical systems, (ii) the ability to survive without human maintainers, (iii) the objective to cause human extinction, and (iv) the ability to persuade or deceive humans to avoid detection."

But recent developments, including the conflicts in West and South Asia and in Eastern Europe, have kept concerns that mix nuclear weapons and AI alive.

In the absence of a specific treaty to address such a threat, on July 16, a group of Nobel laureates, AI scientists, religious leaders, and other luminaries signed the so-called 'Rome Declaration for an Unarmed and Disarming Peace'. The Declaration calls for an international treaty to ban autonomous systems from accessing nuclear launches while emphasising that the threat is also not so far-fetched.

Inspired by Pope Leo XIV's encyclical Magnifica Humanitas, which issued a "clarion call" to protect human dignity against technological overreach, the Declaration can be read more as a nudge than as an impactful push for a treaty. At present, there is no consensus among countries on what such a treaty should cover or even on banning AI with autonomous capabilities on the war front.

Principles of the Declaration

The Declaration articulates six principles (quoted verbatim):

- (i) Disarming the next arms race,
- (ii) Responsible development,
- (iii) Responsible use of AI,
- (iv) Responsible governance,
- (v) Responsible leadership, and
- (vi) Nuclear disarmament.



To these ends, it also put forth five ethical and operational principles, as follows (also quoted verbatim):

1. “Mandatory meaningful human control” — absolutely prohibiting any automated, algorithmic or AI-driven system from making the final decision regarding the use or deployment of nuclear weapons.
2. “The ‘digital commons’ model” — based on the fact that those who do not have access or control over technologies such as AI are likely to be affected more by its unintended consequences; based on this, the Declaration calls for more data for experts to better understand existential threats, including ungoverned AI.
3. “Responsible development” — a mandate for the developers of AI to publish the ethical frameworks guiding their models and explicitly forbidding the pursuit of fully autonomous and self-improving systems that cannot be monitored, audited or abruptly halted by human operators.
4. “Internal arsenal vulnerability audits” — an urgent request to the world’s nuclear states to conduct rigorous internal reviews to protect existing atomic command-and-control systems from AI-driven cyber-tampering or unauthorised algorithmic interference.
5. “Time-bound, verifiable disarmament” — a renewal of good-faith international negotiations in pursuit of completely, irreversibly, and verifiably eliminating nuclear weapons.

A necessary declaration

The Declaration is timely and commendable. To understand why, one must look past the standard anti-war rhetoric and towards the contemporary operational realities of geopolitics, military technologies, and the ways in which AI is being used. Indeed, the Declaration text well-reflects the concerns over the acute systemic crises that have been fuelled of late by several dangerous factors and growing faultlines.

For instance, the concept of ‘mutually assured destruction’ — in which opposing sides avoid attacking each other with nuclear weapons because a first strike could trigger devastating retaliation, destroying both parties — relied heavily on human hesitation, diplomatic backchannels, and moral pause. During the 1962 Cuban missile crisis and the 1983 Soviet nuclear false alarm incident involving Stanislav Petrov, disaster was averted precisely because human beings exercised caution, intuition, scepticism, and moral choice.

However, AI-driven predictive logistics and autonomous battle management systems operate at speeds that compress decision-making windows from several hours to just seconds. So when an algorithm flags what it has concluded is an incoming missile, a human operator caught in an ‘automated loop’ may not have the practical window of time required to critically verify the data, consult peers, or de-escalate.

Thus, the Declaration recognises that introducing AI into strategic command structures fundamentally replaces human judgment with computational guidance, and could eliminate the ‘safety valve’ that is human doubt and hesitation. In these scenarios, the human in the loop may also be overwhelmed with panic or uneasiness and may go with the machine’s suggested assessment.

Second, large language models and deep neural networks are plagued by well-documented failure modes such as hallucinations and data poisoning (maliciously corrupting training data to



manipulate AI behaviour). In normal circumstances, a malfunctioning algorithm may result in a corrupted image or a faulty prediction, with insufficient time to rectify that. And in a geopolitical crisis, an algorithm misinterpreting an image or a routine network ping as an imminent, clear, and major threat could automatically trigger a retaliatory sequence as the logical response. Worse, an algorithmic false positive that compresses the decision window to a few seconds to respond or decide could result in an unintentional retaliation, with unforeseen or even catastrophic consequences.

Since the reasoning of most AI models also happens within a 'black box', relying on them to guide decisions that could affect millions of lives is the anti-thesis of ethical and scientific responsibility.

Third, the global order is in deep crisis. Decades of hard-won security infrastructure — whether the Intermediate-Range Nuclear Forces Treaty, the Open Skies Treaty or New STAR — are teetering. At the same time, an uncontrolled, multipolar arms race is underway as nuclear nations actively expand or modernise their stockpiles.

In the absence of a binding moral and legal framework, a dangerous security dilemma could arise in which state actors feel compelled to automate their defence networks out of fear that their adversaries already possess or will possess an algorithmic speed advantage.

The Declaration thus speaks on the need to break this cycle of paranoia, and provides an objective baseline of restraint that treats human control not as a binding legal prerequisite.

Fourth, drawing the concept of an “unarmed and disarming peace” from Pope Leo XIV, the signatories point out that the current trajectory of frontier AI development is *prima facie* a destabilising force. When technologies become concentrated in the hands of a few companies and/or nations, and are used to entrench military domination, they cease to be neutral. In fact, they heighten security anxieties among non-nuclear states. And the Declaration correctly identifies that true peace requires dismantling the underlying motivations for violence, such as fear, systemic hubris, and the illusion of absolute safety through digital dominance.

Iran's nuclear programme

Real-world geopolitical crises are currently testing the fears that the Declaration seeks to allay — and perhaps no more so than the volatile trajectory of the Iranian nuclear programme, which has been marked by, among other things, direct military engagements and complex diplomatic stalemates.

Following Iran's breaches of its non-proliferation obligations and subsequent major joint military strikes by the U.S. and Israel, the traditional architecture of arms control has been revealed to be completely broken.

In highly contested environments with multiple adversaries, militaries are increasingly leveraging AI for advanced target characterisation and predictive intelligence tracking. When international inspection and diplomatic buffers break down, the states that rely largely on algorithmic data processing to monitor active nuclear facilities also vastly increase the risk of an unverified algorithmic assessment triggering action (as discussed above).

Today, it is possible to use AI to secure underground facilities, optimise advanced centrifuge logistics, and defend against incoming digital intrusions.



However, if the AI system controlling or monitoring an enrichment facility misinterprets a standard network probe or a mere physical strike as the prelude to a devastating attack, its automated defence protocols could trigger an immediate but also disproportionate missile response. And this can happen even before a state has decided on what it should do, including — importantly — whether it should attempt to communicate with other actors.

Asymmetric speed

A state facing advanced adversaries may also expect more from automating its strategic defence networks. If an actor believes their command structures can be compromised or outpaced by an adversary's AI-driven targeting, they have a strong incentive to pre-delegate response authority to an algorithmic system. The Declaration addresses this fatal scenario and cautions rightly that trying to achieve a tactical speed advantage using automation can pave the way for an unmanageable, spiraling escalation that — beyond a point — no state may be able to safely control.

Thus, in one sense, the 'Rome Declaration for an Unarmed and Disarming Peace' is a vital intervention against technological fatalism and blind faith in technology.

It wants humanity to look into a mirror and reflect on the fact that allowing autonomous software to govern nuclear hardware is an existential gamble that humankind can only lose.

During the summit when the Declaration was signed, the physicist and Nobel Physics laureate David Gross said the ultimate success of the text lies in generating intense public awareness that then drives grassroots pressure. The Declaration also provides the moral, philosophical, and technical lexicon necessary to challenge the uncontrolled militarisation of the digital frontier. The thorny fact is that while technology can be automated, our collective ethical responsibility — required to ensure the survival of future generations — must never be outsourced to a machine or a system driven by AI, no matter how intelligent it is made to be.

How the world's states respond to the Declaration's calls to action remains to be seen. Given the fact that many states are also reluctant to negotiate and sign a treaty that deals with the use and role of AI in warfare, the goals of the Declaration seem ambitious. But there must be no doubt that its warnings are on point.

UP IN THE SKY, IT'S A BIRD, IT'S AI

A bird is merely a bird until it is spotted outside its natural range. Then it becomes a sign to be decoded. A photograph taken in Brazil of a red-winged blackbird, which is native to North and Central America, was recently posted on an online forum, leading to much speculation among scientists about what its unusual presence could possibly mean. Was it a vagrant, blown off course by some miscalculation of its internal GPS? Or an indicator of how greater forces — climate change, habitat destruction, etc. — were impacting the behaviour of different species? A little detective work helped uncover the truth: The photographer who had submitted the image had captured an epaulet oriole, common in Brazil, and asked an AI platform to make the picture "look better", resulting in a single modified detail — and a false sighting.

A recent article in *Nature* argues that this is precisely the kind of "AI slop" that is making life difficult for scientists who rely on public tracking platforms to study wildlife: Not the obviously fake images of tigers in the savannah or parakeets in the Arctic, but the subtly manipulated ones that just might — and often do — pass for documentary evidence. The study of nature is not



merely about pretty pictures or awe-inspiring vistas. It is about understanding ecological shifts that often portend changes in the world humans inhabit, from warming temperatures and disappearing habitats to the spread of disease and invasive species.

While many wildlife photographers use technology to tweak certain parts of a photograph in order to get the “perfect” image, AI tools, with their tendency to add or “hallucinate” details, can, literally and figuratively, lead researchers on a wild-goose chase. Because in science, even the smallest fabrication can end up obscuring a larger truth.

IN EUROPE’S FIRST SOCIAL MEDIA BAN FOR CHILDREN, FRANCE DRAWS THE LINE AT 15

Years since whistleblowers first sounded alarm over social media companies pushing harmful and addictive content towards children, France, on Tuesday, became the first European Union (EU) nation to legislate a blanket ban on social media access to children under 15 years of age.

The ban had been a key priority on French President Emmanuel Macron’s agenda since his second term in office. “The brains of our children and our teenagers are not for sale,” he had said in a video message earlier this year.

The legislation was approved by both the French National Assembly and the Senate, with the National Assembly voting 279 in favour, 81 against and 66 abstentions.

“I committed to it, it is now passed: social media will be banned for those under 15 at the start of the school year,” the President said in a social media post after the vote.

The law is set to roll out in two phases overseen by Arcom, France’s digital and audiovisual communications regulator. In phase one, with checks in place for age verification from September, anyone under 15 trying to open a social media account in the country, will be blocked from doing so.

In phase two, platforms will get until January 2027 to close existing under-15 accounts, which means even the existing accounts will have to undergo compulsory age verification. Exactly how the verification will be done remains unclear. But, authorities have promised to establish a reliable system before the rules are enforced.

Children under 15 will still be able to reach online encyclopedias, educational tools, and scientific directories since the ban excludes non-commercial digital resources. Advertising promoting social media to them, including campaigns by influencers, will be prohibited. Ads for social media platforms must also carry a disclaimer, “Dangerous products for children under 15.”

The ban also extends to mobile phones in high schools. However, the exact norms will be decided by each school.

Concerns over young users’ exposure to pornography, cyberbullying, and other forms of online exploitation, have been mounting in the country.

Recommendation algorithms on social media platforms are designed in ways that push teenagers towards increasingly extreme or disturbing content, says Arcom. The regulator reports that children aged 12 to 17 spend an average of one hour and 21 minutes a day on TikTok alone. Lawsuits against TikTok, filed by several French families, alleging that the platform’s algorithm exposed their children to harmful content that contributed their suicides, are ongoing.



The platform has denied the claims.

“We left you in this jungle and it robbed you of your attention,” Mr. Macron told teens at an event in April. “We need to slow down and help you become adults, and above all citizens.”

A growing wave

France follows Australia’s lead, where since December 2025, a similar ban has been put to effect. The Online Safety Amendment (Social Media Minimum Age) Act requires platforms such as TikTok, Instagram, Facebook, YouTube, X, and Snapchat to implement age verification and take “reasonable steps” to prevent children under 16 from creating accounts. After Australia, other countries including, Austria, Spain, Brazil, and the U.K. have been mulling similar restrictions.

The French legislation also comes ahead of expected EU-wide measures, following recent recommendations from an expert committee set up by Commission President Ursula von der Leyen.

While calling for stronger protections, Ms. von der Leyen said: “Social media is not a toy.” Drawing a comparison with product safety rules, she added: “In Europe, whoever develops a product is responsible for its safety. Car manufacturers must make their vehicles safe. We do not expect children to design their own seatbelts. We do not expect parents to fit airbags at home.”

“This is not about whether children can access social media. It is about whether and when social media can access our children,” she said.

Our Ministry of Electronics and Information Technology and even State governments, such as Andhra Pradesh and Karnataka, have hinted at taking similar routes.

Earlier this month, during his visit to Australia, Prime Minister Narendra Modi praised the country over its ban. “I have followed you closely, and the way you have legislated and worked to protect society in IT and social media is inspiring the world,” he told Australian Prime Minister Anthony Albanese.

Concerns and blocks

Bans often fail because teenagers rapidly find technological workarounds like VPNs, and privacy-preserving age verification systems are not yet widely implemented, say critics. As per reports, a July 2026 study by Australian government advisors have found that their under-16 ban has so far not been as effective as expected.

Latest surveys show that Australian teens are following the rules even lesser than they were just two months ago.

In France, the law also faces immediate legal challenges. The Council of State had previously warned that a general and absolute prohibition could infringe fundamental rights — including children’s right to access information and parents’ authority. The legislation could therefore face scrutiny by the Constitutional Council.

Also, to ensure compliance with the European Union’s Digital Services Act, lawmakers removed national sanctions against technology companies from the Bill. Digital Minister Anne Le Hénaff said responsibility for enforcing the rules would rest with social media platforms. Therefore, the policy’s impact on the ground remains to be seen.



“Bans alone, without any requirements to change the underlying algorithms and addictive features, will leave children who manage to circumnavigate age-gates, older children and adults exposed to the same risks,” Agnès Callamard, Secretary General of international human rights watchdog Amnesty International says on their website, in response to France’s blanket ban.

FINNING: CRUEL, WASTEFUL PRACTICE

Finning, the practice of removing a shark’s fins and casting the rest of the shark overboard, often alive. The animal will subsequently drown. Finning is largely prohibited across a variety of regulatory zones, countries and international conventions, even if fishing certain shark species is generally allowed.

Yet in recent years, illegal shark fins have been repeatedly landed in Senegal’s capital Dakar, one of Africa’s busiest fishing ports, by dozens of Chinese and Taiwanese longline tuna vessels, according to a report released last week by the London-based Environmental Justice Foundation NGO.

The fins are then shipped to Asia for use in shark fin soup, a delicacy in certain countries, or in traditional medicine.

The practice is inherently cruel and wasteful, conservationists say, likening it to killing a rhinoceros for its horn. But brutality is not the only problem.

Global shark populations have been in rapid decline due to industrial fishing, with a study published in the journal Nature showing their population has plummeted, alongside that of their close relatives rays, 71% since 1970.

Finning also often occurs in tandem with other types of illegal, unreported, and unregulated fishing and human rights abuses.

Senegal is a party to the International Commission for the Conservation of Atlantic Tunas, which regulates fishing operations related to tuna and tuna-like species in the Atlantic Ocean. It also bans the retention of certain species of sharks and specifies that fins cannot total more than 5% of the overall weight of sharks onboard. The rule is meant to prevent finning, but makes things difficult to quantify.

PERSISTENT ORGANIC POLLUTANTS

Why it matters

The UN Environment Programme (UNEP) and the Global Environment Facility (GEF) have officially launched the US\$ 23.5 million Global Chemicals Monitoring Programme (GCMP), intended to help evaluate the effectiveness of the Stockholm Convention on Persistent Organic Pollutants (POPs) and the Minamata Convention on Mercury. In this context, let’s know about the POPs.

Core Concept:

— Persistent Organic Pollutants (POPs) are hazardous, carbon-based manmade chemical molecules that resist environmental degradation, accumulate in the food chain, and travel long distances across international borders, endangering human health and ecosystems.



— According to Stockholm Convention, POPs possess a particular combination of physical and chemical properties such that, once released into the environment, they:

- remain intact for exceptionally long periods of time (many years);
- become widely distributed throughout the environment as a result of natural processes involving soil, water and, most notably, air;
- accumulate in the living organisms including humans, and are found at higher concentrations at higher levels in the food chain; and
- are toxic to both humans and wildlife.

— As a result of releases to the environment over the past several decades due especially to human activities, POPs are now widely distributed over large regions.

— The effects of POPs include cancer, allergies and hypersensitivity, damage to the central and peripheral nervous systems, reproductive disorders, and disruption of the immune system.

Do you Know?

POPs also concentrate in living organisms through another process called bioaccumulation. Fish, predatory birds, mammals, and humans are high up in the food chain and so absorb the greatest concentrations. When they travel, the POPs travel with them.

— Some POPs are also considered to be endocrine disrupters, which, by altering the hormonal system, can damage the reproductive and immune systems of exposed individuals as well as their offspring; they can also have developmental and carcinogenic effects.

— According to World Health Organization (WHO) “The most commonly encountered POPs are organochlorine pesticides, such as DDT, industrial chemicals, polychlorinated biphenyls (PCB) as well as unintentional by-products of many industrial processes, especially polychlorinated dibenzo-p-dioxins (PCDD) and dibenzofurans (PCDF), commonly known as dioxins.”

PM 1 particles

— PM 1 are extremely fine particulate matter (PM) particles of diameter less than 1 micron — significantly smaller than PM 2.5 (of diameter 2.5 microns).

— These particles, byproducts of emissions from factories, vehicular pollution, construction activities and road dust, are not dispersed, and stay suspended in the air that we breathe. 1 micron is about a thousandth of a millimetre.