

CURRENT AFFAIRS FOR UPSC

12th to 18th July 2026

DreamIAS

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INTERNATIONAL

TOWARDS A MORE EUROPEAN ALLIANCE

For more than seven decades, the North Atlantic Treaty Organisation (NATO) has been the cornerstone of Western security architecture. Founded in 1949 as a bulwark against Soviet expansion into capitalist Europe, the 32-member military alliance outlived its original purpose by morphing into a vehicle for American power projection not just in Europe but across the globe.

In the post-Cold War era, challenges to NATO have come from within and without. The most obvious external threat has been Russia, which sought to check its continued eastward expansion by invading Ukraine. Today, the Russia-Ukraine war, in its fifth year, remains NATO's foremost priority in the context of its foundational mandate of European security. The threat from within, however, has been more insidious. It can be summed up in three words: the Trump Presidency.

Both in his first and current term, President Donald Trump has questioned NATO's utility for the U.S., and even threatened to exit the alliance. He believes that while NATO's capabilities, funds, leadership and infrastructure were overwhelmingly American, the U.S. gets out of the alliance far less than it puts into it, in contrast to its European allies, who got to reap its benefits while paying a fraction of the costs.

Mr. Trump's simmering resentment appeared to reach a boiling point in April, when his NATO allies ignored his call to join the U.S. in its war of choice against Iran. Notably, Spain and the U.K. (initially) refused access to their military bases for U.S. warplanes, while France refused over-flight rights. Mr. Trump lashed out, calling NATO a "paper tiger" without the U.S. He saw it as NATO's betrayal of the U.S., stating: "We've been there automatically, including Ukraine. Ukraine wasn't our problem. It was a test, and we were there for them, and we would always have been there for them. They weren't there for us."

U.S. Secretary of State Marco Rubio went further: "If NATO is just about us defending Europe if they're attacked but then denying us basing rights when we need them, that's not a very good arrangement."

U.S. drawdown

This was followed, in June, by a New York Times story based on a leaked communication, which laid out plans for a significant drawdown of U.S. commitments in NATO's Europe operations. According to the report, the Trump administration planned to "pull a third of the fighter jets it provides NATO for Europe", along with "reallocating a missile-launching submarine and an aircraft carrier, along with several warships". These developments set alarm bells ringing in Europe's strategic corridors, as they seemed to erode the lynchpin of their collective security — the pledge of mutual defence under Article 5. Could they still rely on the U.S. to rescue them in the face of an attack?

The U.S. has also scaled down its assistance to the Ukraine war effort, making European allies the principal financier. At the same time, Mr. Trump has been pushing NATO's European members to spend 5% of their GDP on defence (3.5% on core military requirements plus 1.5% on critical infrastructure). But only five of NATO's 32 members are on track to meet this target in 2026.

Other sources of intra-NATO tensions include Mr. Trump's obsession with annexing Greenland, a sovereign territory of fellow NATO member Denmark. Mr. Trump also feels frustrated that



European security considerations are coming in the way of his developing a more congenial relationship with Russian President Vladimir Putin. Tensions on this front came to the fore in early 2025 when he tried to broker an end to the Ukraine war by directly speaking to Mr. Putin.

For their part, NATO's European members have tried to play a balancing act. There is now a clear-eyed recognition that the U.S. can no longer be expected to continue as the sole pillar of NATO. The constitutive principle of NATO is the unconditional security guarantee. But Mr. Trump's repeated attempts to make it conditional — linking it to members "paying up", or to their 'loyalty' — has cast a pall of uncertainty on that guarantee, prompting European nations to consider autonomy and self-reliance. But those are expensive propositions that need time, and vast investments, to fructify. In the interim, the European allies cannot do without continued U.S. engagement in NATO operations which, to their mind, calls for a strategy of placating Mr. Trump selectively and flattering him indiscriminately.

Interim strategy

This strategy, which was on full display at the NATO summit that unfolded in Ankara, Türkiye, on July 7-8, appears to have worked rather well. European leaders, led by NATO Secretary-General Mark Rutte, a canny Dutch politician, showcased their plans to ramp up spending on military hardware and investments in expanding their defence industrial base. While sticking to their decision not to get their hands dirty in the Strait of Hormuz, they ensured that the summit declaration reiterated Mr. Trump's stated goals in the Iran war: Iran must never acquire nuclear weapons, and freedom of navigation must be restored in the Strait of Hormuz.

For good measure, they also pledged \$50 billion in new defence procurements — a bonanza for America's military-industrial complex — and €70 billion worth of military assistance to Ukraine. In return, they got Mr. Trump to undersign an "ironclad commitment" to Article 5.

But the tensions, though papered over in Ankara, haven't gone away. The European allies' reluctance to join U.S. military operations against Iran points to a fundamental divergence in how the two see NATO. While Europeans view NATO as a "defensive" force that is region-specific (trans-Atlantic), Mr. Trump sees it more broadly as an extension of U.S. military capabilities that should be deployable globally.

To be fair, NATO has never been a one-way street as Mr. Trump seems to believe. For nearly eight decades, the U.S. has enjoyed unfettered access to air bases, military networks, infrastructure and logistical support across Europe, without which its various campaigns in West Asia and elsewhere over this period would have been impossible. It has also enjoyed the support of its European allies on most foreign policy issues, including when they have been controversial, and the military leadership of most nations in the continent. But with the U.S. increasingly prioritising the Pacific theatre, a greater European role in NATO was inevitable.

For the medium-term, in the words of the Ankara declaration, "a stronger Europe within a stronger NATO", is the stated objective, wherein European allies and Canada would be "assuming greater responsibility for the Alliance's defence". But over the long-run, Europe would want to develop its military capabilities to a level where, firstly, it provides credible deterrence against Russia even in a scenario of strategic ambiguity on the matter of American intervention in the face of a credible threat, and second, secures the autonomy necessary to safeguard its own political interests when they come up against American coercion.



BHUTAN FIGHTS 'EXISTENTIAL' POPULATION CRISIS WITH CASH INCENTIVES FOR BIRTHS

Bhutan is offering families cash incentives to have more children as the tiny Himalayan kingdom grapples with a nosediving birthrate and a growing exodus of young people seeking opportunities abroad.

Annual births have dropped by more than a quarter over the past decade, compounding the country's loss of youngsters to migration.

Prime Minister Tshering Tobgay has repeatedly rung the alarm over the population slump, calling it an "existential" crisis, according to the state's Bhutan Broadcasting Service.

"The evidence is unambiguous — Bhutan's fertility has declined to near or below replacement level," Mr. Tobgay wrote in the introduction to the government's 'Third Child Plus' programme, launched in June.

The scheme provides monthly payments of \$105 for each third or subsequent child until they turn three.

For the landlocked kingdom of fewer than 8,00,000 people, wedged between India and China, the issue carries particular weight.

Births of third or more children, the focus of the new scheme, have fallen 27% since 2020, according to the report.

Bhutan's fertility rate has fallen to about 1.8 children per woman, below the replacement level, while the share of people aged 65 and over is projected to rise from around six percent to 17% by 2050, according to UN estimates.

TRUMP SUGGESTS STANDING ORDER TO ATTACK IRAN IF IT 'ACTUALLY' ASSASSINATES HIM

President Donald Trump is suggesting he has left standing orders for the U.S. military to destroy Iran "at levels they've never seen before" if Tehran follows through on its long-standing threats to kill him.

But the U.S. government has no way to create an automatic, pre-authorised "dead man's switch" that would prompt immediate retaliation.

Instead, if Mr. Trump were killed, the transfer of power to his successor is governed by the 25th Amendment and the Presidential Succession Act of 1947. Vice President J.D. Vance instantaneously would become commander in chief and have authority for any retaliation.

Under such a scenario, Mr. Vance could do exactly what Mr. Trump called for, though there also is a chance he could decide not to follow his predecessor's orders — or offer a direct response in a different way.

Attacks and revenge

The United States does have extensive contingency plans for continuity of government in the event of a nuclear attack or other major catastrophe that wipes out most or all of Washington. But those



plans also do not allow for immediately launching retaliatory strikes upon the death of a President, even if that President had demanded that the military be ready to do so.

Mr. Trump nonetheless posted on his social media website Saturday that Iran had made threats “to assassinate, or attempt to assassinate” him and he said 1,000 “missiles are Locked and Loaded and aimed at the Islamic Republic of Iran, with thousands more to immediately follow, should the Iranian Government act on its threat.”

Iran’s Supreme Leader, Mojtaba Khamenei, said hours later that Iranians would continue to avenge the killing of his father, Ayatollah Ali Khamenei. The elder Khamenei died in the initial U.S. and Israeli strikes that started the war in late February, and he was mourned in funeral events throughout Iran this week. His son said retaliation “is the will of our nation and must certainly be carried out.”

The President flew part of the way back to Washington from Turkey this week aboard an older Air Force One jet rather than a new Qatari-gifted aircraft, raising fresh security questions about the newer plane. Images of the jet, which was retrofitted at an estimated cost of \$400 million, show it is not equipped with some of the same missile detection and countermeasure systems as earlier versions.

WHAT IS TESTOSTERONE SCREENING, AND WHY THE U.S. MILITARY IS INTRODUCING IT

The U.S. Department of Defense has announced mandatory annual testosterone screening for all active-duty service members aged 30 years and above. Announced by U.S. Defence Secretary Pete Hegseth on July 15, the policy will make testosterone testing part of routine annual medical assessments.

Personnel found to have low testosterone may undergo further clinical evaluation and can choose whether to receive testosterone replacement therapy (TRT), while those below 30 years may request testing voluntarily.

Mr. Hegseth said maintaining healthy testosterone levels could help personnel “operate at their absolute best”. The announcement comes weeks after the U.S. Department of Health and Human Services (HHS) said it would seek to ease some restrictions on testosterone replacement therapy, including expanding access for men with age-related low testosterone.

The move has also prompted political debate. Democratic lawmakers have questioned how expanding access to testosterone therapy for some service members aligns with the military’s broader policies affecting transgender personnel who receive gender-affirming hormone therapy. The Department of Defense has maintained that the screening programme is intended to improve troop health and readiness.

According to the U.S. National Institutes of Health (NIH), testosterone is the principal male sex hormone, although it is also produced in smaller amounts in women. Produced mainly by the testes, it plays a key role in puberty, muscle and bone growth, red blood cell production, fertility, sexual function and mood. Testosterone levels usually peak during late adolescence and early adulthood before gradually declining with age. However, hormone levels vary widely between individuals, and this decline is a normal part of ageing.

The Endocrine Society defines testosterone deficiency, or male hypogonadism, as a condition in which the body does not produce enough testosterone to maintain normal physiological functions.



It may result from disorders affecting the testes, pituitary gland or hypothalamus, as well as certain genetic conditions, cancer treatment, obesity, type 2 diabetes, chronic kidney disease, obstructive sleep apnoea or some medications. Symptoms include reduced sexual desire, erectile dysfunction, infertility, fatigue, loss of muscle mass, increased body fat, low bone density, depressed mood and poor concentration. Because these symptoms can also occur in several other medical conditions, diagnosis cannot be based on symptoms alone.

According to the Endocrine Society's Clinical Practice Guideline, testosterone deficiency should be diagnosed only in men with symptoms consistent with the condition and consistently low testosterone levels confirmed through laboratory testing.

Blood samples are usually collected in the morning, when testosterone levels are highest, and the test is repeated on a separate day to confirm the diagnosis. Additional investigations may be needed to identify the underlying cause. The American Urological Association (AUA) also advises against diagnosing testosterone deficiency on the basis of a single laboratory result.

Screening involves testing people who do not necessarily have symptoms to detect a condition early, whereas diagnosis evaluates people with symptoms. Routine testosterone screening for healthy men without symptoms is not currently recommended. The Pentagon's decision therefore represents a departure from routine civilian practice by introducing age-based screening irrespective of symptoms. The Department of Defense has not explained why it selected 30 years as the threshold for mandatory testing.

Current clinical guidelines state that evidence is insufficient to recommend population-wide screening for testosterone deficiency, and whether routine testing improves long-term health outcomes or military performance remains uncertain. According to the U.S. Food and Drug Administration (FDA), testosterone products are approved for men with hypogonadism caused by medical conditions affecting testosterone production. Treatment may be given through injections, skin gels, patches, oral formulations or implants.

'Inconsistent policies'

Testosterone is also used as part of masculinising gender-affirming hormone therapy for some transgender people. However, this is a separate clinical indication from testosterone replacement therapy for hypogonadism, which is the focus of the Pentagon's policy. For appropriately selected patients, TRT can improve sexual function, muscle mass, bone density, mood and energy levels. However, the Endocrine Society notes that treatment requires regular monitoring because it may increase red blood cell counts, suppress fertility, worsen untreated obstructive sleep apnoea and require monitoring of prostate health. Managing underlying conditions such as obesity or poorly controlled diabetes may also improve testosterone levels without lifelong hormone replacement.

The announcement has sparked both medical and political debate. Medical organisations such as the Endocrine Society and the AUA continue to recommend that testosterone testing and treatment be guided by symptoms, repeated laboratory findings and an individual's overall clinical condition rather than routine age-based screening. Some experts caution that widespread screening could lead to overdiagnosis or unnecessary treatment, while others say it may identify previously undiagnosed testosterone deficiency in some individuals.

The move has also drawn criticism from Democratic lawmakers and LGBTQ+ advocacy groups, who argue that expanding access to testosterone therapy for some troops while restricting



military service to transgender personnel receiving gender-affirming hormone therapy reflects an inconsistency in the administration's policies.

IN CHINA'S NEW BALLISTIC MISSILE TEST, THE WORRIES FOR INDO-PACIFIC REGION

China tested its sea-based long-range intercontinental ballistic missile (ICBM) last week (July 6), marking its first-ever test of a submarine-based ballistic missile in international waters.

Key Takeaways:

- Equally importantly, this is the People's Liberation Army's (PLA) second launch of a ballistic missile in international waters since 1980. China conducted a land-based ICBM test using the Dong Feng or DF-31 delivery system on September 21, 2024.
- The latest test missile was reportedly launched from a PLA Navy Jin-class Type 094 submarine based in the South China Sea. It was carrying a dummy warhead that covered a distance of 7,300 km, reportedly flying over the Philippines, before landing in the Southern Pacific Ocean.

Do You Know:

- The dummy warhead landed within an area designated under the Treaty of Rarotonga's South Pacific nuclear-free zone (where testing or stationing of nuclear explosive devices is barred), after it flew over the Exclusive Economic Zones of Micronesia, Nauru, Kiribati, and Tuvalu.
- It is extremely difficult to determine if the missile was Ju Lang 2 (JL-2) or the latest Ju Lang 3 (JL-3). Both JL-2 and JL-3 are submarine-launched ICBMs, jointly developed with DF-31 and DF-41, respectively. ICBMs generally have a range of at least 5,000 km, and the JL-2 is capable of travelling 8,000-9,000 km, while the JL-3 reportedly has a range of over 9,000 km.
- Both delivery systems can be paired with China's current Type 094 SSBNs (nuclear-powered submarines with ballistic missiles). Based on the reported distance this warhead travelled, it is difficult to precisely determine which delivery system was used.
- But there was a possibility that China could have tested twice or used an alternative route. That is because, like any other country, China issues a navigation warning before missile tests or military exercises. This time, the warning notification suggests that they were considering two testing routes: (i) The one used by launching from the South China Sea towards the Southern Pacific Ocean, and (ii) A proposed launch from the Bohai Sea in the northeast and over Japan into the Pacific Ocean.
- Since the turn of the decade, and especially in the past two years, Beijing has not shied away from overtly tomming its improving nuclear capabilities.

UNSAFE PRACTICES

Safety protocols should not be given short shrift in tourism and adventure

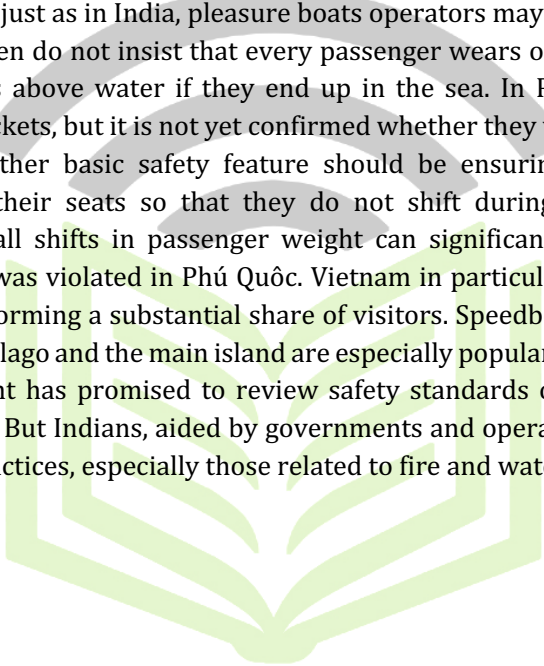
Survivor accounts of the Vietnam boat tragedy last week point to two clearly identifiable contributors. As the weather turned rough and the speedboat took a sharp turn, it tilted to the left. The passengers — all Indian tourists — sitting on the right fell to the left side. Almost all the passenger weight shifted at once, the boat lost balance and turned turtle. As it capsized, the boat captain and guide escaped through the open front door. Others who found an opening also jumped

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



out. Those who could not leave were trapped inside the capsized boat and took in water. Rescuers pulled them ashore where first aid and resuscitation were attempted before they were moved to hospital. All this took precious time and casualties mounted as a result. Some 15 Indians are reported to have died while 17 survived. Four Vietnamese crew also survived. The Indians on the speedboat at Phú Quốc were among more than 100 employees that a mobile company had taken to Vietnam on a corporate incentive tour.

Industry data indicate that some three crore Indians visit foreign countries every year, with a significant proportion of them coming from non-metro cities. Many of the survivors at Phú Quốc were from such cities. South-East Asia has emerged as the preferred destination, with Thailand and Vietnam joining the traditional attractions of Singapore and Malaysia. Many of these new tourist spots are developing rapidly but, like India, have not fully strengthened safety-of-life practices. For instance, just as in India, pleasure boats operators may carry enough life jackets or distribute them but often do not insist that every passenger wears one. Life jackets keep people afloat with their heads above water if they end up in the sea. In Phú Quốc, passengers were reportedly given life jackets, but it is not yet confirmed whether they were all made to wear them before departure. Another basic safety feature should be ensuring that passengers remain securely strapped to their seats so that they do not shift during rough weather or sharp manoeuvres. Even small shifts in passenger weight can significantly affect the stability of a speedboat. This norm was violated in Phú Quốc. Vietnam in particular has witnessed a surge in tourism, with Indians forming a substantial share of visitors. Speedboat rides between the islets of the Phú Quốc archipelago and the main island are especially popular among Indian tourists. The Vietnamese government has promised to review safety standards on such boats and upgrade them where necessary. But Indians, aided by governments and operators, must strengthen their awareness of safety practices, especially those related to fire and water safety.



DreamIAS



NATIONAL

STEADY IN TURBULENCE

Prime Minister Narendra Modi's recent visits to Australia and New Zealand marked yet another step in India's efforts to consolidate partnerships across the Indo-Pacific. India's relations with both countries have traditionally been largely economic and people-centric, but the visits underscored an increased emphasis on strategic aspects, a fresh turn. Geopolitical competition, manifested in supply-chain disruptions and the realignment of global economic networks, is keeping the world on tenterhooks, and India has to manage the uncertainties and volatility well to be able to protect its vital interests. The visits reflected New Delhi's attempt to strengthen the southern arc of the Indo-Pacific under its Act East Policy, MAHASAGAR (Mutual and Holistic Advancement for Security and Growth Across Regions) vision, and commitment to a free, open and inclusive Indo-Pacific. India and Australia adopted a new Joint Declaration on Defence and Security Cooperation, significantly upgrading the existing security framework. They agreed to enhance interoperability between their armed forces, expand military exercises, establish an Annual Defence Ministers' Dialogue, and strengthen cooperation in cybersecurity, maritime security and emerging technologies. An India-Australia Maritime Security Collaboration Roadmap was unveiled to deepen information sharing and operational coordination in the Indo-Pacific. An immediate and consequential outcome was Australia's decision to allow uranium exports for India's civilian nuclear programme, removing a lingering obstacle in ties and boosting India's clean-energy ambitions. Both countries will also find new avenues of cooperation on critical minerals, a specific field of global uncertainty.

India-New Zealand relations are now a formal strategic partnership, with a road map for cooperation over the next four years. Key agreements announced by the countries include maritime cooperation in the Indo-Pacific and mutual logistics support between the Indian Navy and the New Zealand Defence Force. Building upon the recently concluded India-New Zealand Free Trade Agreement, both sides agreed to aim for a substantial expansion of bilateral trade by 2030. Avenues for agricultural cooperation are also being explored. India shares with Australia and New Zealand a concern about maintaining stability and predictability in the Indo-Pacific. Supply-chain diversification, energy security, and access to critical minerals and emerging technology are key priorities for India, which is trying to protect its strategic autonomy in a world of great volatility. The Modi government has been trying to achieve this objective through building a network of partnerships. These visits fit into that pattern. India's challenge is in keeping itself steady in an era of global turmoil, and untangled from rivalries that can do it no good. Mr. Modi's visits build on this awareness.

AFTER NEARLY 2 DECADES, AUTHOR TASLIMA NASRIN SET FOR KOLKATA RETURN

Almost two decades after she was forced to leave Kolkata following protests against her writing, Bangladesh-born author Taslima Nasreen is set to appear in a public event in the city on August 1.

Key Takeaways:

- The programme at the city's Rabindra Sadan cultural centre is being organised by three organisations: Secular Mission, Paschimbonger Jonno (For West Bengal), and Human Rights Beyond Frontiers. The organisers said Chief Minister Suvendu Adhikari and author Shirshendu



Mukhopadhyay were also expected to attend the event. This will be Nasreen's first public appearance in Kolkata since 2007, when protests against her book *Dwikhondito* (Split: A Life) forced her to leave the city she had made her home since her exile from Bangladesh a decade earlier.

Do You Know:

- Nasreen has been at the centre of controversy over her writings for decades. Her writing primarily focuses on women's rights, gender equality, patriarchal norms, and domestic and structural violence that women face. Her best-known novel, *Lajja* (Shame), published in 1993, brought her international recognition. The book chronicled the persecution of a fictitious Hindu family in Bangladesh in the aftermath of the Babri Masjid's demolition.
- Facing death threats and protests, Nasreen left Bangladesh in 1994 and lived in exile across Europe, including Germany, and North America. During this period, Sweden granted her citizenship. She subsequently found refuge in Kolkata, the city closest to her home culturally.
- In 1998, Nasreen published *Meyebela* (My Bengali Girlhood), the first volume of her autobiography. However, her troubles began in 2003 after *Dwikhondito*, the second volume of her autobiography, was published.
- The book contained passages that were deemed offensive to religious sentiments. On November 18, 2003, the Calcutta High Court approved an injunction against the publication of the book after poet Sayed Hasmat Jalal filed a defamation suit against Nasreen. Ten days later, the Buddhadeb Bhattacharya-led Left Front government banned the book, concerned that it might cause communal discord. However, the publisher challenged the ban. In September 2005, the High Court struck it down, ruling that the book did not intend to outrage religious feelings and declaring the government's move unjustified.
- By then, Nasreen had received a temporary residence permit from the Union government (in 2004) and moved to Kolkata, where she regularly wrote columns for Bengali newspapers. However, the tension over the book continued to simmer. In June 2006, Syed Noor-ur-Rehman Barkati, then the imam of Kolkata's Tipu Sultan Mosque, announced a reward for anyone who "blackened" Nasreen's face. Several organisations also demanded that she leave the country. In August 2007, while attending an event in Hyderabad related to the Telugu translation of her novel *Shodh* (Revenge), Nasreen was roughed up by alleged members of the AIMIM.
- Nasreen moved to New Delhi and in March 2008, she left the country, staying away for at least two years. Nasreen continued to live in India, receiving a residence permit. In 2024, the author publicly thanked Union Home Minister Amit Shah after her request to extend the permit was granted hours after she put up a post on social media expressing concern about her legal status.
- Nasreen has authored more than 40 books in Bengali, including poetry, novels, essays, and a multi-volume autobiography. Her works have been translated into more than 30 languages.

WHAT IS THE INDIA-AUSTRALIA URANIUM SUPPLIES AGREEMENT?

The story so far:

During Prime Minister Narendra Modi's visit to Australia last week, India and Australia "finalised the administrative arrangements" required to enable export of uranium from Australia to India.



These exports will be “exclusively for peaceful purposes and under International Atomic Energy Agency (IAEA) watch” under the Australia-India Nuclear Cooperation Agreement, 2015.

What does the latest development mean?

The finalisation of the “administrative arrangements” means that private Australian mining entities involved in uranium extraction will be able to conclude commercial contracts with Indian private sector companies and joint ventures. The participation of private Indian entities in uranium exports from Australia adds a new chapter to India’s energy journey, which was recently boosted by the SHANTI Act passed in December 2025, opening the nuclear sector to private players.

The timing of the announcement is significant, as it has come at a time when India’s energy sector is under severe stress due to the U.S.-Israel attack on Iran. India is being forced to diversify and explore options to cope with short-term requirements by buying hydrocarbons from Russia, the United States, and Venezuela, while also planning for the future. The arrangements with Australia for uranium export are expected to help India meet its energy requirements in the future.

Why is this significant?

Australia holds more than a quarter of the global uranium reserves and has traditionally maintained a strict policy regarding the supply or export of uranium to non-NPT member countries. According to the World Nuclear Association the countries that have received Australia’s uranium include the United States, Japan, South Korea, France, Sweden, Belgium, Finland, the United Kingdom, and Germany. India is among the non-signatories, which are countries that chose not to sign the Nuclear Non-Proliferation Treaty.

Australia has been exporting uranium to countries with which it has “bilateral safeguards agreements”, as it maintains that support for nuclear non-proliferation is among its “paramount” considerations. The “administrative arrangements” can be interpreted as further firming up of “bilateral safeguards” that were part of the Australia-India Nuclear Cooperation Agreement 2015.

India has an unblemished nuclear supply chain record and an ambitious nuclear energy programme. Though it is not a signatory to the NPT, it signed a safeguards agreement with the IAEA in 2008 after India and the U.S. signed the nuclear deal, which was presided over by Prime Minister Manmohan Singh and President George W. Bush. Subsequently, the 48-member Nuclear Suppliers Group made a major move by exempting India from the list of countries with which they are prohibited from engaging in nuclear-energy-related business, thereby opening the gates for nuclear-energy-related supplies to India. This exemption has been the basis of several civil nuclear agreements that India has signed with partner countries.

What negotiations made this arrangement possible in 2026?

While Canberra and New Delhi have finalised the “administrative arrangements” now, negotiations between the two sides have been ongoing for nearly two decades. On November 12, 2009, during Prime Minister Kevin Rudd’s visit to India, the two issues were addressed.”

A joint statement issued during this visit said, “Mr. Rudd noted India’s plans to meet its future energy requirements by exploring and developing all sources of energy, including nuclear, renewable and non-conventional resources. Both sides recognised the benefits of enhancing bilateral commercial exchanges of renewable and non-renewable energy resources. The two Prime Ministers also agreed that energy security concerns are best met by reconciling the long-



term interests of both energy-producing and energy-consuming countries through a truly open and competitive energy market. Both sides also expressed their willingness to join efforts which promote a cooperative response to any global energy crisis.” The same joint statement also mentioned mutual commitment to oppose nuclear weapons. These negotiations led to the Australia-India Nuclear Cooperation Agreement, which was signed in 2014 and came into force in 2015.

According to World Nuclear Association, the “administrative arrangement” between India and Australia was ‘finalised and became operational’ after the signing of the Australia-India Nuclear Cooperation Agreement of 2015 and at least 300 tonnes of uranium were exported to India since 2018.

But it is understood, that uranium export was part of a ‘test drive’ as there were lingering concerns about Indian entities receiving Australian uranium. The latest announcement on the “administrative arrangements” and the emphasis on “exclusively peaceful purposes and under International Atomic Energy Agency (IAEA) safeguards” indicates that the ‘test run’ has paved the way for bigger commercial deliveries.

WHY DID THE U.S. INDICT LAWRENCE BISHNOI?

The story so far:

On July 8, the U.S. Department of Justice (DoJ) announced an indictment against three Punjab-linked transnational organised crime syndicates operating across India, Canada, the U.S., and Europe. Among the most significant allegations is that Lawrence Bishnoi, 33, a Punjab-born gangster, and his associate, Satinderjeet Singh alias Goldy Brar, ordered the assassination of pro-Khalistan activist Hardeep Singh Nijjar in 2023 in Surrey, British Columbia, Canada. While Bishnoi is lodged in a high-security prison in Ahmedabad in Gujarat, Brar is a wanted fugitive in the U.S. Nijjar is designated as a terrorist by India.

The investigation has also led to multiple arrests, major drug seizures, and indictments alleging extortion, racketeering, murders-for-hire, and drug trafficking. The DoJ said that 37 people have been charged so far. It said that 24 defendants, connected to the three India-based transnational organised crime groups, who have been charged with a litany of criminal acts, have been arrested in the U.S., Canada, and Spain. Law enforcement officials are looking for 10 fugitives — seven in the U.S., two in India, and one in Europe.

Which are the three groups indicted by the DoJ?

The central organisation in the U.S. case is the Lawrence Bishnoi Organised Crime Group (OCG). Prosecutors describe it as a transnational criminal enterprise headquartered in India but operating extensively in Canada, the U.S., the U.K., Europe, and Australia. According to the indictment, the group was founded and led by Bishnoi and continued to function even while he was incarcerated. Brar allegedly managed North American operations, while Rohit Godara oversaw activities in Europe.

The second organisation is led by gangster Jagtar Singh alias Jaggu Bhagwanpuria, 38, who is imprisoned at Silchar jail in Assam. U.S. authorities describe his group as a separate transnational crime syndicate with a significant presence in India, Canada, the U.S., and other countries. According to prosecutors, the network has more than 1,000 members and associates worldwide.



It emerged as a rival to the Bishnoi organisation but allegedly developed its own international criminal infrastructure. Bhagwanpuria is a former aide of Bishnoi.

The third major network is associated with Ravinder Singh Dhanda, 57, a Canada-based operative accused of running a large cross-border narcotics operation. This group's primary focus is the large-scale movement of drugs between countries, particularly the U.S. and Canada.

What are the charges against the Bishnoi group?

The charges against the Bishnoi gang were filed by the U.S. in a California court in February 2026, records show. The DoJ said that Bishnoi projected an image of himself as a "patriot," "nationalist," and a deeply religious individual through social media posts and interviews with news organisations and used this public image to recruit members and associates to his crime syndicate in India, the U.S., and elsewhere.

The DoJ accused the Bishnoi network of targeted killings, shootings, kidnappings, assaults, and public threats to create a climate of fear among businessmen, celebrities, and members of the Indian diaspora. It accused the gang of killing Punjabi singer Sidhu Moosewala, threatening singer Gippy Grewal, and plotting an attack on actor Salman Khan between 2023 and 2026. These alleged acts all coincided with Bishnoi's incarceration at the high-security prison in Ahmedabad.

According to investigators, the objective was to facilitate extortion and enhance the gang's reputation. The indictment also alleges that the group was involved in transporting cocaine and methamphetamine across North America and stealing narcotics shipments from rival trafficking organisations.

The indictment said that recruitment coordinators for the Bishnoi gang "enticed impoverished minors in India to join the enterprise by promising, among other things, money, notoriety, and protection." It said that upon being recruited into the Bishnoi gang in India, new members received minimal compensation for criminal acts committed on behalf of the enterprise. The Bishnoi gang sent loyal members to countries including the U.S. and Canada on student and work visas obtained using fraudulent information, to assist the enterprise's criminal operations in those countries, the DoJ said.

What has the NIA said about Bishnoi?

According to his lawyer Rajni Khatri, Bishnoi has been lodged in Sabarmati jail since 2023 in solitary confinement and is under 24/7 CCTV surveillance. The Ministry of Home Affairs (MHA) has invoked Section 303 of the Bharatiya Nagarik Suraksha Sanhita, 2023, which prohibits his movement outside the jail. He participates in court hearings via video conference, and if police from outside the State need to interrogate him, they travel to the prison.

According to a charge sheet filed by the National Investigation Agency (NIA) in 2022 against Bishnoi and others, 84 cases have been registered against him in Delhi, Chandigarh, Rajasthan, and Punjab with the first case dating back to 2010. Ms. Khatri said that Bishnoi had been discharged or acquitted in 40 other cases. The NIA's charge sheet mirrors the allegations made by U.S. authorities that Bishnoi has been running his criminal network from prison. "He is so adept in operating from inside the jail that he has not applied for bail in any case... [for] many years," the NIA said. Ms. Khatri said he did not apply for bail in recent years as there are several cases registered against him and no one will come forward to secure a bail bond for him.



The NIA compared Bishnoi's rise to that of the fugitive underworld don Dawood Ibrahim and accused him of funding the activities of "pro-Khalistan extremists."

How did the Federal Bureau of Investigation unravel the Bishnoi gang?

According to the indictment, Sukhraj Singh Kang, a senior India-based lieutenant in the Lawrence Bishnoi Organised Crime Group, who directed and coordinated acts of violence carried out by members and associates in the U.S., Canada, and elsewhere, provided key evidence.

Where does the Nijjar killing fit into this?

The U.S. indictment alleges that Bishnoi and Brar ordered the assassination of Nijjar in June 2023. Prosecutors claim that Bishnoi supplied information about the target and that associates carried out the killing outside a gurdwara in Surrey. The allegation places the Bishnoi network at the centre of one of the most sensitive diplomatic disputes between India and Canada in recent years. The murder strained diplomatic relations between the two countries, with the government of the then Canadian Prime Minister, Justin Trudeau, alleging the involvement of "agents of the Indian government" and designating Indian diplomats as "persons of interest" in the investigation.

Bill Essayli, First Assistant U.S. attorney, told a press conference that the "Indian authorities have been very cooperative and India is happy with today's operations."

Meanwhile, the Royal Canadian Mounted Police is conducting a parallel investigation into South Asian organised crime, the DoJ said.

Operation 'Hardball'

— The Federal Bureau of Investigation (FBI) on 8th July announced a \$50,000 (Rs 47.7 lakh approx) reward for information leading to the arrest of gangster Goldy Brar, as part of Operation 'Hardball'.

— The operation 'Hardball' was a covert mission undertaken by law enforcement agencies in the U.S. shortly after Khalistani Hardeep Singh Nijjar's murder.

— The mission titled 'Operation Hardball', is a result of years-long federal investigation into Indian crime syndicates that engage in racketeering, targeted killings, shootings, extortion, trafficking of bulk quantities of narcotics across international borders, according to a media release by U.S. Attorney's office.

— Last year, US officials also visited the NIA headquarters in Delhi, where they shared their concerns about alleged links between Indian-origin gangsters and US drug cartels. They also shared a list of names and sought assistance in taking action against them.

— The FBI has alleged that Goldy is based in the United States and is the alleged leader of the group in North America. According to a criminal dossier on Goldy prepared by Indian central agencies, he is associated with Babbar Khalsa International, which is listed as a terrorist organisation.

ONENESS OF THE MULTITUDE

Prime Minister Narendra Modi visited the historic Prambanan Temple near Yogyakarta, Indonesia last week. Standing alongside Indonesian President Prabowo Subianto, he offered prayers at the



9th-century UNESCO World Heritage Site, the largest Hindu temple complex in the country, which houses the trimurti of Vedic Hinduism — Brahma, Vishnu and Shiva.

The temple signifies the assertion of Hinduism as a monotheistic religion to meet the legal standard in the country for official recognition, which it secured in 1962, after a period of turmoil and uncertainty following Indonesia's independence in 1945. The trimurti is presented as the manifestation of one supreme god. The temple combines the antiquity of the faith and traditions with the modern, innovative repurposing of the inherent polytheism of Hinduism as monotheistic.

In Indonesia's legal system, two concepts are in tension — mandatory monotheism and the guarantee of religious freedom. The country's national identity itself is deeply tied to adherence to religion. The country has a national identity card with a mandatory column on religion. Marriage registration, birth certificates, school religious education tracking, civil service promotion, and even burial rights are tied to a person's declared religion.

Indonesia also guarantees religious freedom. To reconcile this, the state recognised six religions — Islam, Protestantism, Catholicism, Hinduism, Buddhism, and Confucianism — as agama, formalised in 1965.

The founding principle of the modern Indonesian state has five components (Pancasila), and the first is monotheism, or faith in one supreme god. When this was mandated as state policy, Islam, Catholicism and Protestantism were considered legitimate by default. Hinduism could not meet the three criteria set in 1952 for a community to be recognised as a religion — it had to be strictly monotheistic, possess a recognised holy scripture, and be founded by a prophet.

The application for Hindu recognition was formally turned down by the Indonesian Ministry of Religion in 1952. Reformers organised under the banner of the Parisada Hindu Dharma (later Parisada Hindu Dharma Indonesia, PHDI), founded in Bali in 1959, and reframed Balinese practice around a single supreme deity, Sang Hyang Widhi Wasa, recasting a richly polytheistic tradition into something that could satisfy the monotheistic test.

Federation of traditions

To satisfy the state's monotheism requirement, Balinese reformers took the Hindu monistic concept of Brahman (the impersonal ultimate reality) and personified it as a single supreme god-concept, Sang Hyang Widhi Wasa — sometimes equated with the trimurti fused into one, sometimes identified with the abstract Acintya ("the inconceivable"). The concept evolved across three distinct phases to become Indonesia's definitive monotheistic deity. It began with ancient Austronesian and Sanskrit roots, where 'Sang Hyang' signified divine forces and 'Widhi' cosmic law, represented conceptually as the formless Acintya.

Islam and Christianity arrived with pre-existing global institutional scaffolding — scriptures, clergy hierarchies, and centuries-old doctrines. Hinduism in Indonesia had to build its scaffolding specifically to satisfy state monotheism rules and qualify as one of the recognised agamas. But internally it is closer to a federation of distinct traditions unified under a shared nomenclature.

Once Hinduism secured official recognition, it became something other indigenous groups could deliberately import wholesale as a legal shelter. The linkage between Hinduism and Indonesia's indigenous groups is a shared abstract supreme being concept plus a shared certifying institution (PHDI), laid over communities whose actual ritual life — deities, ancestor practice, and funerary rites — remain substantially indigenous and pre-Hindu in origin.



Three common features from older traditions, shared across religions including Catholicism, Protestantism and Hinduism, continue to endure in Indonesia — ancestral worship, animal sacrifice and nature worship. Islam and Christianity too are diverse and pluralistic in Indonesia, though their pluralism, shaped over four to five centuries, is now widely seen as an organic part of the country's cultural depth.

WHAT IS MEANT BY 'TRIAL IN ABSENTIA'?

The story so far:

A Special NIA Court in Jammu has issued a non-bailable warrant against Hafiz Saeed, the Pakistan-based chief of the proscribed terror outfit Lashkar-e-Taiba (LeT), in connection with the investigation into the Pahalgam terror attack. The warrant was issued at the request of the National Investigation Agency (NIA). The order was passed by the Special Judge of the NIA Court on July 8, two days after a supplementary chargesheet was filed against Saeed in the Pahalgam terror attack case.

Since Saeed is unlikely to appear before an Indian court, the agency is expected to seek a trial in absentia under Section 356 of the Bharatiya Nagarik Suraksha Sanhita (BNSS), which replaced the Code of Criminal Procedure (CrPC). In its supplementary chargesheet, the NIA has charged Hafiz Saeed both in his individual capacity and as the chief of the banned Lashkar-e-Taiba (LeT) and its proxy outfit, The Resistance Front (TRF).

"The accused has been charged under various provisions of the Bharatiya Nyaya Sanhita (BNS), 2023, and the Unlawful Activities (Prevention) Act, 1967. The NIA has also invoked provisions relating to waging war against India and hatching a conspiracy from across the border," the agency said.

What is trial in absentia?

A trial in absentia refers to a criminal trial conducted in the absence of the accused.

Section 356 of the BNSS provides that if a person declared a proclaimed offender has absconded to evade trial and there is no immediate prospect of arrest, the court may treat the accused's absence as a waiver of the right to be present during the proceedings. After recording its reasons in writing, the court may proceed with the inquiry, trial and pronouncement of judgment as if the accused were present.

Under the Code of Criminal Procedure, 1973 (CrPC), the predecessor of BNSS, Section 82(4) of CrPC allows proclamation and attachment of the property of an absconding accused, and Section 317 of CrPC allows the Judge or Magistrate to conduct trial of an accused in his absence in certain specific cases. Section 299 CrPC allows the Judge or Magistrate to record the evidence in absence of absconded accused if there is no prospect of arresting him soon.

Those provisions provide a discretion to a presiding officer to conduct an in-absentia trial only when it feels that, firstly, the personal attendance of the accused before the court is not necessary in the interests of justice, and secondly, the accused persistently disturbs the proceedings in court. But none of those provisions allowed full-fledged trials in absentia. As a result, trials often remained pending for years until the accused was apprehended.

**Whom does it apply to?**

The law does not permit courts to try every accused person in their absence. It applies only to a “proclaimed offender”, as defined under Section 84 of the BNSS.

Under Section 84(4), where a proclamation has been issued against a person accused of an offence punishable with imprisonment of 10 years or more, life imprisonment, or death under the Bharatiya Nyaya Sanhita, 2023, or any other law, and the person fails to appear at the specified place and time, the court may, after making such inquiry as it considers necessary, declare the person a proclaimed offender.

Thus, trial in absentia is available only in cases involving serious offences punishable with imprisonment of at least 10 years, life imprisonment, or death, where the accused has been declared a proclaimed offender.

What are the procedural safeguards under Section 356?

Section 356 lays down several procedural safeguards before a trial can commence in the absence of the accused. These include the issuance of two consecutive warrants of arrest within an interval of at least 30 days. A notice must also be published in a local or national newspaper, giving the accused 30 days to appear before the court. In addition, the notice must be displayed at the accused’s last known place of residence, and a relative or friend of the accused must be informed about the trial.

The trial cannot commence until 90 days have elapsed from the date of framing of charges, giving the accused sufficient opportunity to appear before the court. If the absconding accused does not have legal representation, the court must appoint a defence lawyer at the State’s expense to safeguard the accused’s right to a fair trial.

Statements of prosecution witnesses recorded before the commencement of the trial may be used as evidence against the absconding accused. However, if the accused later appears or is apprehended, the court may permit cross-examination of witnesses in the interest of justice.

The deposition and examination of witnesses may, as far as practicable, be recorded through audiovisual electronic means. Such recordings must be preserved to ensure transparency, accuracy and the integrity of the trial process, and to facilitate review if the accused is subsequently apprehended.

SC STAYS MADRAS HC ORDER BANNING COW SLAUGHTER

The Supreme Court Monday stayed a Madras High Court order directing the Tamil Nadu government to ensure that no cows or calves are slaughtered anywhere in the state.

Key Takeaways:

- Issuing notice on the Tamil Nadu government’s appeal challenging the May 27 High Court order, a bench of Justices Vikram Nath and Sandeep Mehta directed that the judgement should remain on hold in the interim.
- The plea, filed on June 9 through the state’s counsel, Jayasree Narasimhan, said the High Court order imposed a blanket ban on cow slaughter even in the designated slaughterhouses, and this is unsustainable in law. The state said the original plea only raised the question of whether cows



and calves could be sacrificed in places not designated as slaughterhouses on the occasion of Bakri Eid, but a division bench went further and ordered an absolute and blanket ban.

- The Tamilaga Vettri Kazhagam (TVK) government contended that the High Court order contravenes the provisions of the Tamil Nadu Animal Preservation Act, 1958, which permits the slaughter of cows over 10 years of age if a competent authority declares them unfit for work and breeding.
- The state also argued that even legislations such as the Prevention of Cruelty to Animals Act, 1960, the Prevention of Cruelty to Animals (Slaughter House) Rules, 2001, the Tamil Nadu Urban Local Bodies Act, 1998 and the Tamil Nadu Urban Local Bodies Rules, 2023, do not impose any total ban on slaughter but only prescribe conditions for it.
- The High Court's action, it argued, amounts to "judicial lawmaking". The appeal also contested the conclusion that the relevant authorities had conceded the veracity of the averments in the petitioner's affidavit filed in support of his writ petition. It said the state's stand was that it had already taken necessary action to prevent slaughter in public places and that any sacrifice would be allowed only in confined spaces, away from the public.
- Coimbatore resident K Surya Prasanth had approached the High Court alleging that authorities had made arrangements for the ritual sacrifice in areas not designated as slaughterhouses. Though he submitted a representation to the authorities, it was not considered, following which he moved the High Court.

Do You Know:

- In its judgement, the High Court bench of Justices G R Swaminthan and V Lakshminarayanan cited Article 48 of the Constitution of India, stating that it mandated that the state should take steps to prohibit the slaughter of cows, calves, and other milch or draught cattle.
- Article 48 of the Constitution says that "The State shall endeavour to organise agriculture and animal husbandry on modern and scientific lines and shall, in particular, take steps for preserving and improving the breeds, and prohibiting the slaughter, of cows and calves and other milch and draught cattle." This is part of the Directive Principles of State Policy (DPSP), which are meant as guiding principles for the state but are not legally enforceable.
- The bench held that sacrificing a cow is not obligatory for Bakrid and read out Section 4 of the Tamil Nadu Animal Preservation Act of 1958, which permits slaughter only with a certificate showing that the animal is "over ten years of age and is unfit for work and breeding". It also invoked the Tamil Nadu Government order GO Ms No. 1715 on banning cow slaughter in slaughterhouses to increase milk production.

The bench held that "the authorities cannot permit slaughter of any animal in a place other than designated slaughter houses" and then noted that "no cow or calf is slaughtered on the eve of Bakrid or on any other day", thereby creating a blanket direction.

SC SUGGESTS TEMPORARY PRAYER SPACE FOR MUSLIMS NEAR BHOJSHALA COMPLEX

The Supreme Court Tuesday declined an interim stay on a Madhya Pradesh High Court order that would have allowed Muslims to continue Friday prayers at the Bhojshala complex in Dhar.



Describing it as a “sensitive matter”, the court directed that Muslims offer Friday prayers at an alternative site near the Bhojshala until a final decision on the dispute.

- On May 15, the Madhya Pradesh High Court held that the complex has a religious character as a temple, following which the Muslim appellants Tuesday sought an interim stay and the restoration of the status quo ante.

- During the hearing, CJI Kant said, “These are very sensitive matters”.

“What is happening inside court no 1 can unnecessarily create a wrong impression, a wrong message. We should be extremely careful in using any expressions....The state’s helplessness in maintaining law and order has been noted. That’s why we just thought whatever system is there, if we can list it after 10-15 days before a bench,” CJI Kant said.

- The medieval structure in Madhya Pradesh’s Dhar has long been the subject of competing claims. While Hindus consider the ASI-protected complex a temple dedicated to the goddess, Muslims regard it as the Kamal Maula mosque.

- Under a 2003 arrangement, Hindus performed puja at the complex on Tuesdays and Muslims offered namaz on Fridays.

Do You Know:

- At the centre of Dhar city, over 250 km away from Bhopal, is the tomb of Kamal al-Din, a Chishti saint and follower of Farid-al Din Ganji-i-Shakar and Nizam al-Din Auliya. His tomb was built adjacent to a spacious hypostyle mosque “built primarily of reused temple parts”. This led to right-wing groups arguing that the complex is a temple dedicated to the Goddess Vagdevi (Saraswati).

- The Hindu Front for Justice (HFJ), argued that the mosque was constructed during the reign of Alauddin Khilji between the 13th and 14th centuries, after “destroying and dismantling ancient structures of previously constructed Hindu temples”.

- According to a 2012 research paper by Michael Willis, published in the Royal Asiatic Society, the Bhojshala or ‘Hall of Bhoja’ is a term used to describe the centre for Sanskrit studies associated with King Bhoja, the most celebrated ruler of the Paramara dynasty.

- The mosque has been referred to in the writings of English author John Malcolm in 1822 and William Kincaid in 1844. While they documented popular legends associated with Raja Bhoj, they never identified the Bhojshala.

- Willis pointed out that Alois Anton Fuhrer, a German Indologist who worked for the ASI, travelled to Central India in 1893 and recorded the mosque complex with the term “Bhoja’s school”. However, he was dismissed from his position in the ASI after an investigation uncovered an enormous degree of bad scholarship.

- In 1902, a small archaeological department office was established in Dhar by the British government and Superintendent of State Education, K K Lele, was made its in-charge. At the time, the British were investing in research to modernise the Indian government, and in his enquiry, Lele found “two serpentine inscriptions giving the alphabet and grammatical rules of the Sanskrit language.”



- Art historian O C Ganguly, and then Director-General of the ASI, discovered an “inscribed sculpture” in the British Museum and announced that it was “Bhoja’s Saraswati from Dhar”. Over time, many others would back this claim.

FIVE CRORE INDIANS WAIT WHEN THE COURTS TAKE A BREAK

The Supreme Court of India and the major High Courts are on a summer holiday break, i.e., shut down with some vacation Benches functioning to hear urgent matters. However, shops, markets, eating places, government and private offices, hospitals and police stations do not cease to work even though their staff enjoy personal leave. On the other hand, somewhere in an Indian jail tonight, a man who has been convicted of nothing is finishing another year behind bars, his trial still ongoing and perhaps years away from ending. He is one of the roughly three in four prisoners in this country who are undertrials: unconvicted, presumed innocent, yet serving time anyway — often longer than the sentence they would have received had they pleaded guilty. And as you read this, the courts, the public institutions that hold the fate of the poor in their hands, are functioning at only a fraction of their strength.

A three-century backlog

From June 1 to July 12, the Supreme Court is on its summer break, sitting with three or four Benches a week instead of a full court and resuming in earnest on July 13. The doors are not bolted; urgent pleas are still heard. But for six weeks, the most powerful court in the world’s most populous democracy idles.

Now hold that against the number it is meant to be fighting. As of the last day of 2025, more than 5.39 crore cases were pending in Indian courts: over 4.76 crore in the district courts, 63.6 lakh in the High Courts, and more than 92,000 in the Supreme Court itself, its heaviest load in over 30 years. A government study once calculated that, at the present pace, clearing the pile could take three centuries.

Three centuries. And the Court takes the summer and winter vacations off.

To be fair, the judges deserve it. The recess is when reserved judgments finally get written, when the brutal daily cause-list eases enough to think.

Last year the Chief Justice of India and his four senior-most colleagues worked clean through the first week of the break. Indian judges are among the most overworked in the world. This is not an accusation of laziness; no one who has seen a judge’s docket could make one.

Because that is precisely the point. When the people doing the work are exhausted and the backlog is biblical, what conceivable logic shuts the whole shop at once? Not that judges rest — which they should — but that almost all of them rest together, so the institution goes quiet for six-plus weeks every year. And the habit is a colonial hand-me-down: the calendar was built for English judges who could not stand the Indian heat and retreated to cooler climes each summer, then enjoyed long Christmas holidays in the winter.

In 2024, the Court announced a fix: it renamed the “summer vacation” as “partial court working days”. That was it. The number of days it actually sits — about 190 days in a year — did not change. You cannot rebrand your way out of a backlog; a litigant whose case is stuck does not care what the recess is called, only whether his matter is heard and disposed of.



Justice needs court continuity

So what would actually help? The first answer is one the judiciary's own watchdogs have urged for years: do not abolish judicial rest; stagger it. A parliamentary standing committee in 2023 objected to "the entire court going on vacation en masse", and proposed the obvious: rotate the leave, keep the Benches full, and never let the court run thin. A hospital does not empty its wards because its doctors are owed time off; it builds a roster. The Law Commission and the Justice Malimath Committee said the same, long ago. They were not enemies of the courts; they were trying to save them from themselves.

The standard objection is that all this is a sideshow: the real disease is vacancies, not vacations. It is true that courts are starved of judges, with up to a third of High Court seats lying empty. But the objection boomerangs. If the Bench is already running at half strength, thinning it further for six weeks every summer is not a defence of the recess; it is the strongest case against it. And while filling those seats depends on the government and the collegium and will drag on for years, the calendar is the judiciary's to fix. One reform needs permission; the other needs only will.

Beyond courts, towards solutions

of quasi-judicial bodies and tribunals. Freed from any daily docket, a dedicated corps of former judges could be invited to take up a single targeted charge: identify where cases pile up, set public targets for their disposal, and account for progress openly. Reform that belongs to everyone belongs to no one.

The judges will keep working through the heat, as they always do. The honest demand is not that they stop resting, but that the courts stop closing ranks and falling silent at the same moment, because justice, for five crore Indians, is not on vacation. It is overdue. Staggering the leave, though, only treats the symptom. The deeper fix is to keep disputes out of the courtroom in the first place; it was never meant to be the first stop for every quarrel, but the last. India already has the tools. Lok Adalats settled more than 2.59 crore cases in a single national sitting last December, and over 23.5 crore in three years. The Mediation Act of 2023 now nudges parties to attempt settlement before going to court, and arbitration can take commercial disputes entirely out of judges' hands; yet these routes remain badly underused. But none of this happens on its own.

The country has a reservoir of experience it scarcely draws on: its retired judges, who spent their careers mastering this very machinery and step down, still in full command of it, at 62 or 65. Their expertise need not retire with them. Albeit many of them do function as heads.

WITH 4 NEW BENCHES, HOW SC PLANS TO CLEAR OLDEST PENDING CASES

To tackle the mounting backlog of cases in the Supreme Court, Chief Justice of India Surya Kant has, in a significant move, created four specific benches exclusively to hear the oldest pending civil and criminal matters. This marks a structured attempt to ensure the conclusion of decades-old disputes pending before the apex court.

Key Takeaways:

- According to the new roster notification, two division benches, headed by Justices P K Mishra and S V N Bhatti and comprising two judges each, will focus solely on the oldest civil cases.



- Two other division benches, led by Justices Manoj Misra and Ujjal Bhuyan, will be dedicated solely to the oldest criminal matters. These special benches will operate on “non-miscellaneous days”, which are Tuesdays, Wednesdays and Thursdays. In the Supreme Court’s parlance, Mondays and Fridays are “miscellaneous days” reserved for fresh filings and preliminary hearings. The middle of the week is meant for “regular matters” that require detailed, lengthy arguments. By freeing these four benches from the regular burden of miscellaneous hearings, the court will be able to give uninterrupted judicial attention to its longest pending cases.

Do You Know:

- Data from the National Judicial Data Grid provides a glimpse at the enormity of the backlog these benches are meant to address. The Supreme Court currently has 96,045 pending cases. Civil matters make up most of this burden, standing at 74,244 cases, while criminal matters account for the remaining 21,801.

Within this backlog, there are 24 civil cases and two criminal cases that have been pending before the court for over 30 years. The oldest civil case has been pending since 1986, while the oldest criminal case was registered in 1991.

- Another 525 civil cases and seven criminal cases were registered between 1996 and 2005, and have been pending ever since. The bulk of the older backlog lies in the 10- to 20-year bracket, which accounts for 7,993 civil cases and 1,585 criminal cases.

- This growing backlog presents a productivity paradox. Over the last five years, the Supreme Court has actually increased its rate of clearing cases, picking up markedly from the pandemic years – when courts operated at reduced functioning – to record its best-ever disposal figures. However, the overall pendency figure has continued to rise.

- This is primarily because the rate of new case intake is outpacing the rate of disposal. With the court becoming more accessible to citizens nationwide through e-filing and virtual hearings, case intake has risen exponentially. In 2025 alone, the total number of cases filed reached an unprecedented 75,402.

- Different Chief Justices have deployed varying strategies to unclog the docket over the last few years. Former CJI U U Lalit, during his short tenure in 2022, introduced a rigorous listing mechanism that carved out distinct time slots for fresh matters and long-pending regular hearings to ensure that old cases did not get buried under new filings.

HOLDING THE COURT ACCOUNTABLE AMID DEMOCRATIC STRAIN

In late June this year, 23 Opposition parties wrote to the Chief Justice of India (CJI) Surya Kant raising concerns about the state of the electoral process in India’s democracy. The letter reiterated the broad concern that the Special Intensive Revision (SIR) of electoral rolls is exclusionary, and that the framework is burdensome for ordinary citizens. The Opposition’s letter is also a gesture of desperation and disappointment over the Supreme Court of India’s refusal to interfere with the massive and continuous disenfranchisement.

The erosion of the right to vote

In *Why India Votes?* (2014), Mukulika Banerjee narrates various encounters with poor ordinary voters. Ms. Banerjee, in the book, referring to Mekhala Krishnamurty’s study, cites an incident: A



woman named Rukmini Bai was unable to vote in the elections for lack of proper identification documents. When Rukmini was asked why it was important for her to vote, she said, “My work is to sweep up all the grain that falls from the sacks and the weighing scales on the floor. At the end of the day, I sell what I have collected and I am allowed to keep half the money. That is my income. So you see, I understand the value of each grain of wheat. On the floor they look insignificant, just one isolated grain of wheat, but each grain that is added to the heap determines what I earn. My vote is like those grains of wheat.”

For any citizen of a democracy, exercising the right to adult franchise is vital. But for those who have been marginalised from mainstream society, voting becomes a powerful political act. It reaffirms the recognition that they and their votes matter, and that they count as much as those of the privileged. This is why the long queues at polling booths, without class, caste, or income disparities, turns out to be a beautiful image of a functioning democracy.

What the SIR exercise initiated by the Election Commission of India (ECI) has done is to poke at the heart of this electoral enfranchisement. The modalities in which the ECI has invoked this process are also significant. The ECI has been successful in creating an atmosphere of anxiety for citizens, in a matter closely tied to their political identity. The right to vote is a significant facet of political expression envisaged by the Constitution. This right is now, however, submerged in an entire overarching framework consisting of documentation, inquiry into lineage, appeals and as scholar Rudraksh Lakra calls it — ‘digital structural authoritarianism’.

Role of the Court

When the basic structure of a democracy is directly attacked by the executive, the kind of response by the Court — a counter-majoritarian institution — deserves serious study. When a politically aggressive state battles the powerless individual with the entire state machinery at its disposal, one looks at the Court, equipped with the constitutional tools to limit state power.

The Bihar SIR case was adjudicated by the Bench led by the CJI on May 27, 2026. However, this decision came long after the election was over. The Court also has a disappointing history of postponing the final decision in cases after the state action in question has been already operated or implemented.

Therefore, as in the cases challenging demonetisation (2016) and the abrogation of the special status of Jammu and Kashmir, by the time the legality of the SIR was decided, it had become a fait accompli. This is the primary failure of the Court — not determining the dispute when time is of the essence.

Second, the way in which the Court oversaw the process was problematic. Unlike the cases where executive action is under judicial scrutiny, in the Bihar SIR, the Court actively involved itself and facilitated the so-called revision that led to deletion of several lakhs of voters. By virtue of several interim orders and a multitude of directions, the Court effectively administered the process. One finds a clear judicial abetment to the electoral process making it a collaborative exercise — quite unprecedented in the country’s history. The Court’s nature shifted from a forum of judicial review to an administrative body.

Third, the ex-post facto endorsement. In the Bihar SIR case, it was nevertheless crucial how the Court would substantively conceptualise the dispute. This was also determinative for other State elections, particularly in Assam and West Bengal. One could frame the narrative in either of two



ways: first, as a technical question concerning the competence and powers of the ECI; and second, as a question of deprivation of rights.

In formulating the questions themselves, the Court leaned towards the former rather than the latter. Barring a singular question on proportionality and legitimacy, all other issues were misidentified. This is why there is no effective deliberation on the legality of the process, particularly with regard to its vagueness and lack of reasoning. The disproportionate administrative demand for (often impossible) paperwork, rigid time limits, and the discriminatory impact on minorities, women, and the migrant population were overlooked. In the adjudicatory exercise, there was no appreciation of the social realities of illiteracy, poverty and lack of institutional access for a substantial number of voters. Ultimately, the Court decided in favour of the ECI on all the issues.

Judicial accountability

Long ago, the liberal thinker Murray Rothbard, relying on the scholar Charles Black, noted that: “the state has largely transformed judicial review itself from a limiting device to yet another instrument for furnishing ideological legitimacy to the government’s actions.” In his classic work, *The Politics of the Judiciary* (1977), J.A.G. Griffith also exposes the judiciary’s natural inclination towards the political branches of the state.

The Indian Supreme Court is one of the most powerful institutions in the world. Many decisions of the Court seemingly involving legal questions are essentially political questions. Therefore, it is necessary for the political Opposition to evaluate and criticise the fundamental aberrations in the judicial realm. This is part and parcel of the function of the Opposition, in today’s critical times.

Manufacturing endorsements to support continuing executive excesses is symptomatic of any authoritarian regime. It is important to recognise that India is evolving into a system in which institutions have lost neutrality, as acknowledged by the Leader of the Opposition in the Lok Sabha, Rahul Gandhi, in his speech at the recent INDIA bloc convention.

It is also becoming clearer that any radical change in the polity through the judicial process is unlikely. There is a recent global trend of expanding oppositional politics beyond conventional methods to people’s movements. India’s democracy must embrace such political praxis.

DISPROPORTIONATE SIR DELETIONS IN MANIPUR’S TRIBAL CONSTITUENCIES

An analysis of deletions during the enumeration phase of the ongoing special intensive revision (SIR) of Manipur’s electoral rolls showed that the 19 constituencies reserved for Scheduled Tribes (ST) saw disproportionately high deletions compared with the remaining 41 Assembly constituencies (ACs).

The draft SIR rolls, released on July 5, showed that these 19 ACs in the hill areas — which have a predominant presence of the Kuki-Zo and Naga communities — accounted for 64.2% of the 1.59 lakh deletions, despite accounting for only 37.8% of the 20.93 lakh voters present on the State’s rolls before SIR.

The share of voters from ST constituencies in Manipur’s electorate dropped by 2.1 percentage points due to disproportionately high deletions in those ACs.



Manipur has been in turmoil ever since ethnic violence erupted in May 2023. Among the ST ACs, deletions were more concentrated in and around Churachandpur — a district with a significant presence of the Kuki-Zo community, which was the epicentre of the conflict.

In the ST constituencies, 76.1% of deletions were recorded as “Permanently Shifted” or “Untraceable/Absent”, compared with 53.9% in the General ACs. Meanwhile, “Death” accounted for 41.9% of deletions in the General ACs, in contrast to just 18.9% in the ST ACs.

More women got deleted than men. More than 8% of female voters were deleted compared with 6% of male voters. For every 1,000 male voters deleted, 1,271 female voters were deleted, bringing the gender ratio in the rolls down from 1,071 before SIR to 1,057 in the draft rolls. In 18 ACs, 60% to 69% of the deletions were women.

GOVT. ORDERS STRICT SCRUTINY OF DIGITISED BIRTH, DEATH RECORDS

Amid a surge in demand for digitised birth certificates, the office of the Registrar General of India (RGI) is implementing stringent checks to prevent fraudulent digitisation of old records. The RGI informed the States in June that in certain instances, the credentials of registrars have been compromised due to user IDs, passwords, or one-time passwords (OTPs) being shared with unauthorised persons. On July 6, the RGI asked States to identify “Registration Units showing unexplained spikes in registrations”.

“As a result, complaints have been received regarding issuance of fake or unauthorised digitised certificates in some instances. Such incidents not only undermine the integrity of the Civil Registration System but also threaten the reliability of vital records,” the June 12 letter by A.K Pandey, Deputy Registrar General (CRS), said.

On July 6, the RGI urged registration units in States to take measures to “enhance the security, transparency, traceability, and authenticity of the digitisation process and to prevent misuse of the system”.

The measures include mandatory verification of online applications for digitisation of old birth and death certificates by the registrar against the original birth and death registers; uploading of supporting documents, including the applicant’s certificate and the relevant register page; forwarding of all applications to the district registrar for approval; submission of additional documents such as the application form when the registrar enters a request on behalf of an applicant; mandatory scrutiny and approval by the district registrar before any digitised certificate is issued; compulsory use of e-signatures by district registrars to ensure authenticity, accountability and an audit trail; and the return of approved applications to the registrar for final issuance of the digital certificate.

The RGI has asked State committees to review the status of digitisation and preservation of legacy birth and death records, emphasising the need to maintain original registers and related documents securely and to ensure that all manual certificates are duly verified against the corresponding registers before digitisation.

Uptick in digital copies

Due to the ongoing special intensive revision (SIR) of electoral rolls where birth certificates are among the accepted identity documents, several birth and death registration units are seeing an upsurge in requests for digital copies.



The Registration of Births and Deaths Act, 1969, which was amended in 2023 makes online registration of births and deaths compulsory on the Central Civil Registration System (CCRS) portal.

For children born on or after October 1, 2023, the digital birth certificate is the single document to prove the date of birth for various services such admission to educational institutions, government jobs, marriage registration among others. Hospitals are required to report each birth within 21 days.

The Union Home Ministry is set to introduce a Bill in the Monsoon session of Parliament to amend the Registration of Births and Deaths Act, 2023, to make provisions of delayed registration more stringent.

MORE BIRTHS, DEATHS BEING RECORDED: BENEFITS, GAPS

India officially recorded more than 99% of its estimated births and deaths in 2024, according to the latest official data released earlier this month. This marks a significant increase in coverage in around a decade.

Key Takeaways:

- Data on births, deaths and stillbirths are recorded under a continuous and compulsory mechanism known as the Civil Registration System (CRS). It serves as a foundational source of India's population data — how many people are being born, how many are dying, where these events are occurring, and so on — for the accurate estimation of mortality, fertility and sex ratio at birth.
- India nearing universal registration signals movement towards building a system in which every birth and death can be counted, certified, and ultimately used to inform public policy.
- The CRS has been legally operational since 1970, though the coverage and completeness of reporting were historically poor. The system operates under the Registration of Births and Deaths Act, 1969, which was amended in 2023. Births and deaths are ordinarily required to be reported within 21 days. In hospitals, the medical officer in charge or an authorised official is responsible for reporting such events. For events at home, responsibility generally lies with the head of the household or another prescribed informant.
- Until 2000, India registered only 56% of births and 48% of deaths. By 2014, this figure rose to around 86.6% and 72.5%, respectively. Registration coverage also varied considerably, both by rural-urban location and across states.
- The latest CRS report, from the Office of the Registrar General and Census Commissioner of India under the Home Ministry, shows coverage approaching 100%. In 2024, birth registration reached 99.1% and death registration reached 99.4%. Death registration has historically lagged behind birth registration, but it has since caught up rapidly. This marks a major shift for a country that historically had incomplete civil registration and relied heavily on surveys to estimate fertility and mortality.
- The improvement is also visible across states. In 2024, 18 states and Union Territories achieved 100% birth registration, while 21 states and UTs achieved 100% death registration.

**Do You Know:**

- A complete CRS is one of the most important sources of vital statistics. It is a crucial input for administrative use, assessing the impact of health and social policies, and understanding trends in fertility, mortality, and population change.
- Timely registration of births and deaths can provide real-time information on demographic changes and population health. For example, during a health crisis like the Covid-19 pandemic, timely reporting of deaths was crucial for identifying high-risk areas and controlling the spread of the disease. CRS is also important for understanding seasonal mortality changes, driven by high temperatures and pollution.
- Because of the CRS's historically poor coverage, India has traditionally depended heavily on the Census, the Sample Registration System (SRS), and household surveys for estimates. But the Census is conducted only once every 10 years, and sample surveys do not provide reliable annual estimates at the district level.

CAN'T ENGLISH BE CONSIDERED AN INDIAN LANGUAGE, ASKS TOP COURT

The Supreme Court on Tuesday questioned the categorising of English as a “non-native language” by the Central Board of Secondary Education (CBSE) in the three-language scheme, teaming the tongue spoken in India for over 300 years and used for official communication in at least five States with those such as German, Spanish, Arabic, and French.

The latest circular issued by the CBSE on July 10 differentiates between “Bharatiya Bhashas” such as Hindi, Sanskrit, Tamil, Telugu, Punjabi, and so on from the “non-native” languages. The three-language scheme, which is under dispute, requires Class 9 students to study at least two languages “native to India”.

Justice Bagchi said the term “native” used by the CBSE was loaded with colonial meaning. “What does this word ‘native’ mean? Can it be understood as indigenous Indian language,” Justice Bagchi asked.

The judge pointed out that neither the Constitution nor the statute books used the term “native”. It was either “mother tongue”, “regional language”, or “Indian language”.

Justice Bagchi, however, said the push for the three-language scheme may be in the spirit of the constitutional goal to use Indian languages for official purposes throughout the country.

Senior advocate Gopal Sankaranarayanan, appearing for parents and students, said neither books nor teachers were available in schools. Out of the 22 Scheduled languages, books were available only for three though the three-language scheme came into force from July 1.

The senior counsel said teaching 22 languages in CBSE schools would mean 22 teachers more, with one for each language. “This is true as all 22 languages should be made available to students... This creates a complete impossibility of human resources for schools in the country,” Mr. Sankaranarayanan said.

Senior advocate Mukul Rohatgi, appearing for parents and students of Class 9, said it was far too much to expect students to take up a new language, be proficient and appear for exams. He focused on the human resource crunch staring at schools. “Which teacher can teach 22 languages,” Mr. Rohatgi asked.



Senior advocate Shyam Divan, also for Class 9 students, said the scheme was originally meant for 2030, but was advanced to 2026-27.

CITIZENSHIP RULINGS MUST BE 'FAIR, LAWFUL': SC

Declarations on citizenship are not sustainable if 'procedure employed is mechanical', says court

The HC had dismissed appeals against tribunals since the appellants failed to appear for hearings

The Supreme Court on Monday held that the determination of citizenship and foreigner status must be undertaken through a "fair, lawful, and reasoned" process, as it set aside a batch of 27 Gauhati High Court judgments declaring the appellants to be foreigners, and remanded the cases to the Foreigners' Tribunals concerned for fresh adjudication.

A Bench of Justices Vikram Nath and Sandeep Mehta observed that while the state has a legitimate interest in ensuring that persons who are legally ineligible for an Indian citizenship do not obtain such a status through "false claims", the "grave consequence" of being declared a foreigner must follow a procedure that adheres to constitutional guarantees.

"A state action which is arbitrary cannot claim the protection of law merely because it is clothed in statutory form. A proceeding which may result in a person being declared a foreigner cannot be sustained if the procedure adopted is mechanical, one-sided, or devoid of application of mind," the judgment, authored by Justice Nath, said.

'Fair opportunity'

The Tribunal must examine whether the person had a "fair opportunity, whether the main grounds were disclosed, whether the evidence before it was capable of supporting the reference, and whether the conclusion follows from the material on record," it added.

The High Court had dismissed the appeals against the orders of the Foreigners' Tribunals declaring the appellants to be foreigners after noting that none of them had appeared before the tribunals despite having been served notices. It had observed that, in the absence of any written statement, documents, or evidence from the appellants, the tribunals had "no option" but to affirm the references.

The top court, however, clarified that the remand should not be construed as an affirmation of the appellants' claim to Indian citizenship.

The remand was intended solely to ensure that the serious civil consequences of being declared a foreigner flow only from an adjudication that is legally sustainable and consistent with the principles of fairness, the top court said.

Accordingly, the Bench set aside both the High Court judgments and the corresponding opinions of the Foreigners Tribunals concerned, directing the tribunals to decide the matters afresh without being influenced by their earlier findings or those of the High Court. It said the fresh adjudication must involve an independent assessment of the evidence and the rival claims in accordance with law and should, as far as possible, be completed within six months.

The court further directed that no coercive steps be taken against the appellants until the Foreigners Tribunals render fresh opinions.



The top court also directed the appellants to appear before the tribunals within four weeks.

‘Big legal consequence’

Justice Nath also acknowledged that questions of citizenship and foreigner status occupy a field of “high constitutional and legal significance”, particularly because a declaration that a person is a foreigner carries far more than ordinary civil consequences. Such a finding, the judge noted, may result in detention, deportation, separation from family and community, and even “statelessness”.

The apex court further underlined that while Section 9 of the 1946 Act undoubtedly places the burden upon the proceedee to prove that he or she is not a foreigner, it does not absolve a Tribunal of its “obligation” to conduct a lawful adjudication so as to not proceed with a “mechanical” declaration.

The Bench also pointed out that the guarantees of equality before the law under Article 14 and the right to life and personal liberty under Article 21 of the Constitution extend to foreigners as well, and are not confined to Indian citizens.

“A person proceeded against before a Foreigners Tribunal may ultimately fail to establish Indian citizenship, but the process by which such determination is made must still satisfy the constitutional requirements”, the Bench said.

The principal contention before the apex court was whether a person could be declared a foreigner through ex parte proceedings solely on account of non-appearance, particularly where government records were available in support of the claim to Indian citizenship.

The dispute arose from an order dated May 9, 1997, by the Illegal Migrants (Determination) Tribunal, which declared Sabitri Dey and her husband, Sambhu Dey, to be illegal migrants after they failed to appear despite summons. The petitioners contended that they had no knowledge of the proceedings and that the tribunal’s conclusion rested primarily on the inquiry officer’s hearsay testimony rather than reliable substantive evidence.

SC VERDICTS SAY STATE HAS THE DUTY TO PRESERVE LIFE OF A PERSON ON INDEFINITE FAST

Multiple Supreme Court judgments and orders highlight the state’s paternalistic duty of care to preserve the life of a person on a hunger strike without disrupting his right to dissent.

Yet the government has responded to activist Sonam Wanghuk’s ongoing fasting at Jantar Mantar with silence for the past 19 days even as an alarmed Delhi High Court asserted on July 16 that the “life of any citizen is precious”.

A series of orders of a Supreme Court Bench headed by Justice Surya Kant, currently the Chief Justice of India, have similarly stressed the constitutional duty and responsibility of the state to ensure that no harm is caused to the life of a person on an indefinite fast.

The orders were passed during periodic hearings held in the case of Punjab farmer leader Jagjit Singh Dallewal during the latter half of the year 2024. The septuagenarian Mr. Dallewal’s hunger protest against the controversial farm laws had crossed 20 days at the time.



The court had highlighted that both the Union of India and the State of Punjab must take into consideration the age, medical health issues, and the fact that Mr. Dallewal was a prominent citizen.

The Bench had held that it was the “bounden duty of the State of Punjab, the Union of India and other stakeholders to take all necessary measures to provide immediate adequate medical aid to Mr. Jagjit Singh Dallewal without forcing him to break his fast unless it is imperative to do so to save his life”.

In the top court judgment in the suo motu case of In Re: Ramlila Maidan Incident, the court narrated instances of the then United Progressive Alliance government reaching out to Baba Ramdev to dissuade him from going on a hunger strike against corruption in 2011.

It recorded that the then Prime Minister, the late Dr. Manmohan Singh, had gone the “extra mile” to dissuade Baba Ramdev.

“On May 4, 2011, Baba Ramdev had written a letter to the PM stating his intention to go on fast to protest against the government’s inaction against bringing back the black money. This was responded to by the PM on May 19, 2011 assuring him that the government was determined to fight with the problem of corruption... and asking him to drop the idea of going on a hunger strike till death,” the judgment recorded.

It narrated how four senior Ministers of the UPA government had met Baba Ramdev at the airport when he arrived in Delhi in 2011 to persuade him against the hunger strike.

The court has discouraged the executive from taking a hostile view of persons who want to express their stand by fasting. It has held that the state cannot disrupt the right of expression unless there was a “genuine threat or reasonable bias of communal disharmony, social disorder and public tranquillity”.

Hunger strikes are neither unconstitutional nor barred under any law. “It is a form of protest which has been accepted, both historically and legally in our constitutional jurisprudence,” it said.

DIGITISATION AND EFFICIENCY IN CRIMINAL JUSTICE SYSTEM

Recently, the Centre has announced that India aims for full digital rollout of its criminal justice system from July 1, 2027 after which the procedures related to investigations and trials under the new criminal laws will be recorded digitally through the Interoperable Criminal Justice System. The efficiency of any criminal justice system largely depends on the procedural efficiency beginning from the registration of the first information report (FIR) to investigation, filing of chargesheet outlining specific charges levelled against the accused and presenting the evidence and witness testimonies gathered to substantiate them, trial and finally the disposal. In the digital system the data is stored on the government’s cloud platform, MeghRaj.

Understanding criminal justice system

The criminal justice system comprises the police, courts, prisons, forensics, and prosecution services, and aims at ensuring that individuals who suffer injury or loss at the hand of others can present their cases and seek justice.

Justice cannot be delivered unless the rights of the accused and the interests of the victim and the society are balanced. This has been the fundamental principle of the criminal justice system,



particularly in common law countries that follow the adversarial system. These countries base their legal systems primarily on judicial precedents and uncodified case law rather than strict statutory codes. This principle also gives the accused a fair chance to present his case in accordance with the tenets of natural justice, that is, the rule of fair hearing (*Audi alteram partem*). In other words, no person should be condemned unheard. The system seeks to ensure procedural fairness. On the other hand, the inquisitorial system is practised in civil law countries, where rules are codified into comprehensive written statutes rather than shaped by judicial precedent. Under this system, the judge plays an active role in investigating the facts and determining the outcome of the case on the basis of inquiry and investigation. Thus, the precision of decision depends largely on the skills and prudence of the judge concerned.

Changed attitude

The reforms in the criminal law have opened a new avenue for the delivery of justice. To be more appropriate, the Indian Penal Code (IPC) and the Code of Criminal Procedure (CrPC) have been replaced by the *Bhartiya Nyaya Sanhita* (BNS) and *Bhartiya Nagrik Suraksha Sanhita* (BNSS) with the idea of transformation. While the erstwhile penal code was implemented with an idea to punish the accused, the BNS believes in the delivery of justice through retribution. The new code has a democratic approach, placing greater emphasis on individual than on the state in matters relating to crimes. The criminal procedure code believed that trial of a 'criminal' was being conducted whereas the BNSS considers an accused as a citizen whose rights should be balanced with the interests of the victims without any prejudice. Thus, the shift in approach to justice has contributed to making the criminal justice system more democratic and citizen-oriented, while strengthening the protection of the principles of natural justice that are embedded constitutional framework of India.

Reforms in the system

It is well established that every system requires periodic reform to remain responsive to changing needs and circumstances. The judiciary plays a vital role in this process by guiding the state through its directions and rulings. Against this backdrop, it is important to note that courts have laid down procedures governing several aspects of the criminal justice system. Through their decisions, courts often seek to fill legislative gaps in areas where the law is silent, thereby ensuring the effective administration of justice. For example, the Supreme Court in *Visakha v. State of Rajasthan* (1997) gave guidelines to prevent sexual harassment of women at workplace holding that such an act violates Articles 14, 15 and 21 of the Constitution.

The recent announcement by the Centre to enhance the efficiency of the criminal justice system through digitisation assumes considerable significance. In the field of forensics, the new criminal laws have made forensic examination of crime scenes mandatory for offences punishable with imprisonment of seven years or more. In view of this requirement, the number of forensic laboratories has increased from 129 in 2023 to 154 in 2025. However, according to the National Crime Records Bureau, only 46% of FIRs were digitally transmitted to courts. Since this accounts for less than half of all registered cases, it suggests that the digital chain of the criminal justice system remains incomplete.

Although most states have implemented various components of the criminal justice digitisation system, progress remains uneven. In this context, full digital rollout by 2027 will fill this gap and make the system more efficient.



'FRAME POLICY FOR RELEASE OF AGED, TERMINALLY ILL INMATES'

The Supreme Court on Thursday directed all States and Union Territories to put in place, within three months, a uniform policy governing the premature release of elderly and terminally ill prisoners, observing that such inmates are entitled to a humane and time-bound mechanism for remission or early release on compassionate grounds.

A Bench comprising Justices Vikram Nath and Sandeep Mehta directed that every State policy must clearly lay down the eligibility criteria and procedural framework governing such releases.

"All States and Union Territories shall, within a period of three months from the date of this judgment, formulate and notify a comprehensive policy for early or premature release of prisoners who are of advanced age and/or are terminally ill. Such policy shall be framed in consultation with the respective State Legal Services Authorities so as to ensure institutional coordination and effective identification of eligible prisoners," the Bench said.

NALSA petition

The directions were issued while hearing a petition filed by the National Legal Services Authority (NALSA), which, based on inspections conducted in prisons across the country, pointed to the lack of a common framework for the premature release of aged and terminally ill prisoners. The petition contended that facilitating the release of such inmates would not only address a humanitarian concern but also help reduce overcrowding in prisons.

The court directed that every policy must incorporate a clear and uniform definition of "terminal illness". It permitted the authorities to draw upon the definition contained in the Handbook on Prisoners with Special Needs published by the United Nations Office on Drugs and Crime (UNODC), which describes terminal illness as "a condition where there is no reasonable medical possibility that the patient's condition will not continue to degenerate and result in death".

It also directed the States and Union Territories to constitute independent medical boards to assess and certify cases of terminal illness or advanced medical vulnerability in accordance with uniform eligibility criteria while considering applications for remission of prison sentences.

To facilitate the implementation of its directions, the Bench directed the Union government, in coordination with the National Informatics Centre (NIC), to provide the States and Union Territories with technical assistance, digital infrastructure, software support and training.

Compliance affidavits

The Bench directed the Centre, States and Union Territories to file compliance affidavits within six months, detailing the number of prisoners identified under the policy, those granted premature release, and those whose cases remain under consideration. The matter has been listed on January 19, 2027.

The petition had pointed out that India's prisons had an occupancy rate of 131% as of December 31, 2022, and that terminally ill and elderly inmates often require specialised care that prison authorities are ill-equipped to provide.



IS THE UNDOCUMENTED MIGRANT COUNTED?

Can India's official statistics detect large-scale undocumented migration? Undocumented migrants may evade law, but can they evade the Census? If millions of them are living in India, they must appear somewhere in the country's official statistics. Union Minister of Parliamentary Affairs Kiren Rijiju told Parliament that "As per available inputs, there are around 20 million illegal Bangladeshi migrants staying in India". Then, they must come across enumerators during the Census. What might an undocumented migrant do in such an encounter?

They can respond in three ways: avoid or duck the Census altogether, contributing to coverage error; be counted but report India rather than Bangladesh as the place of birth, creating measurement error; or report the place of birth truthfully.

Each of these choices leaves a different mark in the data, which can be checked. Together, this provides a simple framework for asking whether India's official data are consistent with the claimed scale of undocumented migration. But a framework based on birthplace has a built-in limit: the Census records where a person was born, not whether they entered legally. The same "born in Bangladesh" category contains citizens, visa-holders, and the undocumented alike, with nothing to tell them apart. What the data can speak to, then, is scale: whether a population of the claimed size exists at all.

Ducking

Ducking is hiding from the enumerator altogether. But hiding is not the only way to duck. A subtler version, for example, is to tell the enumerator "I don't actually live here; I will be counted at my usual residence elsewhere" and then not to be counted at that other place either. The outcome is the same, an omission, which is exactly what the Census is built to detect via the Post Enumeration Survey (PES). This has been conducted after every Census to estimate coverage error and reasons for measurement errors.

The 2011 PES finds a net omission of 23 persons per 1,000 nationally, or 2.3%, unchanged from 2001 (up from 1.8% in 1991). The Eastern zone, with States bordering Bangladesh and where "infiltration" claim is concentrated, is best covered (Table 1). What can be said confidently is that the population missed by enumeration is small, stable across the decades, and smallest at the border. This leaves little room for the unenumerated population of the scale the political claim requires.

Misreporting

The second option—being enumerated but recording one's birthplace as India rather than abroad—is the one that costs the least and can be neither verified nor refuted at the point of enumeration. But it has an implication: a person who misreports is still a person the Census has counted. This is what would be termed measurement error. They remain in the total population, in the count by religion, and in the age and sex tables, but the birthplace entry is false.

If, for example, large numbers of undocumented Muslim migrants were doing this, the effect would not be a hidden population but an inflated one—a Muslim population, and with a rate of population growth, larger than natural increase and differential fertility can account for—and concentrated in the border districts. That inflation has been examined in an earlier article in The India Forum, which found no such signature. If misreporting were hiding a large migrant inflow, it would surface as border-concentrated Muslim growth beyond what fertility explains. The



counts showed growth that is moderate, fertility-consistent, and geographically dispersed instead.

Truthful Responses

The third option is to report their place of birth truthfully with the belief that the Census enumeration is anonymous and does not put them at risk. Migrant stock is a widely used measure to keep track of levels of migration. A person enumerated in India, but born in another country is considered a migrant in this measure.

The composition of the migrant stock in India has seen substantial declines of those born in Bangladesh and Pakistan, with large increases in that of Nepal (Chart 1). However, despite decline in overall migrant stock, about half of India's has consistently been Bangladesh-born persons.

In the last three Censuses, roughly 94% of all India's Bangladesh-born residents lived in the five border States (West Bengal, Assam, Tripura, Meghalaya, and Mizoram); a share that barely moved even as the national Bangladesh-born population itself fell by nearly one-third from about 4.0 million to 2.7 million.

Table 2 shows data from districts in the Eastern States bordering Bangladesh. Both by share and by absolute numbers across these districts, migrants who are overwhelmingly from Bangladesh are ageing and likely dying out. The younger age-groups show meagre numbers. Much of this population arrived during Partition in 1947 or the Bangladesh War in 1971. That generation is now elderly, and its numbers are falling chiefly because its members are dying.

Thus, the evidence using official data, in all its forms, suggest that there is no surge of undocumented migrants from Bangladesh, at least between 1991 and 2011.

The Census cannot tell us there are no undocumented migrants from Bangladesh. What it does tell, as checked in three different ways above, is that there are not 20 million of them.

WHY IS MAHARASHTRA'S LADKI BAHIN SCHEME UNDER SCRUTINY?

The story so far:

Ahead of the 2024 Assembly elections, the Maharashtra government launched the Mukhyamantri Majhi Ladki Bahin Yojana. Under this scheme, eligible women in the State receive ₹1,500 every month through Direct Benefit Transfer (DBT). At its peak, the scheme covered 2.43 crore beneficiaries. However, successive rounds of verification over the past two years have led to the removal of lakhs of beneficiaries, bringing the total down to about 1.66 crore women.

The recent information about the removal of lakhs of women from the beneficiaries' list has sparked criticism, and the Comptroller and Auditor General (CAG) has raised concerns about the scheme.

Who is eligible to receive funds under the scheme?

Women who are residents of Maharashtra, aged between 21 and 65 years, with an Aadhaar-linked bank account, and belonging to a family with an annual income of less than ₹2.5 lakh are eligible to receive benefits under the scheme. Women of any marital status are eligible. However, only one woman per family can avail of the benefit.



The State government has said the scheme is aimed at promoting the economic independence of women. It also seeks to improve their health and nutritional status, and strengthen their role in family decision-making, according to the government. The scheme is implemented by the State's Women and Child Development Department.

What are the red flags raised by the CAG in the latest report?

The CAG said the implementation of the Mukhyamantri Majhi Ladki Bahin Yojana during 2024-25 was marked by "significant deficiencies in Budget estimation, expenditure control, and financial management." While the scheme was allocated ₹29,693.09 crore for the fiscal year, the government incurred an expenditure of ₹33,237.24 crore, resulting in an excess expenditure of ₹3,541.16 crore. The CAG described the excess expenditure as "unjustified" and said the Women and Child Development Department failed to provide any specific justification for the overspending. It also observed that funds for the scheme were mobilised by reappropriating allocations from other schemes. For instance, ₹3,490.75 crore was reappropriated from the Lek Ladki Yojana. The State's supplementary Budget also allocated ₹26,200 crore for the scheme.

The CAG said that the scheme undermined the principles of budgetary discipline, financial propriety and legislative control over public finances. It said that "significant excess expenditure remained unexplained" and that large sums were drawn and parked in the Disbursing Officer's Virtual Personal Deposit Account (VPDA). "This indicates that the funds were not required for immediate utilisation and were drawn without actual expenditure needs, contrary to the principles of budgetary discipline and financial propriety," the CAG observed.

"A test check of vouchers exceeding ₹1,000 crore relating to the scheme, aggregating ₹29,732.01 crore, showed that ₹15,586 crore drawn between January and March 2025 was transferred to the Drawing and Disbursing Officer's VPDA," the report said.

Why have so many names been removed from the beneficiaries' list?

At its peak, the scheme had 2.43 crore beneficiaries. According to the Maharashtra government, the number of beneficiaries has fallen from 2.43 crore to 1.66 crore. The government said the names were removed after multiple rounds of verification found that some beneficiaries were no longer eligible. It maintained that there has been no change in the eligibility norms and attributed the reduction to the verification process.

The government also cited that the mandatory e-KYC requirement as a key reason for the drop in the number of beneficiaries, saying many women failed to complete the process. A Shiv Sena leader has now urged the State to extend the deadline for completing the e-KYC process. Meanwhile, the Opposition has accused the government of using the scheme to secure electoral gains. The Congress has demanded the immediate restoration of benefits for lakhs of women who were excluded over e-KYC-related issues, and called for an inquiry into the implementation of the scheme.

The Opposition has also criticised the government for failing to fulfil its promise of increasing the monthly assistance from ₹1,500 to ₹2,100 ahead of the State Assembly elections.



FULFIL THE PROMISE

New Delhi cannot keep stalling the restoration of Statehood to J&K

It has been over two and a half years since the Supreme Court of India recorded the Union government's solemn assurance that Statehood would be restored to Jammu and Kashmir (J&K). It set no timeline, but the expectation was that it would happen within a reasonable period and steps would be taken progressively. That the Bharatiya Janata Party (BJP)-led government has done nothing on this front since then can only mean that it has interpreted the lack of a timeline as a licence for the indefinite deferral of Statehood. This is despite repeated assurances from the Centre. Prime Minister Narendra Modi pledged it in the run-up to the J&K elections, and Home Minister Amit Shah reiterated it on the floor of Parliament. Unsurprisingly, the inaction has driven J&K Chief Minister Omar Abdullah to organise a series of agitations and rallies, culminating in a sit-in at Jantar Mantar on July 20. His grievance, and that of the province, is legitimate. The retention of Union Territory status even after popular elections subordinates the elected government to an unelected Lieutenant Governor who retains preponderant authority over the bureaucracy, the police and other institutions. There is no principled justification for perpetuating this arrangement once elections have been held and a government installed.

New Delhi's rationale for inaction has been trite: "security", invoked by the Solicitor-General before the Court late last year, citing the Pahalgam attack, in a hearing on a petition seeking restoration of Statehood. But this argument cuts no ice. By the government's account, the attack was orchestrated from across the border, and India responded with Operation Sindoor. A cross-border provocation can have no logical bearing on whether J&K's elected representatives are to be trusted with the powers of a full State. If anything, empowering elected leaders to address local grievances is precisely how a polity assuages concerns before they turn into resentment, which fed into cycles of militancy in the Kashmir Valley for decades. The Centre's handling of J&K, Ladakh and even Manipur reveals a troubling pattern in how border regions with substantial minority populations are treated. Secure in its dominance across the north, the west and now the east, the BJP appears to regard the concerns of citizens in these provinces as expendable. Such a view is myopic: governance that treats a border region as politically dispensable only deepens alienation, and instability soon spills over and unsettles governance overall. The BJP seems cynically content to leave the Statehood question hanging until the political arithmetic, already sought to be reworked through delimitation in J&K, tilts decisively in its favour. A promise made to the Court, to Parliament and to the people of J&K cannot be held in abeyance until political circumstances turn expedient for the BJP.

HOW DDCS CHANGED LOCAL GOVERNANCE IN J&K?

The story so far:

The restructuring of Jammu and Kashmir's political and administrative framework through the constitution of District Development Councils (DDCs) has remained the subject of legal and constitutional debate. Formed in 2021, the DDCs completed their five-year term on February 24, 2026. With no fresh elections held and local government institutions remaining largely inactive in recent years, questions have resurfaced about the relevance of the DDC model. Introduced as a mechanism for direct local democracy, the DDCs are viewed by supporters as a step towards grassroots governance, while critics argue they have impeded rather than strengthened democratic decentralisation in the region.



What do the 73rd and 74th Amendments provide for?

One of the core arguments presented for the abrogation of Article 370 was the need to fully integrate J&K with the constitutional framework applicable to the rest of India.

A central element of this argument was the introduction of the 73rd and 74th Constitutional Amendment Acts, which provide for elected rural and urban bodies. This integration was intended to ensure regular, mandatory elections and empower grassroots democracy.

How is local governance structured?

The standard constitutional framework operates on a clearly defined multi-tier electoral system where citizens directly elect their local representatives:

Urban areas: Municipal Corporations, Municipal Councils, and Nagar Panchayats.

Rural areas: A three-tier structure comprising Gram Panchayats (Village Pradhans), Block Development Councils (BDCs), and District-level bodies (Zila Parishads).

Mandated under Article 243ZD of the Constitution, the District Planning Committee (DPC) is envisaged as a coordinating body that brings together development plans prepared by panchayats and municipalities and integrates them into a comprehensive district-level plan.

Unlike an independent executive authority, the DPC is intended to function as an institutional mechanism that reflects priorities generated by elected local bodies and facilitates bottom-up planning. In this sense, it is designed to strengthen democratic decentralisation by aggregating local mandates rather than exercising authority over them.

However, while the constitutional framework assigns a key role to DPCs in district-level planning, their functioning has been uneven across the country, with many remaining largely inactive, barring a few exceptions such as Kerala.

How do DDCs differ from DPCs?

The DDCs were established in J&K through an executive order rather than a legislative process. While the government presents DDCs as directly elected bodies that strengthen grassroots democracy, it is contended that the model contains major contradictions within the governance framework.

Critics argue that the DDC structure bypasses existing institutions such as Zila Panchayats and urban local bodies. Unlike the DPC, which is intended to aggregate development priorities emerging from lower tiers of government, the DDC functions as a parallel administrative authority with executive and developmental powers. This blurs the relationship between the electorate and the actual exercise of power.

The key distinction is that the DPC seeks to strengthen local democracy by consolidating mandates generated from the ground up, whereas the DDC operates from above, competing with lower tiers of governance and functioning as an instrument of centralised bureaucratic control rather than democratic decentralisation.

The DDC structure raises concerns about unequal representation. The allocation of seats across districts does not adequately reflect variations in population, thereby diluting the principle of uniform political weight.



For instance, Srinagar, with a population of roughly 12 lakh, and Kishtwar, with around 2.5 lakh residents, are allocated the same number of DDC members. This creates an imbalance where the political voice per capita is drastically skewed.

The DDCs are being compared to the “special purpose vehicles” used in Smart City projects. They create an illusion of decentralisation, but act as capital-driven, bureaucratically managed structures. Since DDCs can easily jettison legislatively approved local initiatives, they function as a governance substitute rather than a governance supplement.

The creation of 280 DDC members across J&K has established a form of parallel ‘parliament’ in disguise. Historically, in politically fragile regions, central authorities have often sought to weaken provincial or State-level assemblies by backing district-level entities.

With the J&K State Assembly absent or weakened for years, the DDC framework has allowed key functions and financial powers that would ordinarily rest with elected legislators and local panchayats to remain concentrated under Union administration control.

What is the way forward for local democracy in J&K?

Genuine local democracy cannot be reduced to an administrative or legal exercise; it is fundamentally a political question. True decentralisation requires the restoration of the DPC model envisaged under the 73th and 74th Constitutional Amendments, ensuring financially empowered and grounded local governments accountable to the State’s electorate, rather than an administrative architecture serving centralised union control.

CAN COURTS STOP RELEASE OF A FILM CLEARED BY CBFC?

The Supreme Court on Friday (July 17) declined to permit the release of the animated film Mahaprabhu Jagannath on its scheduled release date today but directed the producer to postpone the release until after July 27, when the annual Rath Yatra in Puri concludes.

Key Takeaways:

- The order, by a bench of Justices B V Nagarathna and R Mahadevan, came after the Orissa High Court, on July 15, restrained the film’s release over concerns regarding the depiction of Lord Jagannath and the possible impact of its screening during the Rath Yatra.
- The High Court had held that the film’s depiction of Lord Jagannath’s childhood and adventures was “not in tune with the religious texts of the Skandha Purana and the Brahma Purana”. It said that releasing it during the Rath Yatra would be “counterproductive”.
- The film held three separate ‘U’ (universal) certificates from the Central Board of Film Certification (CBFC) for its Hindi, Telugu and Odia versions, dated May, June and July, respectively. The stay stalled the certified Hindi and Telugu versions in states “where no cause of action existed and no relief was ever sought”.
- The plea states that once “an expert statutory body... examines a film and certifies it for unrestricted public exhibition, there is a strong legal presumption of validity”, and courts should not substitute and follow “its view over the expert wisdom of the CBFC based on unverified apprehensions”.



— The SC has generally treated CBFC as carrying significant weight. In *Union of India v K.M. Shankarappa* (2000), it struck down a provision letting the government revise a tribunal's decision. It said that once an expert statutory body certifies a film, that decision cannot be revisited by the executive merely because of objections or apprehensions about public reaction.

— Certification itself, however, is not entirely immune from judicial scrutiny. Courts retain the power to examine whether certification was granted in accordance to the law — such as if the CBFC relied on statutory grounds, issued reasons or followed fair procedure. Where the CBFC acts within the framework of the Act, courts usually defer.

— Under the Cinematography Act, the government may suspend or revoke a certification after approval. It may, in some cases, temporarily restrict screening without prior hearing. The Act allows criminal liability for violations and authorities can enter theatres and seize materials.

— The HC order says that even if the movie enjoys the guarantee of freedom of expression and speech, a balance has to be created when such a creation impacts “the thoughts and the actions of the common people... it should ensure a high degree of attention and retention.”

Do You Know:

— Theatre releases are governed by the Cinematograph Act, 1952. Under Section 4 of the Act, any person wishing to exhibit a film publicly must apply to the CBFC, a statutory body under the Ministry of Information and Broadcasting. Screening uncertified films in a cinema is a criminal offence.

— The CBFC certifies films into categories: U (unrestricted); UA (unrestricted with parental guidance); A (adults only), and S (restricted to specialised audiences).

— The Cinematograph (Amendment) Act, 2023, further split the UA category into age-based sub-categories and made certificates perpetually valid, removing the earlier 10-year limit.

WHY DID THE GOVERNMENT GET ZEE5 TO REMOVE ‘SATLUJ’?

The story so far:

On July 5, just two days after its premiere, the film *Satluj* (originally titled *Punjab '95*) was removed by ZEE5 from its OTT platform. The filmmakers have said the government ordered the removal. Reports suggest that a Centre-appointed committee is examining the film under Section 69A of the Information Technology Act. No official blocking order has been made public.

What is *Satluj* about and why was it removed from ZEE5?

Directed by Honey Trehan and starring Diljit Dosanjh, *Satluj* is about the life of human rights activist Jaswant Singh Khalra, set against the backdrop of Punjab in the 1980s and 1990s. Khalra had been documenting the alleged extrajudicial killings, enforced disappearances, and illegal cremations during Punjab's militancy years and had estimated that around 25,000 people had been secretly cremated across the State. In 1995, he was abducted from outside his home in Amritsar and was never seen again. The Central Bureau of Investigation concluded that he was taken by police officers to a police station in Tarn Taran and killed in custody.

The film premiered on ZEE5 on July 3 after years of delays over a certification dispute with the Central Board of Film Certification (CBFC). However, two days later, the platform removed it from



its India catalogue while continuing to stream it internationally through ZEE5 Global, citing “current developments”.

The film’s OTT release came after years of controversy. Originally scheduled for a theatrical release in India, it faced hurdles with the CBFC. The Board reportedly recommended 127 cuts before granting the film certification. The delays forced the makers to repeatedly postpone the release, and the film never made it to theatres.

Can the government legally order an OTT platform to remove a film?

Unlike films released in the theatre, content released directly on streaming platforms does not require prior certification from the CBFC under the Cinematograph Act, 1952. Instead, OTT platforms are regulated under the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021. However, Section 69A of the Information Technology (IT) Act, 2000 empowers the Centre to block online content on limited grounds, including acts threatening the sovereignty and integrity of India, security of the State, defence of India, friendly relations with foreign States, and public order, or to prevent the commission of a cognisable offence. Any such blocking, however, must follow the procedure and safeguards prescribed under law.

What legal safeguards apply before online content can be blocked?

According to Apar Gupta, advocate and founder of the Internet Freedom Foundation, if the reported action against Satluj has been initiated under Section 69A read with the IT Rules, 2021, the government is required to follow certain “procedures and safeguards”. These include a reasoned written order explaining how the content falls within one of the statutory grounds under Section 69A(1), an opportunity for the publisher to be heard, and a review by the designated committee. He points out that the Supreme Court, in *Shreya Singhal v. Union of India* (2015), had upheld Section 69A because these procedural safeguards, including recorded reasons and an opportunity for hearing, formed part of the statutory framework. He notes that the constitutional validity of certain provisions of the IT Rules, 2021 remains under challenge before the Delhi High Court.

Can blocking orders remain confidential?

One of the central questions is whether the government is required to disclose the reasons for a take down. Rule 16 of the Blocking Rules contains a confidentiality provision. The government has increasingly relied on it to withhold blocking orders even from the affected parties. This undermines the rationale on which the Supreme Court upheld Section 69A in the *Shreya Singhal* case since a blocking order that remains secret cannot be meaningfully challenged before the court of law. Without access to the blocking order, filmmakers cannot effectively challenge the decision, and the courts are left with little material to assess whether the restriction satisfies the constitutional test of proportionality laid down in decisions such as *K.S. Puttaswamy v. Union of India* (2017) and *Anuradha Bhasin v. Union of India* (2020).

Does the case signal a broader shift in the regulation of OTT platforms?

There is a shift from pre-certification under the Cinematograph Act to post-publication executive control through Section 69A and the IT Rules. As OTT platforms fall outside the CBFC certification, the executive blocking powers risk functioning as a parallel censorship mechanism.



What legal remedies are available to the filmmakers?

If a blocking order has been issued, the filmmakers can challenge it before a High Court through a writ petition under Article 226 of the Constitution, arguing that the direction is ultra vires Section 69A and violative of Articles 19(1)(a) and 19(1)(g), which provide the right to freedom of speech and expression and the right to practise any profession or carry on any occupation, trade or business, respectively.

USER DATA EXPOSED DUE TO FLAWS IN UMANG PORTAL: RESEARCHERS

Multiple vulnerabilities in the UMANG, or Unified Mobile Application for New-age Governance, portal that aggregates hundreds of public services offered by the Union and State governments are leaving data of potentially millions of Indians exposed across a variety of databases, including those from the Employees' Provident Fund Organisation (EPFO), according to two security researchers who shared their findings with The Hindu.

The vulnerabilities, which have likely existed for years, affect several services tested on the UMANG portal, which has onboarded over 2,400 services. It stems from the architecture of the portal itself, said the researchers, Akshay C.S. and Viral Vaghela. "Almost everything is broken by design," Mr. Vaghela said.

The data exposed included Unique Account Numbers (UAN) with the EPFO, LPG cylinder booking details with at least one major oil marketing company, and Aadhaar numbers across several services where a user's ID details are saved. The Aadhaar numbers were found across many services in plain text, though such storage is disallowed by the Aadhaar Act, 2016. The Aadhaar module itself within UMANG was not vulnerable.

The EPFO module is UMANG's most-used service, recording over 40 crore transactions over the past three months.

The Ministry of Electronics and Information Technology acknowledged the vulnerabilities in a statement to The Hindu.

Mr. Akshay and Mr. Vaghela reported both vulnerabilities to the IT Ministry and the Computer Emergency Response Team, India (CERT-In), which issues alerts and helps organisations across the country with fixes for vulnerabilities like these. Shortly after the pair reported the vulnerabilities, the EPFO took down its online portal for a "migration", and some services remained unavailable this week.

US N-FUEL FIRM COUNTERS BARC'S SAFETY CONCERNS OVER THORIUM FUEL

Chicago-based nuclear fuel company Clean Core Thorium Energy (CCTE) has refuted concerns over the use of its advanced nuclear fuel, ANEEL, in existing pressurised heavy water reactors (PHWRs). The company claimed that the thorium-based fuel improves key reactor safety characteristics and can be deployed without requiring modifications to reactor designs or control systems.

Key Takeaways:

- In a paper published in the journal Nuclear Engineering and Design, researchers from Clean Core, the Massachusetts



Institute of Technology, Toronto-based Innovative Nuclear Solutions, and San Diego-based Structural Integrity Associates challenged the findings of an earlier study by scientists at the Bhabha Atomic Research Centre (BARC). The BARC paper had argued that deploying ANEEL in India's existing PHWR fleet would require reactor redesigns and could increase safety risks under accident conditions.

- The paper also claimed the advanced nuclear fuel has the potential to generate around six times more energy than conventional natural uranium fuel.
- CCTE, only the second American company to have secured an export license from the US Department of Energy to sell nuclear technology to India in nearly two decades, has developed the patented thorium-based fuel called ANEEL (Advanced Nuclear Energy for Enriched Life), which combines thorium with high-assay low-enriched uranium (HALEU) for use in PHWRs.
- According to the company, ANEEL can be deployed in India's PHWR fleet, which accounts for the majority of the country's operational nuclear reactors. In December 2024, state-owned NTPC Ltd and CCTE had announced a strategic partnership to explore the development and deployment of ANEEL for existing nuclear stations in India, subject to regulatory clearances. Apart from exploring the development and deployment of ANEEL fuel in India, the two companies also intend to collaborate for exploring the possible indigenisation of its manufacturing with local supply chain development, establishing supply chain for HALEU, and supply of Uranium to India with sovereign guarantee.

Do You Know:

- In January, a paper published in the journal Current Science authored by scientists at BARC had flagged concerns about using ANEEL fuel in the country's existing PHWRs. It concluded that thorium-HALEU fuel was "far from a drop-in option" and that existing reactors were unsuitable without substantial changes.

The CCTE paper, however, refuted this and described ANEEL as a "plug-and-play" replacement for natural uranium fuel bundles, saying it retains the same external dimensions and geometry as conventional fuel and modifications are limited to internal pin geometry and fuel composition.

- Another key issue flagged by the paper authored by BARC scientist is coolant void reactivity (CVR), a key reactor safety parameter. It argued that using thorium-HALEU fuel would make coolant void reactivity more positive, raising safety concerns. However, CCTE paper refutes this safety concern, claiming its ANEEL fuel reduces the safety risk. In a "loss-of-coolant" accident where the reactor's cooling water disappears, standard uranium fuel causes a dangerous power surge measured at 16.4 mk. According to CCTE, ANEEL fuel reduces this surge to 13.3 mk, making the reactor more stable and easier to control during an emergency

HOW SERIOUS IS KUDANKULAM DATA LEAK?

The story so far:

On Wednesday, reports broke out that multiple gigabytes of data pertaining to operations at the Kudankulam Nuclear Power Plant in Tirunelveli district of Tamil Nadu had been copied and subsequently leaked as part of a ransomware attack. Reuters reported that the breach was part of an infiltration into Reliance Anil Dhirubhai Ambani Group's Reliance Infrastructure Ltd, and contained 14.3 GB of data on the power plant's operations. The data has been hosted on World



Leaks, which is a Dark Web site hosted by cybercriminals who infect vulnerable firms with ransomware, threatening to leak the data if the ransom is not paid. The site claimed that the ransom was indeed not paid, and so it leaked the data. The Hindu opened the site and reviewed the index of files, which amount overall to 1.2TB, a slice of which pertained to the Kudankulam plant.

Was the reactor affected by the data leak?

"The files do not pertain to the core reactor's operations, which are the most sensitive in a nuclear setup," Nuclear Power Corporation of India Limited (NPCIL) said in a statement. "NPCIL reiterates that the information claimed to be available in the public domain pertains only to conventional Balance of Plant (BOP) common service facilities and does not relate to any nuclear safety, or nuclear security-related systems or information," it said in a statement.

A spokesperson for the Reliance Group told The Hindu that it "was informed by Yotta Data Services Private Limited (Yotta), its third-party data centre service provider, of a cybersecurity incident involving an attempted ransomware attack that resulted in a partial breach of data hosted on one of Yotta's servers," and that "Yotta has confirmed that enhanced security monitoring and preventive controls are now in place. The Company has directed Yotta to conduct a detailed investigation and submit a report."

"No ransomware execution, data loss or lateral movement occurred," Reliance said in a stock exchange filing. The files reportedly include multiple drawings of "blueprints and supplier details, meeting and inspection records, equipment reviews," and a \$112 million insurance policy against terrorist attacks, though it is unclear what the premium amount for this insured sum is.

What did Yotta say about the cyber incident?

Yotta, which runs data centres across the country, characterised Reliance as its "customer's private cloud environment," but said it took steps to address the infiltration as it was detected on May 29.

"Yotta's managed endpoint security controls detected suspicious activity on a file server of our customer, Reliance Infrastructure," the company told The Hindu. "We acted immediately: the suspicious process was terminated, and the affected server was isolated, preventing the suspected ransomware from executing. Our technical assessment confirmed no evidence of ransomware encryption and no lateral movement to any other server or system within the customer's private cloud environment. The incident was limited to this single customer-managed server, with no impact on any other Yotta customer or on Yotta's shared cloud platforms, AI cloud infrastructure, datacentre infrastructure or other services."

Why does the data leak matter?

The revelations have sparked "absolute commotion" among top officials at the power plant, even as they downplay the impact of the findings.

The plant has commissioned two 1,000 Mwe VVER reactors, allowing for a power supply of up to two gigawatts. The reactors are built in partnership with the Russian firm Rosatom, and the government is planning four more such units, which would triple the installed power production capacity at the facility.



ISRO ISSUES MEMO TO CURB EXODUS OF STAFF FROM KEY MISSIONS

With about 100 Indian Space Research Organisation (ISRO) personnel quitting the space agency in various centres across the country, the Department of Space (DoS) has issued a memorandum to curb the exodus of scientists and engineers who are working in critical missions of national importance, like the Gaganyaan.

In a memorandum issued on July 14, signed by S.R. Rajashekar, Joint Secretary (Personnel), Department of Space, it stated, "Of late, it is noticed that there has been spate of requests for voluntary retirement and resignation from Group 'A' Scientific/Technical personnel of the ISRO including those associated with the prestigious Gaganyaan and other important missions/projects severely impacting the implementation of projects of national importance."

The memorandum addressed to Directors of the ISRO Centers and Heads of Units has asked them to address this issue and not to accept any requests for voluntary retirement or resignation from scientific and technical personnel of Group 'A' associated with the Gaganyaan or other important missions or projects till their realisation.

"It has been decided that voluntary retirement and resignation requests from scientific and technical personnel associated with the Gaganyaan and other important mission/projects may not be accepted as a matter of routine," the memorandum stated.

It further noted that if requests for voluntary retirement and resignation are received from scientific, technical personnel, even below the rank of scientists/engineers-SG it may be sent to the DoS for final decision.

Union Minister of State Jitendra Singh downplayed suggestions of a manpower crisis. "I believe Mr. Narayanan [ISRO Chairman V. Narayanan] has made a statement on that. As many go, that many will come - the project shouldn't suffer. The team is large; nobody is going away; they come and go. The memo was issued so that decisions can be taken at a much more mature level. The ISRO has a culture of working in continuity, with even retired personnel involved in projects... For instance the former chief S. Somanath worked closely on the Gaganyaan. Now he's not there. Does that mean work on Gaganyaan stops?"

During the last Budget session of the Parliament, Mr. Singh on February 11, 2026, in a reply to a question on the details of the sanctioned, in-position and vacant positions in the ISRO, said that the overall sanctioned strength (Science and Technology and Administration) was 18,142. Of this there was a vacancy of 2,613 personnel.

HOW THE GAGANYAAN CREW MODULE IS BUILT TO SURVIVE

The story so far:

Gaganyaan is India's maiden crewed space mission, designed to carry Indian astronauts to space and safely return them back to earth. Here, the rocket — Human-rated Launch Vehicle Mark (HLVM) 3 — will inject the orbital module (OM) into the desired orbit. The Gaganyaan astronauts will be onboard the OM.



What does the OM contain?

The OM consists of two sections, the crew module and the service module, connected by a joint. The crew module serves as the crew habitat while the service module provides on-orbit support to the OM.

After the orbital phase, the propulsion system in the service module will fire its thrusters to de-orbit the OM, then the service module will separate from the crew module by severing the joint with a redundant mechanism.

While both modules descend to the earth, the crew module — which is designed to survive the intense thermo-structural loads of re-entry — will decelerate by aero-braking and safely splash down in sea. Meanwhile, the service module will burn up.

Some crewed spacecraft, such as Russia's Soyuz and China's Shenzhou, use a three-module configuration. The third module provides extra living and working space for the crew while in orbit. It also houses the docking mechanism, cargo, and basic life-support facilities, including the toilet. Like the service module, this third module will also separate during descent and will be destroyed during re-entry.

Which configuration is best for re-entry?

The crew module design must balance several critical objectives, including maximise the internal volume, manage the aerodynamic lift and drag generated during atmospheric flight, be as easy as possible to fabricate, maintain aerodynamic and hydrodynamic stability, and stabilise the module dynamically at low speeds.

Because no single configuration can satisfy all these requirements simultaneously, the final shape of the crew module will depend on which design attributes are prioritised. To minimise launch and re-entry mass, engineers strip the crew module down to essential landing systems, directly reducing the required size and mass of both the heatshield and the parachutes.

A spherical configuration offers the highest possible internal volume with the lowest structural mass. This is because a sphere has minimum surface area required to enclose a given volume. The design closest to a sphere was the Soviet Union's Vostok module, in which Yuri Gagarin made the historic first trip to space.

However, because a perfect sphere creates no aerodynamic lift, it falls straight down through the atmosphere, like a dropped stone. This subjects the crew to painfully high g-forces.

Consequently, a sphere-cone combination is the preferred configuration for a re-entering body. Its blunt base generates a detached shockwave that pushes intense frictional heat away from the spacecraft, while its conical body provides the aerodynamic stability and lift necessary for a controlled, survivable descent.

The Gaganyaan crew module has a sphere-cone configuration.

Why aren't all re-entry modules mono-stable?

Aerodynamic and hydrodynamic mono-stabilities are highly preferred features for a re-entering body.



A module is aerodynamically monostable if it maintains only one stable attitude while flying through the atmosphere — like a shuttle cock. Similarly, hydrodynamic mono-stability ensures the module will self-right itself and float in a single, stable orientation after splashdown.

Mono-stability is controlled by the module's aerodynamic shape and the location of its centre of gravity. As the centre of gravity is dictated by the packaging of internal subsystems, system engineers often lack the flexibility to achieve the required location of the centre of gravity.

As a result, in practice, modules frequently have more than one stable orientation. The Gaganyaan crew module, for instance, has two distinct stable aerodynamic positions as well as two stable hydrodynamic positions.

The undesired attitude is managed by firing control thrusters during flight through the atmosphere and by deploying a gas-based up-righting system upon splashdown in sea.

What is dynamic instability during re-entry?

Dynamic instability is a critical condition experienced by a re-entry module, resulting in rapidly growing and uncontrolled oscillations as it decelerates through the atmosphere. Just like a traditional kite without a tail wobbles and spins wildly out of control because it lacks stability, the crew module can experience dangerous, self-growing swings that make it tumble if it is not controlled.

How smoothly the crew module falls through the atmosphere depends strongly on its shape, mass, and the way air flows around it. The module shakes and wobbles the most as it approaches the speed of sound, where bouncing shockwaves and swirling air violently whip it around. To stop the module from spinning dangerously out of control, it must either use small control thrusters to steady itself or deploy parachutes before this instability grows too large.

Ultimately, balancing all of these competing traits, from its blunt aerodynamic shape and mass to its fight against dynamic instability, is what transforms the module design into a masterfully engineered lifeboat capable of bringing astronauts safely back to the earth.

DRONES REDUCE TIME AND COST OF TB DIAGNOSIS: STUDY

Drones can be very effective in reducing the time and cost of tuberculosis (TB) diagnosis, according to a study conducted by the Indian Council of Medical Research (ICMR) in Telangana.

Key Takeaways:

- In areas where drones were used to carry patient samples to centres with molecular diagnostics, the average time to receive a TB diagnosis reduced from 16.6 days to 6.9 days. Importantly, the cost for this diagnosis went down from Rs 9,451 to just Rs 91, according to the study.
- This comes at a time when the government is looking towards various innovations, including several AI tools, to catch up with the global deadline of eliminating TB by 2030. India missed the deadline it set for itself for eliminating TB by 2025.
- A hub-and-spoke drone network was established between 60 sub-centres, 11 primary health centres and four TB units in Telangana — Alair, Bhongir, Ramannapet, and Choutuppal — to test



samples. The aim was to see whether it can actually improve the efficiency of TB diagnosis in remote and rural areas.

— Before the i-Drone initiative, patients would have to travel anywhere between 10 and 30 km by road with often limited transport facilities to get themselves tested. Now, they can go to their nearest sub-centre or primary health centre — which does not have the molecular diagnostic tests but can collect samples — and give their sputum samples that are transported using drones.

— Two types of drones were used for the initiative — an 11.5 kg drone that could carry a 2-kg payload and a 24-kg drone that could carry an 8 kg payload. Detailed flight routes were pre-programmed, keeping in mind the terrain, population density, and no-fly zones. Safe take-off and landing sites were also created at these health centres and TB units.

— Other than the reduced time and out-of-pocket expenditure, the study found that the proportion of persons receiving their diagnosis within a day or two also went up.

Do You Know:

— TB is caused by an organism called mycobacterium tuberculosis, which mainly affects the lungs, but can also impact other parts of the body. TB spreads through the air when an infected individual coughs, sneezes, or speaks.

— Once diagnosed, the treatment depends on whether it is drug-resistant or simple tuberculosis. According to experts, when recovering from TB, it is critical to consume a well-balanced and nutritious diet to help strengthen the immune system.

U.P. MEDICAL UNIVERSITY TO SERVE TOFU, PANEER IN MESS TO MEET PROTEIN GOALS AFTER NON-VEG BAN

Hostel messes at King George's Medical University (KGMU) will serve protein-rich vegetarian food – soy chunks, paneer, tofu, and other items – to ensure students meet their daily nutritional needs following the recent ban on preparing non-vegetarian food on campus.

The ban followed after Governor Anandiben Patel flagged the issue during her convocation address at the KGMU on July 13. During her address, Patel, who is also the Chancellor of state universities, pointed out that non-vegetarian food was being served in some KGMU hostels.

This observation compelled the medical university authorities to impose a blanket ban on non-veg preparation, sparking criticism.

KGMU spokesperson Prof. K.K. Singh admitted that orders have been issued to all 18 messes on campus to include protein-rich food.

"The daily protein requirement for an average vegetarian adult is 100 grams. The orders were issued ensuring protein content for non-vegetarians," he said, adding that messes will now ensure the daily food plate includes 100 grams of protein through items like soy chunks, paneer, tofu, etc.

The KGMU administration has also ordered hostel messes to ensure availability of cooked chickpeas, rajma, yoghurt, a variety of lentils, milk, peanuts, pumpkin seeds and other vegetarian sources of protein, officials said.



Justifying the ban on serving non-veg food on campus, KGMU Vice-Chancellor Prof. Soniya Nityanand said, "There is much heat and humidity in our country. Thus, maintaining hygiene in non-vegetarian food is difficult, especially when prepared on a mass scale." She said vegetarianism was becoming the preferred global option.

ONE-FOURTH OF INDIA'S MONSOON RAIN EVAPORATES MID-AIR, SAYS NEW STUDY

Nearly a quarter of the rain that falls over the north Western Ghats during the southwest monsoon evaporates mid-air, says a study out of the Indian Institute of Tropical Meteorology (IITM), Pune.

This is the first time this fraction has been measured via an experiment in India. This will help scientists refine weather and climate models and better understand the monsoon, an accompanying press statement noted.

Researchers at the IITM, Pune, computed that on average, about 25% of the rain mass evaporates; the actual amount varies from day to day and range from 4%-61%, over the four monsoon months of June to September.

"This is the first observational estimate of raindrop evaporation over the Western Ghats, and the technique can be used over whole of India," the study's corresponding author, Saikat Sengupta, told The Hindu in a phone conversation. The work was published in the peer-reviewed journal Atmospheric Chemistry and Physics.

The Pune result is the first step in a wider effort to map the process across India, where Mr. Sengupta expects it to vary sharply with temperature and humidity, from arid Rajasthan to the rain-soaked coast. The IITM already runs a rainwater-isotope network of nine sites – from the Himalaya to the north-east and Port Blair – where the sampling is going on for a decade.

Crucial yardstick

The evaporation rate measurements are not merely an academic exercise. When a raindrop evaporates on its way down, it absorbs heat from the surrounding air, cooling the sub-cloud layer, feeding downdrafts and creating cold pools of air at the surface.

This reshapes the very convection that generates the next burst of rain. It is a process that climate and monsoon models have long struggled to capture. Getting it wrong skews their rainfall prediction and associated atmospheric cooling and storm-triggering potential.

The rain mass loss of roughly one-quarter sits at the lower end of global estimates elsewhere. Satellite data-based measurements put evaporation at the tropics near 20%; over Zurich it was about 40% and near Barbados, roughly 60%. This is because of Barbados's smaller drops and drier air; evaporation eliminates the small drops of light rain and barely touches the large drops of an intense downpour.

To calculate the evaporation rate, Mr. Sengupta and his colleagues utilised the fact that most substances have different combinations of isotopic atoms. Most water, for example, is ordinary H₂O, but a small fraction carries a 'heavier isotope' (more neutrons), a heavy oxygen or a heavy hydrogen. These heavier molecules are marginally more sluggish, so when a drop evaporates, the lighter molecules escape preferentially, leaving the surviving drop enriched in heavy isotopes. Rain that evaporated less keeps a lighter signature; in contrast, rain that evaporated more carries a heavier composition.



During the 2019 monsoon, the team collected rainwater and atmospheric vapour at ground level in Pune, read their isotope ratios on a laser spectrometer, and fed the results into a one-dimensional Below Cloud Interaction Model that tracks a single drop falling from cloud base to the ground. Collecting the vapour is challenging — each sample took six to seven hours to trap by freezing atmospheric moisture. The group has begun acquiring portable analysers that read vapour isotopes in real time, to be stationed around the country.

Mr. Sengupta underlined that the results point to a way to improve how weather and climate models represent rainfall.

He noted that quantitative estimates of evaporation are rare for India.

DEADLY BIRD VIRUS PABV-4 IDENTIFIED FOR FIRST TIME IN INDIA

A team of scientists has, for the first time in India, identified and genetically characterised a virus that often causes rapid death in captive psittacine birds, raising concerns about the health of exotic pets and conservation of threatened parrot species.

Psittacine, which means relating to or resembling a parrot, describes the bird family Psittacidae and order Psittaciformes. It includes budgerigars, cockatiels, cockatoos, lovebirds, macaws, and parakeets.

The team, led by Pankaj Deka and Sangeeta Das of the Assam Veterinary and Fishery University in Guwahati, found and characterised parrot bornavirus 4 (PaBV-4) circulating among captive psittacine birds in India. Their study was published in Scientific Reports.

The other members of the team represent institutions in Assam and Gujarat.

They tested 83 psittacine birds from 13 species in aviaries in Assam, Karnataka, and West Bengal in 2020-2024. The birds included the African grey parrot, ochre-marked parakeet, yellow-collared macaw, eastern rosella, blue-crowned hanging parrot, rainbow lorikeet, and scarlet-chested parrot.

Upon testing cloacal swabs from live birds and brain and proventriculus tissue in dead ones, the team found 44 of the 83 birds tested were infected. Infection was detected in almost 88% of the dead birds and 19% of the apparently healthy cage mates, underlining how the virus can lurk without showing outward symptoms. The infected birds belonged to nine species whose conservation status ranged from near-threatened to endangered.

Potential risk

The scientists also found that brain tissue and cloacal swabs yielded higher detection rates in dead and live birds, respectively. Genetic analysis confirmed all positive samples had PaBV-4, a strain previously reported in Canada, Israel, Japan, South Korea, and the U.S.

The team found no patterns linking genetic clusters to host species, geography or timing. Suggesting this may reflect the global trade in psittacine birds, the researchers said their findings highlight risks to conservation based on breeding captive birds.



A SACRED TRAIL OF FAITH AND FELLOWSHIP

One of India's most physically demanding and spiritually significant Hindu pilgrimages, the Amarnath yatra stands as a living, breathing testament to Kashmiriyat — the region's unique ethos of syncretic culture, interfaith harmony, and legendary hospitality. Every year, lakhs of pilgrims brave the Himalayas' rugged terrain and harsh weather to reach the Amarnath cave shrine, located at an altitude of about 13,000 feet in Anantnag district of southern Kashmir, where a naturally forming ice stalagmite, revered by millions of Hindus as a manifestation of Lord Shiva, is housed.

This year, the 57-day pilgrimage began on July 3 and is set to conclude on August 28.

Devotees can take either the traditional 48-km Nunwan—Pahalgam route in Anantnag or the shorter 14-km Baltal route in Ganderbal district of central Kashmir.

For centuries, the smooth conduct of this arduous journey has relied on a close bond between visiting devotees and the local community, the majority of whom are Muslims. Long before modern administrative infrastructure existed, local residents played a vital role in facilitating the pilgrimage. Every summer, braving unpredictable mountain weather, sudden downpours and oxygen-depleted heights, local pony owners, palanquin bearers, porters and tent operators help the pilgrims navigate the challenging terrain.

They provide essential logistical support and often assist or rescue stranded travellers. While the pilgrimage sustains the livelihoods of many local families, it has also nurtured a tradition of hospitality.

Local residents welcome pilgrims as honoured guests, offering drinking water, walking sticks and warm cups of kahwa (a traditional variety of green tea) to weary yatis along the route. In 2025, following the Pahalgam attack on April 22, around 4,10,000 pilgrims visited the cave, a decline of around 1,00,000 from the previous year. Inclement weather had forced its early conclusion in about 35 days that year.

Amid growing polarisation elsewhere, the snow-capped trails of Amarnath become a space where different faiths actively coexist and sustain one another. The warmth, compassion, and silent acts of kindness extended by ordinary Kashmiris define the true spirit of the pilgrimage, sending a powerful message of unity and enduring humanity to the rest of the world.

DID GREEKS INFLUENCE INDIAN THEATRE?

The history of theatre is often told through two great classical traditions: the theatre of ancient Greece and the theatre of ancient India. Both developed sophisticated ideas about storytelling, performance, music, and human emotions.

Although they emerged independently, there were moments of contact between them, especially after the arrival of Greeks in northwestern India following the campaigns of Alexander the Great in the fourth century BCE. Scholars continue to debate the extent of Greek influence on Indian theatre, but there is little doubt that cultural exchange took place.

Examples of cultural exchange



One of the most visible examples of this exchange is the stage curtain. In Sanskrit theatre, the curtain is known as the Yavanika. The word is derived from Yavana, the ancient Indian term used for Greeks and people of Hellenistic origin. Many historians therefore suggest that the curtain, which separated the backstage area from the acting space, may have been introduced through contact with Greek theatrical traditions.

Significantly, in Gujarati Vaishnav Haveli culture, the deity has a backdrop called 'Pichwai' painted with images of Vrindavan. This may have theatre origins too, as the deity is seen as 'ranga-natha' or the 'lord of theatre' who plays games 'leela'.

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Opportunities for such exchange increased after the formation of Indo-Greek kingdoms in regions such as Bactria and Gandhara and the emergence of trade routes. Gandharan art itself demonstrates a remarkable fusion of Greek and Indian styles, and theatre may have experienced similar interactions.

Catharsis and rasa: Different philosophical goals

Despite these contacts, Greek and Indian theatre remained fundamentally different in their goals and structure. The most important difference lies in what each tradition hoped to achieve in the minds of its audience.

Greek theatre, especially as described by Aristotle in his work Poetics, aimed at catharsis. The audience was expected to experience powerful emotions such as pity and fear and then be emotionally purified through the dramatic experience. Tragedy was therefore one of the highest forms of Greek drama.

Indian theatre, as described in the Natyashastra, pursued a different goal known as rasa. The word rasa literally means "flavour" or "essence". The audience was expected to savour emotions aesthetically rather than be overwhelmed by them. The ideal spectator was calm and detached, appreciating the emotional experience much as one enjoys the taste of a well-prepared meal. The purpose was not emotional release but aesthetic delight and insight.



This difference explains why tragedy occupies such a central place in Greek theatre but is largely absent in classical Sanskrit drama. Greek heroes such as Oedipus or Agamemnon often face unavoidable disaster. Their downfall forms the climax of the story.

In contrast, Sanskrit plays generally avoid tragic endings. The Natyashastra recommends that harmony and order be restored at the conclusion. Even when characters suffer hardships, the ending usually re-establishes dharma, social balance, and hope. Greek theatre creates anxiety and seeks transformation. Indian theatre provides delight with insight.

Contrasting structures and narrative techniques

The structure of the plays also differs greatly. Greek drama often follows the famous three unities: unity of time, place, and action. Events typically occur within a short period, in a single location, and revolve around one main plot. Sanskrit drama is much more flexible. A play may span many years, move across kingdoms, forests, heavens, and palaces, and weave together several storylines.

Another important difference concerns narration. Greek plays rely heavily on the chorus, a group of performers who comment on events, advise characters, and express public opinion. The chorus acts as a bridge between the audience and the drama.

Sanskrit theatre generally does not use a chorus. Instead, it employs a Sutradhara, or stage manager-narrator, who introduces the play and guides the audience. Many plays also feature the Vidushaka, a comic companion who provides humour and practical commentary.

Language use reveals another contrast. Greek drama was generally performed in a single literary language. Sanskrit drama, however, was consciously multilingual. Kings, sages, and gods usually spoke Sanskrit, while women, servants, merchants, and commoners often spoke various forms of Prakrit. This linguistic diversity reflected the social realities of ancient India and added layers of characterisation.

Where the two traditions meet and diverge

Yet there were also striking similarities. Both traditions valued poetry, music, gesture, costume, and stylized movement. Neither aimed at strict realism in the modern sense. Actors used codified expressions and symbolic actions to communicate emotions and ideas. Theatre was not merely entertainment; it was a vehicle for education, morality, religion, and social reflection.

In conclusion, Greek and Indian theatre shared certain performance techniques and may have influenced each other through cultural contact. However, they remained distinct in their philosophical goals. Greek theatre sought catharsis through conflict and tragedy, while Indian theatre pursued rasa through aesthetic experience and emotional balance. Together, they demonstrate the remarkable diversity of human approaches to storytelling and performance.

NIGHTINGALE S JANAKI FALLS SILENT, HER SONG LIVES

Playback singer S Janaki, who died on July 11 in Mysuru at 88, was an artiste whose career spanned successive generations of composers. As musical preferences and styles evolved and technology underwent revolutions, Janaki, lovingly called the “Nightingale of South India”, remained an enduring presence, singing over 40,000 songs in several languages for six decades.



From composers like M S Viswanathan and K V Mahadevan to Ilaiyaraaja, Bappi Lahiri and A R Rahman, Janaki adapted to the changes with ease.

Growing up in Pallapatla village in Andhra Pradesh, Janaki religiously listened to Lata Mangeshkar's early songs on the family radio and tried to sing like her. With no formal training, she'd belt them out during intervals of plays organised by her uncle, a theatre artist. During one such performance, she caught the attention of filmmaker B R Panthulu and music director T G Lingappa, who, impressed by her bright soprano voice, invited her to Chennai, where she recorded her first song for the Tamil film Vidhiyin Vilayattu (1957). Despite being a Telugu speaker, her songs in Malayalam, Tamil and Kannada featured impeccable pronunciation. She'd study how words were spoken in daily life, understand their meaning and rehearse to align the edges.

Janaki won four National Awards among numerous state honours. But she declined the Padma Bhushan, saying the recognition had come too late. The decision drew attention, especially because she demanded a Bharat Ratna, too, overshadowing an otherwise principled stand. For more than six decades, Janaki gave life to the songs she sang, filling many a day and night with their light.

SHORT NEWS

LONG MARCH 10B ROCKET

- China has successfully landed a reusable rocket for the first time — a milestone for the country's space programme that will challenge American companies' dominance in the technology.
- The Long March 10B rocket — which can carry a payload of up to 16 metric tons to low Earth orbit — lifted off from the Wenchang Commercial Space Launch Site in Hainan, Southern China around noon (local time). Low Earth orbit is a region between 160 km and 2,000 km above the Earth.
- Before China, only Elon Musk's SpaceX and Jeff Bezos's Blue Origin demonstrated the ability to launch and land rockets.
- A reusable rocket is one that can land on Earth after lifting off, thus allowing its valuable booster to be used again. This substantially reduces the cost of a launch and, by extension, space exploration.

VIKRAM-1

- India's first privately developed launch vehicle, Vikram-1, placed several technology demonstration satellites in Low Earth orbit (LEO) on Saturday (July 18) morning.
- The textbook launch from Sriharikota by Hyderabad-based Skyroot Aerospace — the country's first space unicorn — makes India only the third country in the world to have private launch capability after the US and China.
- The launch of the Vikram-1 — which can carry a payload of up to 350 kg to LEO — is significant for more than the fact that a private company has now entered the Indian aerospace ecosystem.



— Low Earth orbit, or LEO, is the zone immediately surrounding our planet. It is typically defined as the region between 160 km and 2,000 km above Earth's surface. Satellites in LEO generally take between 90-120 minutes to circle the planet.

— The proximity to Earth makes this orbit preferable for satellites meant for communications as well as Earth observation and imaging because it helps reduce signal latency. This also makes LEO precious real estate.

INDIA'S CAMPAIGN FOR ELECTION AS A NON-PERMANENT MEMBER OF UNSC

— India has officially launched its campaign for election as a non-permanent member of the United Nations Security Council (UNSC) for the 2028-29 term.

— Launching India's candidature at the UN Headquarters in New York, External Affairs Minister Dr S. Jaishankar unveiled India's SHANTI vision—Securing Holistic Advancement through Norms, Trust and Integrity—as the country's guiding approach to promoting global peace, security and equitable development.

— If elected, India will serve a two-year term beginning in 2028. India has previously served eight terms as a non-permanent member of the Security Council, most recently in 2021-22.

About UNSC

The United Nations (UN) came into existence on 24 October 1945, after being ratified by 51 nations, which included five permanent members or P5 (France, the Republic of China, the Soviet Union, the UK and the US) and 46 other signatories. The first meeting of the General Assembly took place on January 10, 1946. At present, 193 countries are members of the United Nations.

The UN Charter established six main organs of the United Nations, including the UNSC. The UNSC held its first session on 17 January 1946 at Church House, Westminster, London. Since its first meeting, the Security Council has taken permanent residence at the United Nations Headquarters in New York City. The UN Charter (which lays down its governing principles) gives primary responsibility for maintaining international peace and security to the Security Council, which may meet whenever peace is threatened.

Composition of the UNSC

The UNSC is composed of 15 members: five permanent members — China, France, Russian Federation, the United States, and the United Kingdom — and 10 non-permanent members who are elected by the General Assembly. The non-permanent members are elected for two-year terms — so every year, the General Assembly elects five non-permanent members out of the total 10.

These 10 seats are distributed among the regions of the world: five seats for African and Asian countries; one for Eastern European countries; two for Latin American and Caribbean countries; and two for Western European and Other Countries.

INDIA'S FOREIGN TRADE POLICY (FTP) REGARDING "FORCED LABOUR"

— The Directorate General of Foreign Trade (DGFT), in an order dated July 13, has inserted a new paragraph in the Foreign Trade Policy (FTP) regarding "forced labour", stating that the import of



goods produced or manufactured, “wholly or in part”, through the use of forced labour is “prohibited”.

— This comes after the United States Trade Representative (USTR) proposed 12.5 per cent tariffs on India linked to the issue.

— The US launched two Section 301 investigations against several countries, including India in March. While one cites structural excess capacity and overproduction in certain manufacturing sectors, the other cites failure to prohibit imports of goods produced using “forced” labour.

— Section 301 authorizes the U.S. Trade Representative (USTR) to investigate whether foreign governments are engaging in “unfair” acts, policies, or practices that burden or restrict U.S. commerce.

INDIA-UK FTA

— The historic India-UK Free Trade Agreement officially came into force on July 15, 2026. The deal, negotiated over four years and marked by major political volatility in London, is India’s first comprehensive deal with a developed country.

— With the deal, India’s labour-intensive goods exports, such as textiles, footwear and gems and jewellery, could get a boost. Indian consumers can access British cars, scotch, and chocolates at lower prices. India has reduced tariffs on around 90% of products and the UK has eliminated tariffs on 99% of Indian exports.

— For the first time, India has given major concessions to imported cars and alcoholic beverages in an FTA, reducing tariffs for British cars from up to 110% to 30% in year one. The duty will go down to 10% by year five of the deal coming into effect. The annual quota for British cars starts at 20,000 vehicles and peaks at 37,000 by year five.

— India has also given major concessions to British alcoholic beverages by reducing tariff from 150% to 75% initially and then to 40% by year 10.

— For the first time in an FTA, India has allowed a system of self-declaration of origin by exporters or producers in the United Kingdom, replacing the conventional system of certificates issued by designated authorities, which often causes delays and hurdles.

INDEX OF SERVICES PRODUCTION (ISP)

— The Ministry of Statistics and Programme Implementation (MoSPI) has released the country’s first trial Index of Services Production (ISP) for 19 sub-sectors, providing, for the first time, a monthly measure of short-term activity in the formal services sector.

— The inaugural index, with 2024-25 as the base year, covers April 2026 and accounts for nearly 60 per cent of India’s services sector.

— ISP is a short-term indicator designed to measure changes over time in the volume of output produced by the services sector relative to a specified base period. It measures changes in the real output of service-producing industries over time.



- As counterpart of the Index of Industrial Production (IIP) which measures the economic growth of the industrial sector, ISP will cover the formal services sector and will be released on a monthly basis.
- The ISP fills a key gap in India's official statistics; until now, there was no official monthly measure of the services sector's performance, with private sector firm S&P Global's services Purchasing Managers' Index (PMI) being the only one.
- The ISP is not directly compiled as the output of the services produced by various companies; instead, Goods and Services Tax (GST) and administrative data for sub-sectors like air and railway transport and banking are used.
- Sub-sectors for which data is available in value terms are 'deflated' by the appropriate measure, be it Wholesale Price Index or Consumer Price Index, to arrive at the output.
- Health and education are two key segments not covered by the ISP as they are exempt from GST. However, MoSPI officials said the ministry is working on using administrative data to compile the index for health, education, and ownership of dwellings. Once this exercise is concluded, the overall ISP will cover 80% of the services sector.

NAYA SAFAR YOJANA

- With an aim to phase out old trucks and buses in the Capital to curb air pollution, the Delhi government has started the process to implement the Centre's 'Naya Safar Yojana'.
- The 'Naya Safar Yojana' aims to address the issue of vehicular pollution in Delhi-NCR through a combination of financial incentives, tax concessions and scrappage-linked benefits.
- It targets owners of BS-IV (emission norms enforced across India from April 2017 to March 2020) vehicles and older trucks and buses, encouraging voluntary fleet modernisation while strengthening the region's efforts towards cleaner and more sustainable transport.
- Under the scheme, the Delhi government will extend 100% Motor Vehicle Tax concession for eligible new vehicles, and 50% concession for eligible used vehicles for 10 years. It also offers discounts on registration fees, and waiver of pending road tax and fitness penalty liabilities for eligible vehicles.
- The total outlay of the scheme is Rs 9,585 crore, with the Central government contributing Rs 5,041 crore through National Capital Region Planning Board (NCRPB) under the Ministry of Housing and Urban Affairs.
- The scheme will be implemented through a fully digital Naya Safar Portal, enabling real-time eligibility verification, automated benefit disbursal and end-to-end monitoring. It will remain open for eligible beneficiaries for a period of two years, said the Minister.

SEAFARER-FIRST' INITIATIVE

- Union Minister for Ports, Shipping and Waterways Sarbananda Sonowal has launched a comprehensive 'Seafarer-First' initiative to protect Indian seafarers amid rising maritime security concerns in West Asia.



— Following attacks on merchant vessels in the Strait of Hormuz, the government has ordered real-time vessel monitoring, dedicated liaison officers for every affected Indian seafarer, and a whole-of-government response to ensure their safety and welfare.

NATIONAL INVESTMENT POLICY FOR UREA-2026

— The Union Cabinet on 15th July approved the National Investment Policy for Urea-2026 (NIPU-2026), a new framework to encourage investment in gas-based urea manufacturing units and increase domestic production.

— The policy aims to achieve the goal of self-sufficiency under the Atmanirbhar Bharat initiative. The new policy introduces several changes over the earlier New Investment Policy (NIP)-2012., whose investment window ended in October 2019.

— The new policy separates fixed and variable costs in the pricing framework. It introduces a return on equity (RoE) band with a minimum of 12% and a maximum of 16%. It also addresses foreign exchange risk by converting fixed costs into rupees after four years based on the prevailing exchange rate.

— The Department of Fertilizers will cover new gas-based urea manufacturing units under NIPU-2026. The government said the policy will support new investments and help increase domestic urea production to narrow the gap between demand and supply.

— India currently has 33 operational urea manufacturing units with a reassessed installed capacity of 269.42 lakh metric tonnes (LMT). The country continues to import urea to meet domestic demand.

PRADHAN MANTRI KHANIJ KSHETRA KALYAN YOJANA (PMKKKY)

— A Comptroller and Auditor General (CAG) audit has exposed systemic lapses in the implementation of the PMKKKY in Chhattisgarh, flagging governance failures, policy deviations, fund diversion, tender violations, unfruitful expenditure and transparency gaps in the utilisation of the state's Rs 13,101-crore District Mineral Foundation Trust (DMFT) fund between 2015-16 to 2023-24.

— Launched in 2015, PMKKKY aims to implement development programmes for the welfare of mining-affected areas and people through DMFTs, which receive contributions from mining and quarry leaseholders.

GAMING INDUSTRY WINNING DESPITE A REAL MONEY BAN

— Real-money gaming (RMG) may have been banned, but India's gaming industry has not lost the game.

— From in-app purchases to premium passes, cosmetic spending to subscriptions and advertising-led monetisation, the industry is rapidly expanding its revenue streams to sustain growth momentum since the ban that became effective from May 1 this year.



IIT BOMBAY'S NEWFOUND WAY TO CONVERT STRAIGHT-CHAIN CARBON COMPOUNDS INTO COMPLEX RING-SHAPED MOLECULES

- Scientists at IIT Bombay have found a novel and efficient way to convert simple, abundantly-available, straight-chain carbon compounds into complex ring-shaped molecules that can be building blocks for medicinal or other valuable chemicals.
- Conversion of long, straight-chain carbon molecules into ring-shaped molecules at present involves a multi-step process that is time-consuming and expensive. The research, led by Professor Debabrata Maiti of IIT Bombay, said the newly developed method could make drug discovery faster, cheaper and more sustainable.
- In fatty acids, which are commonly available chemicals in nature, several carbon compounds are linked in a straight chain. On the other hand, many of the biologically relevant organic compounds, including several drugs, have ring-shaped molecular structures. Scientists often go through a multi-step process to convert the easily available fatty acids into more useful molecules with a variety of applications.
- Researchers used this new method on a molecule called muricatacin, which is naturally found in Laxman phal (soursop) and is believed to have anti-cancer properties. Extracting muricatacin from naturally occurring substances is considered extremely difficult and inefficient. Only about 15 mg of muricatacin is obtained from about 15 kg of plant material, and that too is mixed with other substances, Maiti said.
- The researchers were able to synthesize muricatacin in the laboratory in an easy and more efficient manner by converting other fatty acids. They were then able to modify this compound in such a manner that it exhibited anti-cancer properties comparable to muricatacin obtained from natural plants.

ULTRA-SENSITIVE WEARABLE AMMONIA SENSOR

- Scientists at the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute under the Department of Science and Technology (DST), have developed an advanced ammonia sensor capable of detecting toxic gas at extremely low concentrations while operating efficiently at room temperature.
- Ammonia is generally used in the manufacturing of fertilisers, plastics, explosives, and other chemicals such as corrosion inhibitors. It is used for water purification, it is present in household cleaners, and is required in industries such as rubber, textile and leather. It is also used as a refrigerant gas, which is likely the case in Tamil Nadu. Accidental exposure to ammonia can cause irritation and hurt the skin, eyes, throat, and lungs. It can lead to abdominal pain, nausea and vomiting. It can cause painful blisters on the skin. There is no specific treatment for exposure to ammonia. Doctors and health professionals usually try to remove the ammonia from the body after an exposure and then provide supportive care for any symptoms a person develops.

PRELIMINARY REPORT OF THE INDEPENDENT INTERNATIONAL SCIENTIFIC PANEL ON AI

- The Preliminary Report of the Independent International Scientific Panel on AI is the first scientific assessment of AI commissioned by the United Nations. It is intended to serve as the first in a series of periodic assessments, with a more comprehensive report expected next year.



— Co-chaired by Turing Award laureate Yoshua Bengio and Nobel laureate Maria Ressa, the 40-member panel's preliminary report warns that the breakneck pace of AI development has completely outstripped existing safety guardrails, and global governance mechanisms are currently failing to keep up.

— The report argues that AI capabilities are progressing faster than scientific understanding and public oversight. Policymakers, it says, increasingly face a difficult dilemma: waiting for complete scientific certainty before acting may mean responding only after serious harms have already materialised.

— One of the panel's biggest concerns is the emergence of increasingly capable frontier AI models and autonomous AI agents that can perform complex tasks with limited human intervention.

— The report argues that the global AI race is no longer just about talent or innovation, but increasingly about who controls the computing infrastructure needed to build and run advanced AI models.

HOW UP GOT CONTROL OVER KASHI VISHWANATH 44 YEARS AGO

— Shyamlal Yadav writes- "In Uttar Pradesh, revelations of alleged embezzlement in the Ram Mandir in Ayodhya have once again highlighted the vulnerabilities in the management of temples. It echoes a case of theft from nearly 44 years ago at the Kashi Vishwanath Temple in Varanasi. The theft in January 1983 not only exposed deep-rooted mismanagement but also became a turning point, prompting a change in the management of the temple and setting a historic precedent.

— On the intervening night of January 4 and 5, 1983, the golden Argha — the base encircling the Shivlinga, weighing approximately 2.6 kilograms of gold — was stolen from the Kashi Vishwanath Temple. The incident, in the heart of Varanasi, sparked immediate outrage, leaving the government at the Centre and the state feeling uneasy.

— The fallout extended far beyond criminal proceedings. Public criticism mounted quickly against the mahant-led management system that had been in place for centuries. Facing growing pressure, the state government acted decisively. On January 28, 1983, an ordinance was promulgated, transferring management of the temple to a government-constituted trust.

— Later, on September 7, 1983, Social Welfare Minister Gulab Sehra introduced a bill in the UP Assembly to replace the ordinance. The bill passed swiftly and received assent from the President on October 12, 1983, becoming the Uttar Pradesh Sri Kashi Vishwanath Temple Act, 1983, which became effective retroactively from January 28. The Act established a board of trustees, comprising prominent religious figures and senior government officials, along with an executive committee for day-to-day operations.

RAVIDASSIAS

— Thousands of members of the Ravidassia community gathered in Punjab's Phagwara on 12th July for a religious programme and to renew calls for a longstanding demand: the creation of a separate "Ravidassia religion" category in the Census.

— Guru Ravidas, a mystic poet-saint of the Bhakti Movement from the 15th and 16th centuries, created the concept of Begampura — an egalitarian society and a spiritual vision of a city without sorrow, fear or discrimination.



— His followers, the Ravidassias, are a Dalit community of whom the bulk — nearly 12 lakh — live in the Doaba region of Punjab, which includes districts such as Kapurthala, Hoshiarpur, Nawanshar and Jalandhar.

Perhaps the most influential organisation within the community, the Dera Sachkhand Ballan was founded in the early 20th century by Baba Sant Pipal Das. Once closely connected with Sikhism, the dera severed these decades-old ties in 2010 and formally declared a Ravidassia religion.

GREY HORNBILLS

— The Indian Grey Hornbill, which went extinct in Gujarat's Gir forests during the 1950s and 60s and was reintroduced under a government initiative, has now successfully established territories and produced offspring.

— Forest and Environment Minister Arjun Modhwadia made the announcement on 14th July, referring to a research study conducted in the region after the reintroduction of the Indian Grey Hornbill in 2021.

— The study found that the hornbills preferred Gir's dry mixed deciduous and teak forests over other habitat types.

— It was also observed that hornbills selected mature trees with large trunk girths for nesting, particularly *Sterculia urens* and *Terminalia bellirica*, highlighting the importance of conserving old-growth trees within the landscape.

— The Indian grey hornbill (scientific name: *Ocyrceros birostris*) name refers to the unique horn-like beak of this species of birds. Additionally, the male has a noticeable pointed blackish casque at the upper mandible, whereas the female has a less prominent casque. The beak is brownish-black and ivory-white.

— They usually sit on the topmost branches of the trees, so it is difficult to spot while being under the tree. They are categorised as Least Concern on the IUCN Red List. Indian grey hornbill has also achieved an honour to be the state bird of Chandigarh.

— Out of 54 species of hornbills globally, nine are found in India. Interestingly, India is home to nine hornbill species, with the northeastern region exhibiting the highest diversity of these species in the country.

J&K'S MANSBAL LAKE STARTS HOSTING MIGRATORY BIRDS AGAIN

Manasbal Lake, the country's deepest freshwater lake in central Kashmir's Ganderbal district, is on the path of ecological recovery with the return of migratory birds.

The lake is 43-feet deep with a length and breadth of 3.5 km and 1.5 km, respectively. Locals are upbeat about the uptick in the migratory birds between December 2025 and January 2026.

"The return of migratory birds prompted the Wullar-Manasbal Development Authority (WMDA) to hold a bird watching festival in the winter. Many rare species were sighted by the birdwatchers," said Chief Executive Officer of the WMDA Ahsanul Haq Chishti.



According to official data, the Mansbal lake was home to more than 46 species of birds belonging to 23 families, including Mallard, White Headed Duck, Eurasian Hoopee, Eurasian Collared Dove, Lesser Pied Kingfisher, Golden Eagle, Grey Backed Shrike, Tickell's Thrush etc.

Key interventions by the Wullar-Manasbal Development Authority (WMDA)—including de-weeding over 7,202 cubic meters of surface vegetation and dredging roughly 70,000 square feet—have restored water depth, improved circulation, and enhanced water quality.

Future Conservation Initiatives: To ensure long-term sustainability, the J&K Water Resources Regulatory Authority is conducting water budgeting to manage water carrying capacity, alongside plans for a sewerage treatment plant and an integrated solid waste management facility to prevent pollution.

ANIL MENON

- Indian-origin NASA astronaut Anil Menon is set to embark on his first mission to the International Space Station (ISS) on July 14, beginning an eight-month expedition focused on medical, technological, and spaceflight research.
- NASA astronaut Anil Menon, along with Roscosmos cosmonauts Pyotr Dubrov and Anna Kikina, launch aboard the Roscosmos Soyuz MS-29 spacecraft from the Baikonur Cosmodrome in Kazakhstan.
- During his stay aboard the ISS, Menon will conduct experiments examining the physiological effects of long-duration spaceflight, including how microgravity alters blood flow, vein structure, and blood composition.
- He will also help test technologies to produce intravenous fluids using the station's potable water system — a capability considered critical for future deep-space missions where medical supplies will be limited.

56TH INTERNATIONAL PHYSICS OLYMPIAD (IPHO) 2026

- India secured a joint first rank at the 56th International Physics Olympiad (IPhO) 2026 after all five members of its team won gold medals at the competition held in Bucaramanga, Colombia.
- The country shared the top position with China, Kazakhstan, Russia, South Korea, and Taiwan among 381 students from 87 participating countries, according to the Homi Bhabha Centre for Science Education (HBCSE).
- According to the HBCSE, part of the Tata Institute of Fundamental Research (TIFR), this was India's 27th participation in the International Physics Olympiad.
- This is only the second time after 2018 when all five Indian students returned with gold medals since India started participating in the Physics Olympiad in 1998.
- The International Physics Olympiad is one of the world's leading competitions for secondary school students. It brings together top-performing students from across the globe to compete in theoretical and experimental physics.



FIFA WORLD CUP 2026

— Spain ended a 16-year wait as they stunned Argentina with an all-timer performance to win the 2026 FIFA World Cup with a 1-0 win in the final at the MetLife Stadium in New Jersey on Sunday afternoon.

— Lionel Messi's Argentina failed to record a single shot in regulation time, making them the first team in World Cup history to fail to do so. The winner eventually came at the start of the second half in extra-time with a goal from forward Ferran Torres.

— Messi's Argentina failed to become the first team in 64 years to defend the title since Brazil clinched their first two World Cup wins in 1958 and 1962.

→ FIFA World Cup 2026 Golden Boots winner: Kylian Mbappe

→ FIFA World Cup 2026 Golden Glove winner: Unai Simon (Spain)

→ FIFA World Cup 2026 Golden Ball winner: Rodri (Spain)

→ FIFA World Cup 2026 Young Player of the tournament: Pau Cubarsí (Spain)

Most FIFA World Cup titles won

5: Brazil (1958, '62, '70, '94, 2002)

4: Germany (1954, '74, '90, 2014)

4: Italy (1934, '38, '82, 2006)

3: Argentina (1978, '86, 2022)

JAPAN OPEN SUPER 750 TITLE

— Indian shuttler PV Sindhu won the Japan Open 2026 title, becoming the first Indian to achieve this historic feat. This was Sindhu's biggest Tour title after the World Tour Finals and China Open she won back in 2018 and 2016 respectively.

— She became the first Indian shuttler to win the prestigious tournament title. She defeated local favourite and three-time world champion Akane Yamaguchi in straight games, 21-17, 21-17.

— The 31-year-old won the Super 750 tournament, ending a title drought of more than two years. Sindhu's previous title came at the Syed Modi International in 2024. The triumph is her biggest title since winning the World Championships in 2019.

22ND COMMONWEALTH TABLE TENNIS CHAMPIONSHIP 2026

— Chief Minister Rekha Gupta on 14th July unveiled the official mascot 'Mayur' for the Commonwealth Table Tennis Championship 2026 to be held in Delhi later this month.

— The championship will be held at the Thyagaraj Stadium from July 27 to August 2, bringing together top players from 25 Commonwealth countries.



BUSINESS AND ECONOMY

WHY HAS CHINA BANNED HELIUM EXPORTS?

The story so far:

On July 10, the Ministry of Commerce and General Administration of Customs, China, has temporarily but immediately banned helium exports from the country. As of 4.30 pm IST on July 10, Beijing had not published any other information as to why it took this step now or its scope.

Is China a major helium producer?

China imports more than 80% of its helium needs but produces only around 1.6% of the world's helium. The export ban follows an extended period of supply strained by Russia's export restrictions — where the Prime Minister needs to sign off on shipments through 2027 — and supply risks tied to heightened tensions in West Asia.

The world's major helium producers are the U.S. (meeting 43% of total supply), followed by Qatar, Russia, Canada, and Algeria. In 2024, the U.S. privatised its Federal Helium Reserve and, selling its assets to the Messer Group and no longer buffering shocks such as those due to the U.S.-Iran conflict.

The next year, the U.S. House Committee on Oversight and Government Reform launched an investigation into Messer's Chinese interests, stoking the risk of tit-for-tat measures. Which China's latest export ban could be.

After the U.S., Qatar has been meeting 33% of the demand, especially in Asia. After the conflict with Iran escalated, as medical chemist and Science columnist Derek Lowe put it, "one-third of global helium production is now literally bottled up behind the Strait of Hormuz, a much higher percentage than world oil production [where the situation is bad enough already]."

In this light, China's new export restriction could preserve the country's helium supply for its domestic chip manufacturers and its medical sector.

How is helium obtained?

Helium is the second-lightest element, after hydrogen, and is not manufactured. It is a non-renewable resource generated deep in the earth's crust, where the radioactive decay of uranium and thorium atoms emits alpha particles, which capture electrons to form helium atoms.

Over millions of years, this helium migrates into the same reservoirs of natural gas, and they are extracted together. This said, natural gas is not processed to isolate the helium from it until the latter makes up at least 0.3% by volume.

But once it does, the gas is isolated using the fact that it has a different boiling point.

Some operators also recover helium from LNG plants and from the air but these quantities are too low to matter to the global demand. Helium for commercial use is usually at least 99.997% pure.



What is helium used for?

Helium has an extremely low boiling point — negative 269°C — and does not participate easily in chemical reactions. These are good properties for a coolant that needs to cool the magnets in MRI machines, the silicon wafers in the semiconductor fabricating industry, and, increasingly, some of the devices used in quantum computers. Its small atoms mean the gas escapes easily through gaps that might be too small for oxygen or nitrogen atoms — so engineers use helium as a leak-detector.

Helium is also used in the process of drawing optical fibres to rapidly and uniformly cool molten glass and to displace oxygen or nitrogen from forming bubbles inside the material. Spaceflight organisations like ISRO, NASA, and SpaceX use helium to pressurise fuel tanks in rockets. Research and the tourism sector in many parts of the world also use helium to inflate balloons and airships.

According to the U.S. Geological Survey, laboratory use-cases account for 22% of the demand for helium, followed by controlled atmospheres and semiconductors (17%), lifting gas (17%), MRI scanners (15%), aerospace (9%), and detecting leaks (5%).

How much does helium cost?

In June 2026, the spot price for highly pure helium in Northeast Asia had reportedly spiked to \$150-205 per thousand cubic feet, almost double what it was in late 2025. At least one major supplier, the U.S.-based industrial supplier Airgas, has invoked force majeure and tacked on surcharges of \$13.50 per hundred cubic feet to existing contracts. Liquid helium is by default expensive to store and transport because helium only liquefies at -269°C .

In fact, the helium supply chain as a whole is cost-intensive because purification, storage, and transport are each expensive and technically sophisticated. A mid- to large-scale purification and liquefaction facility will require more than \$100 million while smaller ones can cost around \$10 million, thanks to the need for corrosion-resistant alloys that can withstand ultra-low temperatures.

The gas can be stored in underground salt caverns, which reduce leaks significantly — but these formations are rare and developing a new one can cost more than \$200 million. It can also be stored as compressed gas or cryogenic liquid. The former typically costs up to \$10 million to build while bulk cryogenic liquid storage systems generally need between \$0.5 million and \$20 million depending on capacity. Then there are the operational expenses.

Finally, helium can only be transported in vacuum-jacketed stainless steel vessels — which are manufactured by relatively few companies worldwide, including several Chinese ones.

Finally, the contractor transporting the containers must also ensure they are delivered before the holding time expires, after which the helium will start boiling off into the atmosphere.

AMID NEW US TARIFF PLAN, GOVT PROHIBITS IMPORT OF GOODS MADE USING FORCED LABOUR

The Commerce and Industry Ministry on Tuesday prohibited the import of goods manufactured using forced labour weeks after the United States Trade Representative (USTR) proposed 12.5 per cent tariffs on India linked to the issue.

**Key Takeaways:**

- The US had launched two Section 301 probes on India in March and subsequently proposed fresh tariffs on June 3 after the outcome of its first investigation found that India failed to “effectively enforce” a forced labour import prohibition, which had purportedly hurt US commerce. The outcome of the second investigation relating to excess capacity is yet to be released.
- The Directorate General of Foreign Trade (DGFT), in an order dated July 13, has inserted a new paragraph in the Foreign Trade Policy (FTP) regarding “forced labour”, stating that the import of goods produced or manufactured, “wholly or in part”, through the use of forced labour is “prohibited”.
- “The Central Government may, from time to time, specify, by notification, the goods whose import shall be prohibited under this paragraph, having regard to the findings of such enquiry or such other material as it may consider appropriate. The procedure for conducting an enquiry by the DGFT into the use of forced labour. The provisions of this notification shall come into effect after the expiry of 30 days from the date of its publication in the Official Gazette,” the notification said.
- A senior Government official told The Indian Express that there are already certain provisions within existing regulations to take care of issues like forced labour, but the July 13 notification is “explicitly stating” it.

Do You Know:

- While India has sought the review of proposed US tariffs of 12.5% citing inconsistencies in its Section 301 investigation, Joint Secretary in the Department of Commerce Brij Mohan Mishra, during a public hearing last week, said the country takes the elimination of forced labour seriously as a constitutional obligation, and as a matter of international law and principle.
- According to international standards, forced labour means all work or service that is exacted from a person under threat of penalty and not offered voluntarily.
- According to GTRI, US authorities consider products such as cotton, textiles, solar-panel polysilicon, seafood, metals, batteries and electronics vulnerable to forced-labour risks, particularly when linked to China’s Xinjiang region. Yet, the US and the EU continue to import many such products from China, underscoring the challenges of enforcing forced-labour rules.

OIL CONUNDRUM**India’s energy imports from Russia seem driven by confusion, not strategy**

Union Ministry of Commerce and Industry (MCI) data on India’s May crude imports show that receipts from Russia had reached the pre-sanction levels of more than 40%, which is also the highest in two years. Though India has defended this as commercially prudent, its yuan-based payments give China an edge to internationalise its currency at India’s expense, even if it has no bearing on the domestic strength of the Indian rupee due to strict capital controls. Oil import concentration from a single source, and paying a premium, is risky for India, which has long pursued a diversified energy strategy. Moreover, sourcing fuel from the Gulf spot market amid evolving sanctions has its own risks. Secondary sanctions could hit trade channels, exposing Indian refiners to severe supply shocks. India’s crude imports from Russia surged in June, while



UAE shipments were at record levels as refiners sought to secure supplies after the Strait of Hormuz reopened. However, renewed Iran-U.S. hostilities have put those flows at risk. And even as Venezuela has emerged as a key supplier, increasing and unsustainably high one-country concentration could weaken India's bargaining power, reduce flexibility, and erode its credibility as an independent balancing power.

MCI data highlight the price impact: Russian imports carried a \$46-per-ton premium. Import value surged 83% amid a 2% fall in volume, likely diminishing Indian refiners' margins on refined products using Russian crude. While spot purchases have enabled refiners to capture discounts of up to \$10 per barrel on Russian Urals crude relative to Brent during some periods, after February this year, narrowing discounts, weaker product cracks, and geopolitical risks have moderated gross refining margins. India must strike a balance between having long-term stable contracts with multiple producers, and selectively using the spot-market to mitigate the procurement risks. Until the Russia-Ukraine conflict, nearly 70% of India's crude imports came through long-term contracts, particularly from West Asia. True, India cannot overlook the diplomatic costs as Russian energy dependence risks sanctions. When Russian crude was cheap because of discounts on account of the Ukraine war, India reduced imports under U.S. pressure; now when it is being sold at a premium because of the Iran war, India is moving back to Russian crude. India must expand its strategic petroleum reserves to cushion temporary disruptions. Whether it increases or cuts down Russian oil imports, India seems to make decisions that are far removed from any sense of strategic autonomy.

INSULAR INCENTIVE

Ethanol-blended fuel should not be forced on consumers irrationally

The Indian government's policy to continue producing E20 petrol at a cost higher than that of pure petrol when oil prices dip under \$70 a barrel to "compensate farmers adequately" is a deceptively well-formulated proposition. Most feedstock for the fuel-blending programme is from sugarcane, one of India's most water- and fertilizer-intensive crops, mainly grown in water-stressed Maharashtra and Karnataka. Whether the policy's net economic benefit remains positive will depend on the gains from lower crude imports, environmental improvements, and higher rural incomes outweighing these additional costs. Efficiency also remains a concern. Consumers — including people who are poorer than sugarcane farmers — pay more at the pump, oil marketing companies procure ethanol at the administered price, distilleries buy feedstock, and only then do farmers receive higher prices. Higher feedstock prices also do not address most reasons farmers have lower incomes, such as post-harvest losses and limited market access. Crucially, if the government rewards every unit of ethanol irrespective of feedstock, the policy will favour whichever feedstock has the largest installed base: sugarcane. Instead, the objectives should include resource efficiency and food security. The state could invest in irrigation and logistics and institute revenue-sharing arrangements with ethanol producers and cooperatives.

India has encouraged maize and grain-based distillation capacity has expanded rapidly, periodically allowed ethanol to be produced from the Food Corporation's surplus or damaged rice holdings, and has supported commercial plants using agricultural residues such as rice straw under Ministry of Petroleum and Natural Gas schemes. Maize and millets are less thirsty but maize still demands significant fertilizer inputs while millets produce less fermentable starch per hectare. Sweet sorghum is less water-intensive and has a shorter growing season than sugarcane. Lignocellulosic biomass such as rice and wheat straw, maize stover and groundnut shells can also support second-generation (2G) ethanol. 2G ethanol from agricultural residues can avoid using



cropland for fuel, reducing competition with food crops and addressing stubble burning. It is more expensive and technologically demanding but that is a better problem to solve, with proactive policymaking. The government could pay a premium for ethanol produced from residues, subsidise equipment and infrastructure to collect and store crop residue, facilitate contracts between aggregators and distilleries, and provide viability-gap funding and offtake agreements. Ultimately, ethanol policy should not be independent of agricultural policy. And import substitution is no excuse for consumers being forced to pay more for lower-mileage fuel than pure petrol.

MOISTURE-ABSORBING NATURE OF ETHANOL IS CONTAMINATING FUEL, CLAIM PETROL DEALERS

Petrol pump owners claim ethanol's hygroscopic nature or affinity towards water is leading to contamination of E20 stock during monsoons and in coastal areas since existing underground storage tanks were designed for conventional petrol, not higher ethanol blends. The claims come amid viral videos on social media purportedly showing customers collecting what appears to be muddy water, rather than E20 from fuel dispensers.

One such video involved a Toyota Hycross car, which allegedly broke down shortly after refuelling. The automaker blamed fuel contamination as the car was E20 compliant. The maker of the video was later among at least 3 against whom an FIR was filed.

Three petrol pump owners shared concerns over the roll out of E20 with The Hindu on the condition of anonymity.

"The underground tanks that store fuel often have some amount of water due to ingress during rains or moisture or condensation or from the fuel tanker that brings petrol to the petrol pump. Now, when the water content in the entire E20 stock in underground tanks exceeds 0.5%, ethanol binds with water because of its hygroscopic nature or affinity for water. This results in phase separation where water-ethanol mixture settles at bottom of the tank, while the petrol forms a separate layer above," said an industry veteran.

As fuel is drawn by the dispensing unit from the bottom of the underground tank, some vehicles may end up being dispensed with this water-rich mixture instead of E20.

"As a result, vehicles may not start, or breakdown after a distance. We come to know about contamination only when such customers come to us with complaints," said a dealer.

Automotive experts say, such contaminated fuel can independently cause fuel injector to malfunction, poor driveability, fuel pump failures and in severe cases, engine damage.

Pump owners said the concerns were compounded in coastal areas where sub-soil water can further contaminate E20 if seals on underground tanks are not properly in place.

Fear of corrosion

A pump owner also feared underground tanks and pipelines made of mild steel could turn susceptible to corrosion because of ethanol's tendency to absorb water, potentially adding to fuel contamination. Some said OMCs replaced seals and washers in petrol dispensing units with neoprene rubber in preparation for E20.



Dealers also said there was a need for creating awareness among vehicle owners to prevent disputes at fuel stations and motorists should be advised on the need for protecting vehicles from rain as well as during washing to prevent water ingress in fuel tanks but the oil marketing companies (OMCs) were actively dissuading them from displaying any informational boards.

“Some petrol pumps had hoardings saying E20 was being dispensed on government order, but OMCs were offended and ordered for them to be removed,” said one of the petrol pump operators.

The dealers said they had been instructed to check underground storage tanks for water contamination thrice a day with the frequency increasing to once every two hours in monsoons. Many pumps use a dipstick coated with water-finding paste that turns red in the presence of water. If contamination is detected, the dealer informs the oil marketing company (OMC), which deploys personnel to drain the water from the tank using a hand pump.

Dealers said they were unhappy with the financial burden of the process. They pointed out while they buy the entire stock of E20 from OMCs, they must bear the losses when any contaminated portion was to be discarded.

Zero tolerance

IOCL said in a statement that it has zero tolerance policy to contamination and regular inspections and testing are being carried out regularly.

EXPORT GAINS

India's trade weaknesses are becoming episodic, its strengths structural

India's trade data for June offers insights into how the country is weathering the West Asia crisis and the prospect of a deficient monsoon. The fact that the trade deficit jumped 430% in June would seem alarming. However, a deeper look at the composition of this deficit should ease a lot of that alarm. The bulk of the increase in the deficit was due to the sharp increase in merchandise imports in June. And within this, it was led by crude, gold, fertilizers and electronic goods. The value of crude oil imports rose 40% in June 2026, reflecting the skyrocketing prices of oil a few months earlier. Gold prices have also been rising as uncertainty over the West Asia situation persists. The doubling of gold import duties in May would also have pushed up prices in June. With India's natural gas supplies hit due to the West Asia constraints, it has had to import more fertilizer — 201% more by value over last June. The only one of these categories that has seen imports rise sharply due to domestic factors is the electronic goods segment. As India's electronics manufacturing and assembly grow, more parts are going to come from abroad to fuel this engine. The government is encouraging this, as seen in its decision last week to remove the basic customs duty on imported parts in the manufacture of display assemblies, lithium-ion cells and inductor coil modules. These are essential if India wants to boost its manufacturing of high-end electronics such as smartphones, laptops and smart TVs. Going ahead, the attempt should also be to manufacture as many of these inputs locally so that these supply chains can be made truly secure.

The good news is that India's merchandise exports have put on a strong showing, not only in June 2026, but throughout the first quarter of 2026-27. Merchandise exports grew 15.5% in June and by an even quicker 16% in Q1. This was not simply a buoyancy granted by costly petroleum exports, either. Non-petroleum exports grew by a robust 16.5% in June and 12.4% in Q1. This is almost precisely the duration of the West Asia crisis. The data show that India's exports to every region of the world except West Asia grew in Q1, and that a large portion of export growth was in



volume terms as well as in value. Indian exporters are to be commended for diversifying so quickly. Service exports, however, grew only 2.9% in June and 6.2% in Q1. As Chief Economic Adviser V. Anantha Nageswaran has warned, success in areas such as Global Capability Centres should not be considered an end in itself — there is still far to go, and complacency will rob India of its advantage in this area.

BREACHING THE TARGET

Rising inflation leaves no room for a cut in interest rates

India's retail inflation breached the RBI's 4% target for the first time under the new CPI series, rising to 4.38% in June from 3.93% in May and about 2.7% a year earlier. The latest print reflects a broader pass-through of price pressures that had, until recently, remained concentrated at the producer level, largely driven by spiralling transport and fuel costs since the U.S.-Iran conflict in late February. Consequently, the gap between wholesale and retail inflation has only marginally narrowed. Wholesale inflation (WPI), now based on 2022-23, remained elevated at 9.87% in June, up from 9.68% in May. Fuel and power continued to exert the greatest pressure on producers, recording inflation of 27.41%, only marginally lower than May's 28.18%. As India imports nearly 90% of its crude oil requirements, the value of merchandise imports surged to \$70.8 billion in June from about \$54.1 billion a year earlier, even though import volumes did not rise proportionately. This underscores how imported inflation, amplified by crude prices that briefly crossed \$110 a barrel, has driven systemic price pressures across the economy. The rupee's sharp depreciation during the conflict added to these pressures, although RBI intervention in the foreign exchange market helped cushion the fall.

The transport category merits closer examination. Transport inflation more than doubled to 4.31% in June from 1.75% in May, while the sub-group, "transport services for goods", remained elevated, rising to 7.70% from 7.63%. Another notable pressure point has been restaurants and hotels. Although the government announced a modest reduction in commercial LPG prices earlier this month, it has done little to offset the steep increases through May and June, when the price of a 19.2 kg commercial cylinder in Delhi climbed to around ₹2,930 before easing marginally. The system-wide impact is also evident in food prices, with the Consumer Food Price Index (CFPI) rising to 5.32% from 4.78% in May. Another significant price pressure on the CFPI that must be factored in is the projection of a deficient southwest monsoon and its impact on agriculture, though the extent will become clearer in the weeks ahead. Meanwhile, despite the Centre more than doubling import duties on gold and silver from 6% to 15% in May, Commerce Ministry data suggest that bullion imports have remained robust amid global uncertainty, contributing to higher jewellery prices and household inflation. Although the ceasefire announced in late June briefly eased crude prices, they have begun rising again. Given continuing geopolitical uncertainty and persistent upstream price pressures, inflation is unlikely to return to the RBI's 4% target soon, leaving no room for a rate cut at the Monetary Policy Committee's August meeting.

RBI INTRODUCES SNFA CATEGORY, BARS BANKS FROM SELLING ASSETS BACK TO DEFAULTERS

The Reserve Bank of India (RBI) has introduced the concept of specified non-financial assets (SNFAs) in the event of loan defaults and mandated that disposal of such assets should primarily be through public auctions under SARFAESI Act principles and prohibited resale to the original borrower or related parties.

**Key Takeaways:**

- SNFAs refer to immovable properties that banks acquire when borrowers fail to repay loans. Such assets include residential buildings, commercial properties, industrial land or other real estate accepted by banks in settlement of outstanding debt.
- The RBI has issued the Third Amendment Directions, 2026 under its Commercial Banks-Resolution of Stressed Assets Directions, 2025. The new regulations establish a comprehensive framework for how banks should acquire, value, manage and dispose of non-financial assets obtained from defaulting borrowers.
- According to the new directions, banks may acquire an SNFA only after a borrower's loan has been officially classified as a non-performing asset (NPA). The acquisition must involve either full or partial settlement of the bank's outstanding exposure.
- In cases where only part of the loan is settled through the transfer of property, the remaining debt will continue to be treated under restructuring norms, ensuring that banks maintain appropriate provisioning and risk management standards.
- The amendment also requires every commercial bank to formulate a detailed internal policy governing the acquisition and disposal of SNFAs. The policy must specify eligibility criteria, approval procedures, recovery efforts to be attempted before acquiring property, limits on such assets relative to total bank assets and a clear timeline for disposal.
- Under the revised norms, banks are prohibited from selling repossessed properties back to the original borrower or any related parties, even if the property later ceases to be classified as an SNFA.
- This measure is expected to prevent misuse of the recovery process and improve transparency. Banks had encountered several cases in the past where defaulters claimed return of the property seized by banks.
- The RBI has also clarified accounting and disclosure requirements. SNFAs will no longer be counted as part of gross NPAs, net NPAs or stressed assets. Instead, they will appear separately in bank balance sheets under the category "non-banking assets acquired in satisfaction of claims."

Do You Know:

- Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act of 2002 was brought in to guard financial institutions against loan defaulters. To recover their bad debts, the banks under this law can take control of securities pledged against the loan, manage or sell them to recover dues without court intervention. The law is applicable throughout the country and covers all assets, movable or immovable, promised as security to the lender.
- The Act comes into play if a borrower defaults on his or her payments for more than six months. The lender then can send a notice to the borrower to clear the dues within 60 days. In case that doesn't happen, the financial institution has the right to take possession of the secured assets and sell, transfer or manage them.



SEBI CAUTIONS FIRMS AGAINST RISING 'BOSS SCAM'

The Securities and Exchange Board of India (SEBI) has cautioned regulated entities and listed companies against a rapidly emerging cyber fraud known as the 'Boss Scam', in which fraudsters impersonate CEO or managing director to carry out the crime.

Key Takeaways:

— Acting on inputs from the Indian Cyber Crime Coordination Centre (I4C), the market regulator has urged organisations to strengthen internal verification procedures as fraudsters increasingly exploit artificial intelligence, deepfake technology and malicious software to deceive finance officials into transferring funds.

— In a press statement issued on Friday, SEBI said cybercriminals are targeting chief executive officers, managing directors and other senior officials by impersonating them through email, WhatsApp, Microsoft Teams and other social media platforms.

— The fraudsters send convincing messages or place fake calls to employees, particularly those handling financial transactions, instructing them to make urgent payments to bank accounts controlled by criminals.

— According to SEBI, the scam typically follows two distinct methods. In the first, fraudsters use advanced deepfake technology, including AI-generated voice cloning and manipulated video calls, to convincingly imitate senior executives.

— The second method involves the distribution of malicious compressed (.zip) files containing executable (.exe) and Dynamic Link Library (.dll) files. These files, once downloaded and opened on Windows computers, install malware capable of compromising the victim's device. The malware functions as a Trojan dropper, enabling attackers to hijack active WhatsApp Web session tokens and gain unauthorised access to the finance officer's messaging account, SEBI said.

— Once access is obtained, fraudsters use the compromised account to contact other finance or accounts personnel, directing them to transfer money to designated mule bank accounts.

— In more sophisticated attacks, cybercriminals who gain complete control of a device reportedly alter the victim's contact list by saving the fraudster's number under the name of the company's CEO or Managing Director.

— This makes fraudulent payment instructions appear to originate from a trusted senior executive, increasing the likelihood of successful deception.

— In the event of any suspected cyber fraud or attempted scam, SEBI advised companies and individuals to immediately report the incident by dialling the national cybercrime helpline, 1930, or by lodging a complaint through the government's cybercrime reporting portal.

Do You Know:

— India has a comprehensive legal framework to address cybercrimes. The Information Technology Act, 2000 covers offences related to phishing, smishing, and vishing, prescribing fines and imprisonment.



— In 2018, the Ministry of Home Affairs approved the Indian Cyber Crime Coordination Centre (I4C) as a national-level coordination centre to address cybercrime-related issues. In September 2024, four I4C platforms — Cyber Fraud Mitigation Centre (CFMC), the ‘Samanvaya’ platform, a Cyber Commandos programme and a Suspect Registry — were inaugurated by Home Minister.

— Under the provisions of section 70B of the Information Technology (IT) Act, 2000, the CERT-In is designated as the national agency for responding to cyber security incidents. The CERT-In plays a vital role in controlling cybersecurity incidents and coordinating incident response activities. It acts as the central agency for incident response, vulnerability handling, and security management in India’s cyberspace.

AGRIPHOTOVOLTAICS

Why it matters

Amid discussions on promoting clean energy in rural India, cutting the government’s power subsidy bill, and enhancing farmers’ incomes, agriphotovoltaics are being seen as a viable solution. Let’s a look at what agriphotovoltaics are and the benefits they offer.

Core Concept:

— Agriphotovoltaics (Agri-PV) integrate solar power generation and crop cultivation on the same piece of land. This allows farmers to harvest both sunlight and crops.

— Solar panels are mounted at a height of about 3.5 metres, which permits cultivation beneath them while generating electricity for sale to discoms. The result is dual use of land and dual streams of income.

— Unlike agricultural income, which is vulnerable to weather shocks, pest attacks and market fluctuations, solar income is stable. In effect, solar becomes a “third crop” that provides a dependable source of earnings when conventional crops fail.

— The significance of Agri-PV extends beyond farmers’ income. It also addresses a longstanding distortion in India’s power sector. Agriculture consumes nearly 2,60,000 GWh of electricity annually, yet pays tariffs far below the actual cost of supply.

— Agri-PV offers an opportunity to fundamentally alter this equation. By generating electricity at the farm level and feeding it into local distribution networks, it reduces transmission losses and infrastructure costs while transforming farmers from consumers of highly subsidised power into producers of clean energy. However, scaling Agri-PV requires supportive policy.

— RIPV involves integrating solar photovoltaic (PV) systems directly into existing rail and road infrastructure. PV technology converts sunlight directly into electricity through the photovoltaic effect, where semiconductor materials in a PV cell absorb photons (particles of energy) from sunlight and release electrons, generating flow of electricity.

— What sets it apart from conventional solar PV systems is that it eliminates the need for dedicated land for installation. Instead, solar panels can be installed along railway tracks, highway dividers, and medians or onto other structures. This not only overcomes land constraints but also brings energy generation closer to the point of consumption.



EYE ON SUPPLY CHAIN, CABINET APPROVES RS 1.27 LAKH CRORE SEMICONDUCTOR PUSH

The Union Cabinet on Wednesday approved the second iteration of India's ambitious Semiconductor Mission, with an outlay of Rs Rs 1.27 lakh crore. The fresh scheme will carry a key focus on subsidising the supply chain around chip manufacturing to attract companies producing commodities like gases, and chemicals used in the production process. The duration of the scheme is six years.

Key Takeaways:

- Compared to the first iteration of the India Semiconductor Mission (ISM), government incentives have been slashed in ISM 2.0. For instance, the first scheme carried a uniform capex subsidy of 50% for fabs and assembly plants. However, under ISM 2.0, silicon fabs will receive a subsidy of 40%, and other fabs will get 35%. Similarly, the incentive for advanced packaging has been kept at 35%, and 25% for conventional packaging.
- Beyond that, ISM 2.0 will also offer government subsidies for research and development, and talent development in the semiconductor sector.
- The country's foray into semiconductor production and packaging has been outlined as a strategic move by New Delhi to insert itself into the global chip supply chain and establish the sector to deepen domestic value addition in its electronics sector. Semiconductors — used to power devices from toasters to fighter jets — have become a critical resource amid heightened geopolitical tensions over the last few years.
- By 2029, India expects to achieve the capability to design and manufacture chips required for nearly 70-75% of domestic applications, and by 2035, the country aims to be among the top semiconductor nations globally.
- ISM 1.0, launched in 2021, was conceived as a state-backed push to build a full-stack chip ecosystem, from fabrication and packaging to design and display manufacturing. Under the scheme, cumulative investments of around Rs 1.64 lakh crore have been committed. In this year's Union Budget, Finance Minister Nirmala Sitharaman announced the India Semiconductor Mission 2.0 to produce equipment and materials, design full-stack Indian IP and fortify supply chains.
- The 12 chip plants that have received approvals under the ISM are being constructed in states such as Gujarat, Assam, Andhra Pradesh, Uttar Pradesh, and Odisha. They include one full-fledged commercial semiconductor fabrication facility, and assembly and testing plants.

Do You Know:

- The Union Budget 2026–27 marked a decisive moment for India's technology ambitions with the announcement of India Semiconductor Mission 2.0. The new phase signals a clear policy push to deepen domestic semiconductor capabilities at a time when chips underpin every critical digital and industrial system.
- ISM 2.0 will focus on producing semiconductor equipment and materials in India, designing full stack Indian semiconductor intellectual property, and fortifying both domestic and global supply chains. A provision of Rs. 1,000 crore has been made for ISM 2.0 for FY 2026–27, with a strong emphasis on industry led research and training centres to drive technology development and create a future ready skilled workforce.



- Semiconductors are the backbone of modern electronics, powering computers, mobile devices, telecommunications, automobiles, defence systems and artificial intelligence. India has made steady progress in consolidating earlier investments into a full-stack value chain of its semiconductor ecosystem under ISM 1.0, expanding design capabilities and advancing fabrication, assembly and testing infrastructure across the country. This momentum reflects the broader vision of Aatmanirbhar Bharat and India's transition from policy formulation to production readiness. Building on these gains, ISM 2.0 seeks to consolidate India's position as a reliable and competitive participant in the global semiconductor network.



DreamIAS



LIFE AND SCIENCES

EÄRENDIL-1: BRIGHT OR BLIGHT?

Why in News

On 9 July 2026, the US Federal Communications Commission (FCC) granted a limited two-year licence to Reflect Orbital, a California-based aerospace startup, for its Eärendil-1 satellite — the first commercial "space mirror" mission, and the first orbital reflector attempt since Russia's Znamya-2.5 experiment failed in 1999.

What Is Eärendil-1

- A demonstration satellite carrying an 18×18 metre deployable reflector made of aluminised Mylar (thin-film) material, unfurled from four triangular panels.
- Weighs approximately 134–142 kg.
- Designed to be placed initially around 500 km altitude, later boosted to roughly 625–650 km, in a near-polar orbit (about 88° inclination).
- Purpose: to redirect sunlight to a chosen patch of Earth's night side — roughly a 5 km footprint — for about 3.5 minutes per pass, at a brightness comparable to Venus (magnitude –4 to –5).
- Named after Eärendil, the mariner of J.R.R. Tolkien's *Silmarillion*, who sailed the skies bearing a Silmaril that became the morning star — a fitting reference given the satellite's Venus-like brightness.

Stated Objectives

- Extending solar power generation windows by delivering sunlight after sunset.
- Providing emergency illumination for disaster relief and search-and-rescue operations.
- Long-term company goal: a constellation of 50,000+ such reflectors for on-demand lighting and power applications.

Concerns Raised

- The American Astronomical Society (AAS) flagged risk of eye damage to amateur astronomers viewing the bright reflector through telescopes.
- Objections were also raised by bodies covering ecology, entomology, geophysics, meteorology, and physics, plus the International Astronomical Union (IAU), Royal Astronomical Society (RAS), AAVSO, CASCA, DarkSky, and pilot associations — citing light pollution, interference with astronomical surveys, disruption of nocturnal wildlife, and aviation safety.
- The FCC approved only the radio-licensing aspect and explicitly declined jurisdiction over the reflector technology itself, leaving a regulatory gap that critics say needs addressing.



COSMIC SUGAR

Could the sugar in our bodies have first come from space?

A: It is possible, though we don't yet know for sure.

In fact, astronomers recently found a complex sugar in deep space for the first time. Using powerful radio telescopes, a team affiliated with institutes in Spain and five other countries spotted a complex sugar called erythrulose in a giant interstellar molecular cloud near the centre of the Milky Way galaxy. Their findings were published in Nature Astronomy on July 13.

While scientists have previously found molecules that can give rise to sugars in space, erythrulose is itself a sugar. Sugars are essential building blocks of life: they provide metabolic energy and form the structural backbone of RNA and DNA. Scientists have found sugar molecules on meteorites and asteroids but this is the first time such a molecule has been found in the vastness between stars. And it proves the complex chemical ingredients necessary for life can form in the extreme conditions of space, and don't need planets.

The researchers used advanced computer models to show that the erythrulose likely formed on the icy surfaces of dust grains. When simpler molecules, such as glycolaldehyde and ethylene glycol, collide on these frozen particles, they can react to form larger, more complex sugars. Eventually, these molecules can be incorporated into comets and asteroids, which may have seeded the early earth with the necessary ingredients for biological life.

Erythrulose is also a chiral molecule, meaning it has separate right-handed and left-handed versions. Because life on the earth only uses one specific handedness for its molecules, finding chiral sugars in space could help scientists understand why our biology evolved the way it did.

ECLIPSE

TOTAL SOLAR ECLIPSE

Why it matters

There will be a total solar eclipse on August 12, 2026, the National Aeronautics and Space Administration (NASA) has confirmed. Let's know what solar eclipses are and what makes a total solar eclipse so rare.

Core Concept:

— A solar eclipse takes place when the Moon moves in the middle of Earth and the Sun. The Moon blocks the light of the Sun, either fully or partially, which casts a huge shadow on some parts of the world.

— There are four different types of solar eclipses, including total solar eclipse, annual solar eclipse, partial solar eclipse, and hybrid solar eclipse.

- i. Total solar eclipse: When the Moon blocks the Sun entirely, the areas in the centre of the Moon's shadow at the time witness a total solar eclipse. The sky darkens and people who are in the path of a total solar eclipse can get a glimpse of the Sun's corona — the outer atmosphere — which is usually not visible due to the bright face of the Sun.



- ii. Annular solar eclipse: When the Moon passes in front of the Sun but is at or near the farthest point from Earth, an annular solar eclipse occurs. In this scenario, the Moon covers the Sun in such a way that only the periphery of the Sun remains visible — looking like a ring of fire.
- iii. Partial solar eclipse: A partial solar eclipse takes place when the Moon blocks just a part of the Sun, giving it a crescent shape. During both partial and annular eclipses, the regions outside the area covered by the Moon's umbra — the middle and the darkest part of the lunar shadow — will see a partial solar eclipse. Partial solar eclipse is the most common type of solar eclipse.
- iv. Hybrid solar eclipse: It is the rarest type of solar eclipse — is witnessed when an eclipse shifts between annular and total as the shadow of the Moon moves across the globe. In this case, some parts of the world see a total solar eclipse, while others observe an annular solar eclipse.

How often does a solar eclipse take place?

A solar eclipse is witnessed only during the new moon — when the Moon and Sun are aligned on the same side of Earth. A new moon occurs about 29.5 days because that is how long it takes the Moon to orbit Earth. This, however, does not mean that a solar eclipse happens every month. It takes place only between two to five times annually. But why? It is because the Moon does not orbit Earth in the same plane as the Earth orbits the Sun. In fact, the Moon is tilted by about five degrees with respect to Earth. As a result, most of the time when the Moon is in between the Sun and Earth, its shadow is either too high or too low to fall on the Earth.

Why is a total solar eclipse so rare?

— While there can be between two and five solar eclipses every year, total eclipses only happen about once every 18 months or so. The total eclipse is only visible if one is standing in the umbra — the other part of the shadow is called the penumbra, which is not as dark as the umbra. The umbral shadow is very small, covering only a small part of Earth.

— Moreover, about 70 per cent of the globe is underwater and half of the land is considered uninhabited. That's why, it is quite rare when a total solar eclipse happens and a lot of people get to see it.

LUNAR ECLIPSE

— There are two types of eclipses: lunar and solar. During a lunar eclipse, Earth's shadow obscures the Moon. During a solar eclipse, the Moon blocks the Sun from view.

— Lunar eclipses occur at the full moon phase. When Earth is positioned precisely between the Moon and the Sun. Solar eclipses occur only at the new moon phase, when the Moon is positioned between Earth and the Sun.

— Types of Lunar Eclipses

1. Total lunar eclipses: The Moon moves into the inner part of Earth's shadow, or the umbra. Some of the sunlight passing through Earth's atmosphere reaches the Moon's surface, lighting it dimly. Colors with shorter wavelengths — the blues and violets — scatter more easily than colors with longer wavelengths, like red and orange.



2. Partial lunar eclipse: An imperfect alignment of Sun, Earth and Moon results in the Moon passing through only part of Earth's umbra. The shadow grows and then recedes without ever entirely covering the Moon.
3. Penumbral eclipse: The Moon travels through Earth's penumbra, or the faint outer part of its shadow. The Moon dims so slightly that it can be difficult to notice.

STUDY FINDS EFFICIENT WAY TO FILTER NUCLEAR WASTEWATER

In 2023, Japan began a decades-long and controversial process — it began releasing treated wastewater from the ruined Fukushima nuclear power plant into the Pacific Ocean. The water had been filtered to remove most heavy radioactive elements, yet one particular contaminant remained: tritium.

Tritium is a radioactive isotope of hydrogen. When it bonds with oxygen, it forms tritiated water, or HTO. Because tritiated water is chemically almost identical to regular water, it is extremely difficult to separate the two. For many decades, officials in the global nuclear industry have opted to dilute tritiated water, i.e. mixing it in large quantities of regular water.

In absolute terms, the treated wastewater will make up only 0.000000000189% of the Pacific Ocean's volume even after all of it is released. However, the effects of the tritiated water are expected to be more apparent in the waters flanked by South Korea and China. M.V. Ramana, professor at the University of British Columbia, had also told The Hindu in 2023 that tritium is "easily absorbed by the bodies of living creatures" and "rapidly distributed ... via blood".

A new study published in Environmental Science & Technology may finally offer a way to efficiently clean tritiated water. The research team, from across China, achieved this using a metal-organic framework, work on which won the Nobel Prize for chemistry last year.

The current most practical way to remove tritium from tritiated water is water distillation, i.e. boiling water and separating the components based on their slightly different boiling points. But the difference is so feeble that operators need a distillation tower hundreds of metres tall, which is expensive, uses large amounts of energy, and impractical for the millions of tonnes of water stored at Fukushima.

Current distillation towers use systems called packings — materials inside the tower that provide surfaces where steam and liquid can interact. Until now, these packings were passive: they just sat there and let gravity do the work. In the new study, the researchers made the packing material 'active'. They coated a stainless-steel mesh with a metal-organic framework called NH₂-MIL-101(Cr). A metal-organic framework is like a microscopic sponge. It has a very high surface area: the study found that adding NH₂-MIL-101(Cr) increased the available area of the packing by 32-fold. Second, the chromium-oxygen clusters inside the framework 'grabbed' tritium atoms from the liquid and swapped them with regular hydrogen atoms, with nitrogen and hydrogen attachments also facilitating this swapping.

The results were staggering. In laboratory tests, the team found that the modified packing achieved a separation efficiency of 42.5 theoretical plates per meter — a record-setting figure in the world of chemical engineering. At an industrial height of 10 m, the new material would be 134-times more effective than the current best-reported material. It is also one-million-times more effective than the standard commercial packings in the industry today.



“This strategy provides a new approach for improving the detritiation of tritiated water and reducing tritium releases to natural water bodies,” the researchers wrote in the paper. “More broadly, the results highlight the potential of programmable porous materials to address challenging isotope-contaminant separations and contribute to safer and more sustainable management of nuclear energy systems.”

CHINA PITCHES AI GOVERNANCE MODEL FOR GLOBAL SOUTH

It is the clearest signal yet of China’s global leadership ambitions in Artificial Intelligence. On Friday, Chinese President Xi Jinping unveiled a new initiative on global AI governance, pitched largely at the Global South and developing countries. China, along with 29 other countries, mostly from Asia, Africa, and Latin America, has established a World Artificial Intelligence Cooperation Organisation (WAICO) based in Shanghai.

Mr. Xi described the effort as “a major move by China to answer the call of the Global South and unite the international community together to promote vigorously AI development and governance.”

“It will be an important milestone in the history of AI development,” he told a summit on AI governance in Shanghai.

He announced that in the next five years, China would provide developing countries “with 5,000 opportunities in AI training and seminar programmes”, as well as set up joint AI application cooperation centres with ASEAN, the League of Arab States, the African Union, the Community of Latin American and Caribbean States, the Shanghai Cooperation Organisation, and BRICS.

The broader context is China’s push to both develop its alternatives to Western AI models and to offer them to developing countries. Beijing is concerned about the security implications of relying on models based in the West such as OpenAI’s ChatGPT and Anthropic’s Claude.

Mr. Xi hinted at these concerns in his speech, saying countries “should jointly oppose overstretching the national security concept in the field of AI and placing one country’s security over that of others”. He did not name the U.S., but Chinese officials have previously hit out at Washington for what they have described as securitisation of technologies, including AI.

A day before the launch of WAICO, Chinese AI firm Moonshot announced its latest Kimi K3 model that has surprised Western analysts with its capabilities. Chinese companies like Moonshot and DeepSeek are offering open-source models, which Beijing sees as giving them an edge in developing countries seeking technology for AI adoption. Mr. Xi said China would “encourage open source, openness, collaboration and sharing.”

If security implications of using Western AI models are one concern, ideology is another. Chinese officials have also spoken of what they see as an “infiltration” of Western values through AI platforms and an erosion of sovereignty. This is a message that, Beijing believes, will find resonance in many developing countries and in the Global South.

“We should tend to the garden of civilisations with great care to ensure that the beauty of each civilisation is appreciated and shared,” Mr. Xi said. “We often say in China, ‘A single string cannot make music, and a single tree does not make a forest.’ AI development should not be a solo performance by a single country, but a symphony of international cooperation.”



Among the nations signed on to WAICO are Brazil, Russia, South Africa, Indonesia, Kazakhstan, Kenya, Malaysia, Pakistan, Uzbekistan and Venezuela. India, which was present at the Shanghai summit and sent a Joint Secretary-level delegation, is alone among the five founding BRICS countries in its absence in WAICO.

"ONE-CLICK" EXPLOITS

Why it matters

WhatsApp recently discovered and disrupted a sophisticated hacking campaign that used a one-click exploit developed by Israel-based spyware maker NSO Group to target its users, the messaging platform's parent company Meta has revealed. In this context, let's know what one-click exploits are and how they are different from zero-click exploits.

Core Concept:

- A one-click exploit requires the victim to perform a single action – typically clicking on a malicious link sent through a messaging app, email or SMS.
- Once the link is opened, the attacker exploits software vulnerabilities to silently install Pegasus spyware on the target's device, often without any further interaction or visible signs of compromise.
- According to Meta, the latest campaign involved spear-phishing links that redirected users to malicious websites outside the app, resembling previous one-click Pegasus operations.
- Security researchers say one-click attacks may appear less technically advanced, but they remain highly effective because they exploit human behaviour through carefully crafted phishing messages that appear legitimate.

What is Pegasus?

It is a highly sophisticated commercial spyware developed by the Israeli cyber-intelligence company NSO Group. Pegasus is being notoriously used by authoritarian governments to target politicians, journalists, and civil society activists, among others. Once installed, Pegasus can gain near-complete control over a smartphone, allowing operators to read encrypted messages, access emails and photos, record calls, activate the microphone and camera, and track the device's location. The NSO Group says it only sells Pegasus to governments.

"Zero-click" exploits

- Zero-click exploits are considerably more sophisticated than one-click exploits because they help spyware like Pegasus gain control over a device without human interaction or human error. So all awareness about how to avoid a phishing attack or which links not to click are pointless if the target is the system itself.
- Most of these attacks exploit software which receive data even before it can determine whether what is coming in is trustworthy or not, like an email client.
- Zero-click exploits are hard to detect given their nature and hence even harder to prevent. Detection becomes even harder in encrypted environments where there is no visibility on the data packets being sent or received.



STANDING OUT

Why is red the colour of danger?

Red has the longest wavelength of any colour in the visible spectrum, so it is scattered the least by particles in the air, such as fog, rain or dust. Thus, you can see a red sign from further away than, say, one in blue or green. Humans are also hardwired to notice red. It is the colour of blood and fire, two of our ancestors' greatest indicators of harm. The sight of red often triggers a subtle fight-or-flight response, increasing heart rate and sharpening focus.

On Earth, red also makes a stark contrast to the natural environment. Most of the planet is blue (the sky and ocean) or green (foliage). A bright red sign 'pops' against these backgrounds, ensuring it isn't easily missed. This is why early railroad and automotive engineers adopted red as the standard for stop signs.

On Mars, a red stop sign would be ineffective as the landscape is dominated by reddish-orange dust and the sky often has a pinkish hue. So danger signs on Mars would likely be bright cyan or deep blue, which are the opposite of red on the colour wheel.

Can you work out the best 'danger' colours on Mercury and Venus?

THE MYSTERIOUS NEW MONKEY IN THE WILD

If a monkey croaks in a forest, with no humans to hear it, does it even exist? Five million years ago, the recently classified *Colobus congoensis* split from the common ancestor of its closest simian relative. It was only in 2008 that researchers captured blurry photos of the reclusive, yellow-lipped monkey that makes a croaking sound at the Lomami National Park in Congo. People from the Balanga ethnic group call the animal — roughly the same size as a rhesus monkey — Likweli, and after years of study and genetic testing, it has now been classified as a new species.

Its population, habits and social life will likely occupy zoologists for years to come. The question, though, is whether the Likweli monkey was better off "undiscovered". There is, of course, a chance that the classification of the new species will help conserve it, that knowing it's there may prevent hunting and habitat destruction. Human beings, though, don't have the best record in this regard.

Since the age of European colonial expansion, indigenous populations of entire continents have been all but wiped out by the excesses of "discovery". Animals, once classified, enter the language of the creatures that have destroyed so many of them: They will be "conserved" till, perhaps, some rare mineral or the strategic imperative of a nation-state — far younger than the five-million-year life of the Likweli as a species — makes them part of a utilitarian calculus in which they are simply a variable on a ledger. Meanwhile, let's hope the mysterious new cousin in the simian family croaks away without interruption or interference from its dominating relative.

WHY ENGINEERING EVOLUTION IS A CONTEST BETWEEN CURE AND CHAOS

A single mosquito carrying malaria parasites can infect dozens of people. A single gene in that mosquito can spread slowly through its population. Gene drives aim to favourably bend this inheritance by ensuring that a particular genetic change passes to far more than half of the offspring, helping reduce the disease burden.



Whether through applications in health, diagnostics, drug discovery, and development or agriculture, today's gene engineers can seem to have nature in the palm of their hands. Yet this misplaced view of unbridled human capacity has raised the false sense that any problem related to life on our planet can be addressed or solved by genetic engineering.

Humans have acquired great power in the ability to manipulate cells and organisms. This capacity has helped, and will continue to help, address major problems. Yet our abilities are still modest compared to what nature itself has achieved over billions of years.

A drive to proliferate

Of the many applications of genetic engineering, 'gene drives' have received much attention. Gene drives are **stretches of DNA engineered into the genome of an organism**, say a mosquito. The **stretches expand their presence in the population from generation to generation** until eventually the inserted DNA is present in almost all the animals in that ecosystem.

Suppose the DNA has the effect of making mosquito males sterile. Males that do not carry the gene drive can mate with females that do, but the progeny, both males and females, will carry the gene drive. This could, in principle, drive the population of mosquitoes to sterility or collapse.

Proponents point to how this can greatly reduce, or even eliminate, disease-carrying vectors such as mosquitoes that transmit malaria or dengue. Critics point to possible failure through the development of resistance, environmental concerns, and the potential for unanticipated biological consequences. If we are to form a considered opinion on this, it will be useful to understand the past, present, and likely future of gene drives.

From viruses to whales, the stretches of DNA called genes share a common feature: the drive to replicate successfully and amplify in populations. For genes, the organism is merely the vehicle to achieve this goal. The reproductive success of the organism is essential to serve this purpose. A virus that infects a host, multiplies several thousand times, exits, and infects hundreds of other hosts is successful at this game. If it is so virulent or the host so weak that it kills the host before it can replicate and spread, it will have failed.

An infection may weaken the host but that does not matter for the genes in the virus. For example, a person with COVID-19 may suffer severe complications that render them incapacitated or even dead. The virus does not care: it has used its human host, amplified its genome, and gone on to propagate elsewhere. But if the incapacitated person is of reproductive age, their genes may not be transmitted to progeny. So while genes may be selfish, they are also selected against gluttony.

Viruses are not gene drives in the strict sense yet they are useful illustrations of the selfish logic of genes — and of the many ways in which genetic material can use living hosts to amplify itself. Smallpox, measles, mumps, and rubella are examples that can devastate human populations while viruses carried by whiteflies and the papaya ringspot virus affect agriculture.

While SARS-CoV-2 adopted a 'hit-replicate-run' strategy, many other viruses are more surreptitious. The human papillomavirus (HPV), for example, can integrate parts of its genome into ours while also replicating and being transmitted through sexual contact. Once integrated, viral elements can sometimes persist and amplify within cells. But unless such elements enter the sperm or egg, they usually face an evolutionary dead end.

Viral, bacterial, fungal, and parasite infections are not the only way genes amplify themselves. Our genome, and that of most organisms, is loaded with **stretches of DNA called transposable elements**



(earlier called jumping genes). These elements replicate and increase their number within genomes. They are typically distributed in the regions between genes, using the host's machinery to amplify themselves without fatally disrupting survival.

Sometimes, these elements can land within genes and cause the host problems such as cancer, or land in regions that regulate a gene and confer a new function. Current estimates suggest about a quarter of human regulatory elements have signs of originating in transposable elements. These elements have become 'domesticated' and repurposed to regulate host genes. **The placenta, the immune system, and some brain functions all bear such signs.**

When naturally occurring elements use their hosts to amplify themselves, they can weaken their hosts as they use the hosts' resources. But they cannot do this in an unbridled manner. The host also fights back, developing powerful resistance, silencing, and immune systems. Often, the invasive genes become beneficial residents whose sequences the host co-opts to develop new functions. This evolutionary balance is important. **Natural 'drivers' are constrained by selection, host resistance, and the wider biological context in which they operate. Engineered drives, if we build them, seek to harness the same logic — but for our ends and at our pace.**

A profound insight

We know all this thanks to advances in molecular biology and genetic engineering. A substantial part of our understanding of human biology comes from studies on organisms such as bacteria, yeasts, fruit flies, and mice. **Germ-line transformation is a tool by which DNA from the same species or from other species can be inserted into an organism so that it can be transmitted from generation to generation.**

Scientists have deployed this ability in many organisms (excluding humans) to reveal the function of genes, transforming our understanding of biology. Today, genetic systems based on transposable elements are also used in gene therapy vectors and in CAR T-cell therapy to treat cancers.

In 2003, the evolutionary biologist **Austin Burt** published an important theoretical paper in which he suggested something that seems obvious in hindsight. Most genes in animals and plants come in two copies, one on each of the two chromosomes. **If a site-specific selfish element inserted on one chromosome also had a way to cut the matching sequence on the homologous chromosome and then copy itself into that cut site,** it would transform the way the element was transmitted from generation to generation.

That is, instead of being inherited by only half the progeny — as Mendel's rules would predict — it could bias inheritance in its favour and spread rapidly through a population. Burt proposed that such "super-Mendelian" inheritance could be used either to collapse populations by targeting essential or fertility-related genes or to alter populations, for example by making mosquitoes unable to transmit malaria parasites.

Together with advances such as improvements to the CRISPR/Cas9 technology, synthetic gene drives have become practically feasible. When the drive's chromosome pairs with a non-drive chromosome, it can cut the corresponding sequence and copy itself across. It is today possible to build, on the computer and in the laboratory, several kinds of gene drives: those that reduce or collapse populations of organisms and others that make the mosquito resistant to the malaria parasite, thus reducing disease burden without killing off mosquitoes.



Preparing our debates

There are potential dangers, real, and exaggerated, with the release of gene drives. Unlike pesticides, there is no simple 'recall' button. As with drugs, target populations can evolve resistance. Rare events could, in principle, transmit the drive beyond the intended target, resulting in unintended consequences. Some experts have also raised biosafety concerns, including the possibility of misuse. Finally, as we have seen with genetically modified crops, social and political acceptability varies with country and context.

Researchers and policymakers have widely discussed these concerns and have developed (or are developing) technologies to address them. For example, 'daisy-chain' or other self-limiting drives, which require several elements to propagate and therefore have a lower chance of spreading indefinitely, are in the works. Drives with greater control of the CRISPR/Cas9 system are being built. Scientists are also working on 'reversal drives' to undo the spread, if required, and on split-drive systems that separate key components of the machinery.

To be clear, these concerns have legitimate bases. We know of how invasive species and naturally occurring inheritance-biasing elements have caused population bottlenecks and ecological disruption. Engineered drives are not immune to such concerns, and we need to keep a few points in mind.

First, how do the risks compare with the benefits? If gene drives can be used against parasite vectors such as mosquitoes, how many lives will be saved, and can the risks be minimised? Other methods will also need to be used, and the risk-benefit analysis is complex.

Second, are the technologies to deal with unintended consequences in place? Is the regulatory system required to take a composite view of value in place before one moves from laboratory demonstration to the field?

The U.S. National Academies of Sciences and the World Health Organization have proposed phased testing frameworks, with each stage requiring ecological data and community consent before proceeding.

We are in the same position with gene drives as humankind has found itself with other transformative technologies. The speed with which the capability arrives is often faster than social, political, and regulatory understanding. The selfish gene evolved remarkable mechanisms to propagate itself over billions of years. We now have the ability to use our understanding of how such elements work to make our own drives.

What we do and how we do it will say less about the gene's selfishness than about our own wisdom. The safest aircraft is one that does not take off. How we balance the risks and benefits of the flight of gene drives is a challenge that each country will address in different ways. The reality is that we will soon have field data on both the concerns and the benefits, and our discussions and debates need to be prepared for this future.

WHY SCIENTISTS WATCHED A GENE HOP FROM A PREDATOR INTO ITS PREY

Since scientists discovered jumping genes in maize in 1950, they have known that bits of DNA can move around the genome, mostly within the cell nucleus. Scientists have also found evidence of genes having jumped across species.



Now, researchers at the Max Planck Institute for Marine Microbiology in Germany have reported a remarkable observation: they have visually tracked an RNA molecule, called an intron, as it jumped from one organism into another.

This is remarkable because the scientists literally caught the gene as it jumped across species, without the help of any courier.

Jumping genes — technically now called transposable elements — are responsible for the spread of antibiotic resistance and in the development of several cancers. Scientists are also studying circular RNA molecules, like the one derived from the jumping intron, as next generation vaccine platforms. Understanding the lives of jumping genes can thus have profound implications for evolution and ultimately to medicine and biotechnology.

A tiny predator

Microbial communities that occur naturally are very difficult to nurture in large numbers in a lab because they will be isolated from their surroundings. So the team at Jens Harder's laboratory seeded a lab culture with a small amount of wastewater from a local sewage treatment plant.

Over time, this culture of microbes came to consist of several members of archaea and bacteria. Like bacteria, archaea are another domain of life, and are also microscopic.

Microbes of both these domains lack a true nucleus. Instead, their nucleus lies in the cytoplasm itself.

The team focused on two members of this community. One member is the methane-producing archaeon, *Methanotrix soehngenii*. The other is a bacterium so small that it is called an ultramicrobacterium. The team named it *Velamenicoccus archaeovorax*. It is a predator: it attaches to the surface of the archaeon, breaks apart its cell membrane, and kills it.

The rough draft

It is impractical to investigate each member of a highly diverse microbial community separately, so scientists study them en masse. In the study, the researchers identified the RNA molecules in the members' ribosomes. The ribosome is each cell's protein-making factory.

The ribosomes in all cells of all life forms have RNAs called ribosomal RNAs (rRNA). All life forms have rRNA that perform the same function. However, each species has a unique sequence of bases that can be used to identify the species. This way, the scientists determined the composition of their lab culture.

While analysing the predator's genome, Harder identified an intron — a mobile genetic element normally spliced out of RNA messages, but capable in some cases of excising itself and behaving independently.

Using highly sensitive molecular probes, the team detected this intron's RNA — folded into a stable circular RNA — inside both living predator cells and the dead cells of its prey.

This is the first direct visual confirmation that such a gene physically crossed from one species into another. Earlier evidence for cross-species jumps came only indirectly, from comparing gene family trees.



The prey cells were already dead by the time the intron arrived — so this was not a successful genetic takeover, but rather a mobile gene "caught in transit," having entered a cell it could not colonise. This detail is scientifically important: it shows the transfer mechanism at work independent of the gene actually establishing itself.

Why It Matters Scientifically

- Jumping genes (transposons, introns, and related "genetic parasites") are found across bacteria, archaea, plants, animals, and humans, and are known drivers of genome change.
- They were long thought to need a carrier — a virus or a plasmid — to move between species.
- This discovery shows that a self-splicing circular RNA can itself serve as a vehicle for horizontal gene transfer, independent of viruses or plasmids — a previously unrecognised route.

Truly remarkable

RNA molecules are famously unstable, so how did the introns survive this jump? The researchers proposed that the intron's self-circularisation could be the reason. The circular shape of the RNA molecule allows it to resist being degraded by a cell's enzymes. The ultramicrobacterium's genome also encodes an enzyme that could have helped the intron insert itself into foreign DNA.

There are still some unanswered questions. For example, does evolution intend for introns to be integrated into prey DNA? In the experiment, the intron actually jumped into dead cells. Why? Or, alternatively, did the intron kill the cells?

Visual confirmation that an intron can jump across two different domains of life is truly remarkable.

Still, let us remember that it happened in a laboratory culture (even if there is indirect evidence that introns do jump in the real world as well).

Living beings sometimes swap genes with viruses, which are the essential couriers of gene transfer. This is known as horizontal gene transfer. The new study, however, has reported the first direct visual evidence of horizontal gene transfer across species without a courier.

Studying this phenomenon helps scientists understand how organisms rapidly acquire new traits, such as antibiotic resistance or new metabolic abilities. It also reveals how genes move across species, potentially reshaping ecosystems and driving the rise of new disease-causing microbes.

HOW AMINO ACID LEUCINE HELPS OUR CELLS PRODUCE ENERGY

Proteins in the cells in our body perform functions of value to the sustenance and growth of organs. There are more than 20 amino acids, which are the building blocks of proteins, and the sequence of these amino acid chains generates the structure and function of each protein in the cells.

Several of these amino acids play vital roles in specific functions. For example, an amino acid called glycine is vital for blood cells. Leucine is an essential amino acid involved in muscle growth, tissue repair, and energy production. The body has eight other essential amino acids that the body



cannot produce on its own. They need to be supplied to the organs from outside for them to function.

The energy for each organ is generated by cellular components called the mitochondria (in Ancient Greek, 'mito' means thread-like and 'chondrion' means granule). These are unique, thread-like organelles present in the thousands per cell. They are the gatekeepers of energy in most organs in our body.

Mitochondria are responsible for maintaining the cell's supply of energy, by producing the molecule adenosine triphosphate (ATP), which is the energy currency of the cell. Mitochondria are thus the battery of the cell, charging it using ATP. The connection between the mitochondrion and the parent cell is vital, since during oxidation and respiration, the membrane of this cellular organelle can be degraded, causing a loss in cellular function.

For example, the adult human heart has more than 2 billion muscle cells that work non-stop, and each of these cells has 5,000-8,000 mitochondria. Most of the energy required for the pumping of the heart comes from these mitochondria.

Every organ in the body needs adequate energy to function normally. When an organ needs more energy, new mitochondria are made, while at the same time increased wear and tear necessitates the degradation of some mitochondria.

The proteins that make up mitochondria are degraded during the process. Critically, the outer mitochondrial membrane proteins should not be lost, and methods should be found to prevent excessive degradation. Scientists have been searching for ways to prevent these outer walls from breaking down completely under stress, as this can lead to metabolic and age-related diseases.

Role of leucine

It is here that the essential amino acid leucine becomes valuable. It belongs to the family of branched chain amino acids (BCAA) such as isoleucine and valine, which are needed for the growth and functioning of organs such as muscles, nervous system, the heart, and the brain.

BCAAs are not made in the body and need to be supplied from our diet. Without them, the outer membrane of the mitochondrion cannot be properly constructed or maintained. A study last year (Nature Cell Biology, 1889-1901, November 27, 2025) by a group from the University of Cologne Centre for Excellence Cluster on Aging and Aging-Associated Diseases, Germany, used the small roundworm *Caenorhabditis elegans* as the model organism to work with. Their results showed that the BCAA leucine acts like a protective shield and inhibits the premature degradation of outer mitochondrial membrane proteins. This is done by leucine interacting with a protein called SEL1L, which has a role in recognising and pulling out damaged or misfolded proteins.

Thus, leucine offers both protection and more energy to cells and organs. Whether other BCAAs also play such valuable roles in cell protection will be worth studying.

BEHIND US 'EXPLOSIVE DIARRHOEA' OUTBREAK, HARD-TO-KILL PARASITE THAT CLINGS TO GREEN

A woman in the US reportedly had to rush to the bathroom around 30 times a day after becoming infected with *Cyclospora*, a microscopic parasite that causes explosive diarrhoea, dehydration and hospitalisation.

**Key Takeaways:**

- The latest cyclospora outbreak is one of the largest ever recorded in the US, with case numbers already exceeding the previous record set in 2019.
- Bacterial food poisoning burns itself out in one to three days and viral gastroenteritis in two or three, whereas cyclosporiasis runs for weeks. If left untreated, the illness may last from a few days to a month or longer and may relapse.
- That rhythm, in which the patient improves, believes it is over, and then crashes again, is close to a signature. The incubation too is wrong for food poisoning: it averages about a week and ranges from two days to a fortnight or more. If the patient is blaming last night's biryani, it's not cyclospora.
- Point to note is that Cyclospora is a protozoan, a single-celled microscopic organism that multiplies inside you, while worms are large, multi-celled creatures that cannot directly multiply inside the human body (they lay eggs instead).
- The feature of the illness also differs. The diarrhoea is watery and sometimes explosive, but what dominates is loss of appetite, weight loss, abdominal cramping and bloating, increased flatulence, and a prolonged fatigue extremely out of proportion to the bowel symptoms.
- Empirical use of antibiotics such as metronidazole, azithromycin or a fluoroquinolone (ciprofloxacin, norfloxacin) will fail, and then co-trimoxazole will produce a dramatic response, which in hindsight is itself a diagnostic.
- Cyclospora cannot be grown in a laboratory culture dish like bacteria, so scientists have to rely heavily on advanced genomic tools to study it. As for why the illness lasts, cyclospora is a tough parasite that hides and multiplies inside the lining of the small intestine, attacking neighbouring cells in waves that cause the illness to return just when doctors think the patient is recovering.
- It damages the gut's ability to absorb nutrients, which is why extreme fatigue and weight loss can drag on for weeks even after the diarrhoea has stopped. Furthermore, our body does not develop permanent immunity, meaning a person can catch it again.
- The parasite is especially dangerous because its "eggs" have a rugged shell that survive for weeks in soil and water and completely resist chlorine, allowing it to easily hitch a ride onto fresh produce.
- Cyclospora infections are frequently underdiagnosed because the parasite is invisible on standard tests and requires specific staining or ultraviolet fluorescence techniques.
- Cyclospora requires one to two weeks to mature in the environment, making direct person-to-person transmission unlikely. Identifying the parasite on food serves as a "fossil record," indicating contamination happened well before the food was harvested, shipped, or eaten.
- Cyclospora is exceptionally skilful at evading food safety systems because it favours raw produce like leafy greens and berries, lacks an effective chemical kill step, and clings tenaciously to complex plant surfaces.

**Do You Know:**

- Parasites are organisms that depend on another organism, known as the host, for their nutrition and survival.
- There are three main classes of parasites that can cause disease in humans: protozoa, helminths, and ectoparasites.

WHY FDA NOD FOR VEPDEGESTRANT IS A MAJOR SHIFT IN CANCER THERAPY

On May 1, the U.S. Food and Drug Administration (FDA) approved the drug vepdegestrant for patients with **ESR1-mutated, ER-positive, and HER2-negative** advanced breast cancer. It is the world's first therapy that the FDA — whose lead many drug regulators worldwide follow — has approved that is based on PROTAC technology.

The approval paves the way for drugs **designed to remove harmful proteins from cells, rather than simply block them**. This is an advance because **PROTACs can sidestep the barriers to treating diseases that involve hitherto 'undruggable' proteins**. Researchers have been developing this technology for more than two decades.

How PROTACs work

'PROTAC' stands for proteolysis-targeting chimera, which is a kind of molecule. These molecules are designed to remove specific proteins from a cell. **A PROTAC has two ends: one binds to the target protein and the other binds to an E3 ligase, an enzyme involved in the cell's protein degradation process. By bringing these components together, the PROTAC causes the target protein to be degraded by the cell. This is called targeted protein degradation.**

Conventional drugs work by binding to a protein in a way that prevents it from performing certain roles in the body. This means the drugs or antibodies often need to be present for long periods in the body. PROTACs, however, act like catalysts: **while the proteins they target end up being degraded, they themselves are not degraded**. After triggering one degradation process, the PROTAC can detach itself and repeat it with another instance of the same protein.

This mechanism allows a single PROTAC molecule to act multiple times. Because PROTACs remove the entire protein from the cell, **they may also disrupt other roles the protein plays, such as controlling the activity of other proteins**. Conventional drugs, however, usually block only one specific activity of a protein.

Early research to trials

In 2001, two research groups, at Yale University and Caltech, first demonstrated targeted protein degradation. They showed that a particular molecule was capable of recruiting a target protein to the cell's degradation machinery. This molecule was a precursor to PROTACs. In 2003, a follow-up study by the same groups found that the same molecule could work inside cells to degrade proteins related to breast and prostate cancer.

The FDA approval brings the drug's development timeline from initial concept to approval to just over two decades.



Potential and limits

The approval for vepdegestrant was based on results from a phase 3 trial that enrolled 624 patients who had previously been treated with CDK4/6 inhibitors and endocrine therapy — the current standard-of-care.

Among 270 patients with ESR1-mutated tumours, the typical length of time the treatment kept the cancer under control was five months for those treated with vepdegestrant versus 2.1 months for patients receiving fulvestrant, an established standard treatment.

Most side effects reported with vepdegestrant were **low grade, including musculoskeletal pain, fatigue, nausea, constipation, and lower appetite, plus changes in liver-related enzymes (that resolve on their own) and heart rhythm (e.g. minor abnormalities in an ECG).**

Vepdegestrant works by **targeting the oestrogen receptor, an important driver of many breast cancers. In patients with mutations in the ESR1 gene, the receptor can remain active despite hormone therapy, leading to the cancer resisting the treatment. Vepdegestrant destroys the receptor altogether, giving patients with some advanced forms of breast cancer a new hope. The drug is taken orally once a day, which is more convenient than fulvestrant, which requires intramuscular injections.**

Many proteins associated with diseases lack suitable points on their surface where a traditional inhibitor can bind, rendering the protein dysfunctional. PROTACs however need to bind to a protein just enough to bring it into contact with an E3 ligase.

Thus, PROTACs may also be able to target proteins previously considered difficult to treat. And because one PROTAC molecule can degrade multiple copies of a protein, these drugs may work effectively at lower doses than conventional inhibitors.

These potential abilities are why the PROTAC development pipeline is so wide today. Thus far, more than 40 PROTAC candidates have entered clinical trials, targeting more than 200 proteins across different disease areas. While the main focus is still cancer, researchers are also paying more attention to neurodegenerative diseases, inflammatory conditions, and muscle disorders, where abnormal or misfolded proteins contribute to disease.

Challenges to overcome

There are still several challenges to overcome. The PROTAC molecules are generally larger and more structurally complex than traditional small-molecule drugs, which are usually designed to be compact enough to pass through the gut wall and into the bloodstream after a patient swallows a pill. But because PROTACs are bulkier, they can be harder for the body to absorb and distribute efficiently to different tissues.

Their activity can also vary with concentration. At very high levels, PROTACs may begin binding separately to either the target protein or the E3 ligase instead of bringing the two together in the same complex. As a result, fewer productive interactions occur and the drug can paradoxically become less effective.

Most current PROTACs also rely mainly on just two E3 ligases while human cells are known to have more than 600. Scientists are therefore trying to expand the number of ligases that can be recruited, which could improve tissue specificity and reduce side effects.