



CURRENT AFFAIRS for UPSC

16th to 22nd November 2025

DreamIAS



INTERNATIONAL

RESET WITH RIYADH

Saudi Crown Prince Mohammed Bin Salman's visit to the White House marked the official end of a brief chill in relations between the most powerful country and the most influential Arab state. Ties had hit a low after Jamal Khashoggi, a Saudi dissident journalist in the U.S., was murdered inside the kingdom's consulate in Istanbul in October 2018. U.S. intelligence agencies later concluded that MBS had ordered the killing. During his election campaign, Joe Biden had vowed to hold MBS accountable. Yet, it was Mr. Biden who took steps to rehabilitate the prince. He travelled to Jeddah in July 2022 where he greeted the heir to the Saudi throne with a fist bump. Donald Trump, who brokered the 2020 Abraham Accords, has been keen to deepen America's traditional ties with its Arab partners. On Tuesday, he defended MBS's human rights record, claiming that the prince "knew nothing" about Khashoggi's murder. He also promised to sell tanks and F-35 fighters to Saudi Arabia, despite Israel's objections. It will also get access to America's most advanced computer chips. MBS is seeking to build vast data centres to transform Saudi Arabia into a technological power house.

Historically, Saudi Arabia's abysmal human rights record has played little role in shaping its relationship with Washington, long anchored in geopolitical and energy interests. There have been moments of strain, such as the 1973 oil shock, the post-9/11 distrust or the chill after the Khashoggi murder, but both sides have consistently prioritised strategic alignment over values. One persistent complication, however, has been Israel, America's closest regional ally, which does not have formal diplomatic ties with Riyadh. After the Abraham Accords were signed, the Biden administration pushed Saudi Arabia to join the framework by normalising ties with Israel. MBS had said in September 2023 that Saudi Arabia and Israel were in an advanced stage of negotiations. But the October 7 Hamas attack and Israel's genocidal Gaza war halted the momentum. Today, Saudi Arabia says it remains open to joining the Accords, but only if there is a credible, time-bound path towards a two-state solution to the Palestine question — a position Israel opposes. Mr. Trump appears to have realised both the regional complexities and Israel's intransigence. He now seems prepared to deepen ties with Saudi Arabia without demanding an immediate commitment to recognise Israel. In effect, he has de-hyphenated Saudi Arabia from the Abraham Accords, for now, choosing instead to cultivate direct, stronger ties with the kingdom, which he views as central to his broader West Asia plans.

EPSTEIN EXPOSURE

After battling political exposure for months, U.S. President Donald Trump has finally signed a Bill passed by Congress mandating the Department of Justice (DoJ) to release files relating to the investigation of sex offender and disgraced financier Jeffrey Epstein, who died in prison in 2019. The President's assent was effectively his concession to enormous pressure from both sides of the political divide, Democrats and Republicans, who had mounted a strong campaign to shine a light upon Epstein's communications including those with or mentioning Mr. Trump. With the House of Representatives passing the Epstein-related legislation by a 427-1 vote, and the Senate granting unanimous consent to pass the same, there was no avoiding presidential approval for the demand to reveal detailed documentation regarding a man who was convicted of soliciting prostitution from a minor and died by suicide before facing charges relating to sex trafficking of minors. The DoJ has to release within 30 days all files stemming from the investigation of Epstein, with



redactions allowed only for details of his victims but not for details of others that may cause any “embarrassment, reputational harm, or political sensitivity”.

The broader context to the turn in the Epstein saga is the established fact of Mr. Trump’s friendship with Epstein, even though the President has refuted all knowledge of Epstein’s criminal activities and that he severed relations years ago. Indeed, even though there was no mention of suggested criminality, Mr. Trump’s name was writ large in the 20,000 pages of documents from Epstein’s estate that congressional lawmakers released recently. The information suggests that Epstein did communicate with several other noted social elites including former Prince Andrew of the U.K., Mr. Trump’s former adviser Steve Bannon, and former Harvard president Larry Summers. In what appeared to be a bid to deflect attention away from himself and his associates while acceding to the demand to release the files, Mr. Trump has also said that he would direct Attorney General Pam Bondi to investigate the links that Epstein might have to former President Bill Clinton, JPMorgan and Chase banks, and LinkedIn founder Reid Hoffman, a Democratic donor. Whatever insights the files reveal, it is clear that Mr. Trump has had an association with a high-society criminal guilty of sex crimes against minors and likely against women too. The question is whether voters, especially women in his conservative base of supporters, will consider this association sufficient grounds to back away from Mr. Trump and from MAGA politics more generally.

TO DETER MIGRATION, U.K. GOVERNMENT PROPOSES NEW RULES FOR SETTLEMENT

Days after announcing a shake-up of U.K. asylum law, the country’s Home Secretary, Shabana Mahmood, released proposed changes to the routes for settling in the U.K. (also known as ‘settlement’, ‘Indefinite Leave to Remain’ or ILR). Under the proposed changes, high earners and entrepreneurs would qualify in three years, some in five years, while the default would be 10 years, with some individuals having to wait 20 or even 30 years to settle.

Changes to the law, along the proposed lines, will impact tens of thousands of Indians who have been the largest group of non-EU long-term migrants to the U.K. since at least 2019.

The Labour government of Keir Starmer had already announced that it would run a public consultation on a new contributions based system for ILR at the heart of which is a doubling of the default qualifying period from five to 10 years.

‘The biggest shake-up’

The consultation, which began on Thursday is open until February 12. The government called it the “biggest shake-up of the legal migration system in nearly half a century”.

High earners who make more than £125,140 and entrepreneurs on the Global Talent and Innovator Founder visas would be eligible to settle in three years under the proposals. Those who earn at least £50,270 per year will be eligible in five years.

All applicants will have to meet minimum salary standards (at least £12,750 per year for 3-5 years subject to the outcome of the consultation). They will also have to have minimum standards of English and have no tax or other government debt.

Those who receive public funds could face up to 20 years for settlement and visa overstayers up to 30 years.



The adult dependents of an economic migrant (a spouse for instance) will no longer qualify based on their partner's earnings as per the proposed rules. They will instead have their own qualifying period and criteria based on their circumstances.

The 616,000 health and social care visa workers and their dependents who came to the U.K. between 2022 and 2024 will now have to wait 15 years for ILR. This visa route was closed earlier this year after the U.K. government said individual workers were being exploited and abused.

The U.K. government intends to apply the new rules retrospectively although it states that transitional arrangements will be finalised following the consultation process.

Judicial review

In 2008 and 2009, when the government changed the qualifying period for settlement for certain highly skilled migrants from four to five years, the U.K. High Court overruled it based on a principle of administrative law called "legitimate expectation".

Parliament is supreme in the U.K. and courts cannot overturn primary legislation but immigration rule changes are often made via a statement of changes rather than Acts of Parliament, making them subject to judicial review.

JUSTICE VS JUDGMENT

The International Crimes Tribunal of Bangladesh has evolved through three distinct phases over the past 55 years. In the first phase, it was conceived under Sheikh Mujibur Rahman when Bangladesh sought to deliver justice for the genocide of 1971. In the second phase, his daughter, Sheikh Hasina, won the 2008 election promising to use the tribunal to punish the collaborators of 1971. In the third phase, the same tribunal is now being used to deliver justice for those who lost their lives or were left injured during the crackdown by Sheikh Hasina's government in July-August 2024.

With the fall of Sheikh Hasina, it became evident that the ICT would also undergo changes to suit the demands of the anti-Hasina forces now in power in Dhaka. Though described as necessary by the interim government, these changes exposed the tribunal to allegations of political bias. In October 2024, the interim government brought in Golam Mortuza Mazumdar, a retired judge, to the International Crimes Tribunal.

Over the past year, the leading figure in the ICT has been Mohammad Tajul Islam, a firebrand lawyer who has handled several high profile cases.

The tribunal has been divided into two wings: Tribunal 1, led by Justice Golam Mortuza Mozumdar, and Tribunal 2, headed by Nazrul Islam Chowdhury, who took charge in May 2025. Tribunal 1 is considering the cases against Sheikh Hasina, while Tribunal 2 is examining cases against Ms. Hasina's colleagues accused of complicity in the violence.

The upcoming verdict of the ICT is not without its sense of irony. Though initiated in 1973, the tribunal could not operate under Sheikh Mujibur Rahman as Mujib started normalising ties with Pakistan in 1974 after attending the Lahore Islamic Summit, where he met with Prime Minister Zulfikar Ali Bhutto. This meeting mellowed calls for justice in the newly liberated Bangladesh. The ICT lost some of its urgency during the years under Ziaur Rahman, Abdus Sattar and General Ershad.



The issue of justice resurfaced during the 2007-2008 interim government, when Ms. Hasina campaigned to deliver justice to the survivors of the 1971 violence and revived the ICT Act of 1973. The tribunal later sentenced several Jamaat leaders to death. The senior-most leader of Bangladesh Jamaat-e-Islami, Gholam Azam, was also convicted.

The tribunal's anti-Hasina edge is sharpened by the fact that Chief Prosecutor Tajul Islam was the defendant for both Gholam Azam as well as other Jamaat leaders between 2013 and 2016, when majority of the capital punishments were handed out.

Dilemma remains

As the ICT prepares to deliver its verdict on November 17, its dilemma remains the same as 1973 and 2013-2016. The ICT was conceived to deliver justice in a national legal framework for crimes defined as heinous under international law. The international angle was necessitated as the masterminds of the 1971 genocide was outside Bangladesh — in Pakistan. Similarly, during 2013-2016, the ICT punished Jamaat leaders within Bangladesh while leaving the cases involving Pakistani nationals unaddressed. In 2025, most of the main accused, including Sheikh Hasina, are outside the country, though some of the accused in cases of disappearance of political dissidents and human rights activists are in custody and are likely to be tried under Tribunal 2.

While the ICT has framed the crimes committed during the last weeks of Ms. Hasina's rule under international law, it is, however, not likely to be regarded as a purely domestic exercise within Bangladesh. Official sources in India have already indicated that they consider the ICT a domestic legal mechanism and not as an international platform. They also point out that the tribunal is not giving equal hearing opportunities to the key accused.

In recent written interviews, Ms. Hasina described the ICT as "politically motivated". The interim government, however, has denied these allegations, insisting that the justice for victims of July-August 2024 violence is a separate matter.

ON BANGLADESH'S EXTRADITION REQUEST FOR HASINA, NEW DELHI HAS SEVERAL OPTIONS IT CAN EXERCISE

As Bangladesh's National Security Adviser (NSA) Khalilur Rahman arrived in New Delhi on Tuesday, and Dhaka prepares a 'note verbale', the Indian government is considering its response to Bangladesh's demand for the extradition of its former Prime Minister Sheikh Hasina.

During his visit to Delhi, Mr. Rahman is expected to meet with India's NSA Ajit Doval and attend the Colombo Security Conclave, which includes India, Sri Lanka, the Maldives, Mauritius, and Bangladesh.

Officials and experts are clear that Ms. Hasina — who has lived in New Delhi since last August — is and will remain an "honoured guest". However, they also point out that according to the India-Bangladesh mutual extradition treaty signed in 2013, there are many steps yet to be followed by the administration of Chief Executive Muhammad Yunus before the government needs to proceed. A big question looms over the legitimacy of Bangladesh's International Crimes Tribunal, which was set up in 2009 by Ms. Hasina herself to prosecute those accused of war crimes during the 1971 Bangladesh liberation war.



'No formal request yet'

In its statement reacting to the death sentence that the ICT handed down to Ms. Hasina on Monday, after her conviction for ordering the killing of anti-government protestors between June and August 2024, the Ministry of External Affairs said it would “engage constructively with all stakeholders”, indicating it will not be rushed into a definitive “yes or no” response.

“Let us be clear that so far India has not received a single formal extradition request,” said Veena Sikri, who served as India’s High Commissioner to Bangladesh from 2003 to 2006. “A press statement is not a formal request — the process for an extradition is very complex and legal,” Ms. Sikri added.

Once a request is received, officials said, the government will have to assess it against India’s obligations under the 2013 agreement signed by then Home Minister Sushil Kumar Shinde during a visit to Dhaka. That agreement was meant to smoothen the path for the extradition of criminals and terrorists wanted in India, including ULFA leader Anup Chetia, who was transferred to India in 2015.

Treaty exceptions

The 2013 agreement came as Ms. Hasina faced international criticism for setting up the ICT to try the killers of her father Sheikh Mujibur Rahman, and others who colluded with Pakistan during the liberation war, expanding the mandate of Bangladesh’s International Crimes (Tribunals) Act, 1973. However, the 2013 treaty itself makes many exceptions the government could use to defend its grant of refuge to Ms. Hasina.

Another option would be to honour the extradition request and to initiate a process based on the Bangladeshi request. This would involve a full extradition trial, where Ms. Hasina would be able to respond to the charges against her, something she has been unable to do in Bangladesh.

Finally, New Delhi could choose not to accept the validity of the ICT. Under the extradition treaty, the warrant must be issued by a “judge, magistrate or other competent authority”.

THE FIELD MARSHAL’S NATION

Pakistan is no stranger to military strongmen. Since its creation in 1947, the country had been under off and on direct military rule for over 33 years. Gen. Ayub Khan seized power in 1958, and remained at the helm for 11 years. He was followed by Gen. Yahya Khan. After Yahya’s fall, the country entered a brief period of democratic experiment until Gen. Zia-ul-Haq staged another coup in 1977. Pakistan’s last military takeover came in 1999, when Gen. Pervez Musharraf toppled Nawaz Sharif’s elected government. When Musharraf was eventually forced out amid nationwide protests in 2008, Pakistan clawed its way back to civilian rule, even though the military continued to be the markhor in the room. Successive governments were careful not to antagonise the establishment.

Imran Khan’s rise in 2018 as an outsider promising to challenge the entrenched political elite, particularly the Pakistan Muslim League-N of Nawaz Sharif, initially made him the generals’ blue-eyed boy. But by the time he lost power in 2022, he had fallen out of favour with the military. If in 2018 the Sharifs accused the military of rigging elections in favour of Mr. Khan’s Pakistan Tehreek-e-Insaf (PTI), four years later, it was Mr. Khan who cried foul when his government was voted out in a no-confidence vote, and Shehbaz Sharif, the younger brother of Nawaz, became Prime



Minister with the military's backing. It was Mr. Sharif who appointed Asim Munir (in picture) as the army chief.

As the saying goes, Prime Ministers come and go, but the establishment stays.

Imran Khan is now in jail over dozens of corruption cases. So are many of his senior party leaders. The PTI, facing a systemic crackdown, was barred from using its popular election symbol, the cricket bat, ahead of the 2024 elections, and Mr. Khan was not allowed to campaign. Yet, independents backed by the PTI still emerged as the largest bloc in the election. Even so, Mr. Sharif stitched together a coalition with the Pakistan People's Party (PPP) and other smaller parties to form a government, with the blessings of Gen. Munir. As part of the power-sharing deal between the PML-N and the PPP, Asif Ali Zardari, the widower of former Prime Minister Benazir Bhutto and leader of the PPP, returned as the President of Pakistan.

The PML-N secured the government; the PPP reclaimed the presidency, the military remained the power behind the throne.

Hybrid regime

Ever since, Pakistan's governing arrangement has been described as a form of 'hybrid rule' — power shared between civilian leaders and the military. With the Shehbaz Sharif government weak and divided, and Imran Khan's supporters persistently challenging the regime from the streets, Gen. Asim Munir steadily consolidated his authority. Following a brief air conflict with India in May 2025, he was elevated to the rank of Field Marshal, becoming a five-star officer. He began appearing at international stages along with Prime Minister Sharif. U.S. President Donald Trump called him "my favourite Field Marshal".

Then came the 27th amendment of Pakistan's Constitution. The passage of the amendment Bill, on November 13, formalised Gen. Munir's grip on power, opening a new phase of de jure political dominance by the military. If Gen. Munir was the most powerful man in Pakistan until recently, he is now the most powerful man in Pakistan with constitutional protection.

The amendment was passed by a 64-0 vote in Pakistan's Senate, the upper house, while in the National Assembly, 234 lawmakers voted in favour and four opposed it. Lawmakers from Imran Khan's PTI boycotted the vote in both houses, calling it "an attack on Pakistan's constitutional structure". The amendment swiftly came into force after President Zardari signed the Bill. The 27th amendment rewrites Article 243 of the Constitution, introducing a new post — Chief of Defence Forces. The long-standing office of the Chairman of the Joint Chiefs of Staff Committee will be abolished [as of November 27]. The Chief of Defence Forces — now Gen. Munir — will wield formal constitutional authority over the Army, Navy and Air Force. Under the new structure, the army chief will also serve as the Chief of Defence Forces. It also creates the post of commander of the National Strategic Command to oversee nuclear and strategic assets. The commander will be appointed by the Prime Minister on the Army chief's recommendation.

The amendment also grants life-long immunity from criminal proceedings to any officer promoted to a five-star rank — now, only Gen. Munir — as well as the President. Five-star officers will retain the rank, privileges and remain in uniform for life, and can be removed from only through an impeachment-like process under Article 47. "Where the federal government promotes a member of the armed forces to the rank of field marshal, marshal of the air force or admiral of the fleet, such officer shall retain the rank, privileges and remain in uniform for life," Minister for Law and Justice Azam Nazeer Tarar said as he read the Bill, on November 8, in Parliament. Gen. Munir is



only the second military officer in Pakistan's history, after Field Marshal Ayub Khan, to receive a five-star designation.

Judicial restructure

Besides the military command restructure, the amendment has established a new federal Constitutional Court to hear constitutional cases, effectively stripping the Supreme Court of a key part of its authority. Pakistan's judiciary, and particularly its powerful lawyer community, has at times challenged the military establishment. But the 27th amendment severely curtails the Supreme Court's role on constitutional interpretation. Judges to the new constitutional court will be appointed by the President — currently aligned with the military — on the advice of the Prime Minister — another military ally, replacing the previous seniority-based system. The move has triggered widespread resentment within the judiciary. According to Senior Supreme Court Judge Mansoor Ali Shah, the judicial overhaul doesn't represent a genuine reform agenda, but instead it is a political tool to weaken and control the judiciary. Two Supreme Court judges — Shah and Athar Minallah — resigned after the amendments were passed on November 13.

The 27th amendment will fundamentally alter Pakistan's political trajectory. The balance of power in the civil-military hybrid rule had already tilted heavily towards the armed forces — the latest amendment tightens that grip even further.

In practice, there is only one man who benefits from all the clauses in the amendment— Field Marshal Asim Munir. And Pakistan's mainstream political elite seem either unwilling or unable to challenge this power grab through legislation — except Imran Khan. But the former cricketer-turned-politician, despite his enduring popularity, has been languishing in jail for more than two years, when the Field Marshal is coming in from the cold.



DreamIAS



NATIONAL

PM: TRILATERAL TECH ALLIANCE WITH CANADA AND AUSTRALIA

India, Australia and Canada Saturday agreed to a new "technology and innovation" partnership in which they will step up cooperation on "critical and emerging technologies", including on mass adoption of artificial intelligence (AI).

— This was announced after PM Narendra Modi, Australian PM Anthony Albanese and Canadian PM Mark Carney met on Saturday on the sidelines of the G20 Leaders' Summit in Johannesburg, South Africa.

— This partnership is significant given that Canada and Australia are part of the "Five Eyes" intelligence network and have access to cutting-edge tech and information with the US, UK and New Zealand.

— "A new trilateral technology and innovation partnership! Had an excellent meeting with Mr. Anthony Albanese, PM of Australia and Mr. Mark Carney, PM of Canada on the sidelines of the G20 Summit in Johannesburg. We are delighted to announce an Australia-Canada-India Technology and Innovation (ACITI) Partnership today," Modi said on X.

— The Ministry of External Affairs released a statement that India, Australia and Canada agreed to enter into a new trilateral technology and innovation agreement: ACITI Partnership.

— "The three sides agreed to strengthen their ambition in cooperation on critical and emerging technologies to complement existing bilateral initiatives. The initiative will draw on the natural strengths of the three countries and have an emphasis on green energy innovation and building resilient supply chains, including in critical minerals... The partnership will also examine the development and mass adoption of artificial intelligence to improve the lives of our citizens," it said.

— They agreed officials should convene in the first quarter of 2026 to take the initiative forward, the MEA said. India is going to host the AI Impact Summit in February 2026.

Do You Know:

— The United States, Canada, New Zealand, Australia, and the United Kingdom are the five English-speaking nations that make up the "Five Eyes," a multilateral intelligence-sharing network that includes over 20 agencies. It uses signals intelligence (SIGINT) as well as surveillance.

— Artificial intelligence (AI) refers to the field of computer science which aims to make computer systems think, reason, learn, and act to solve a complex system like humans.

— AI can be classified into two types: Artificial Narrow Intelligence (ANI) also known as weak AI and Artificial General Intelligence (AGI) also referred to as strong AI.

— ANI is designed for specific tasks and excels within a narrow domain. Examples include virtual assistants like Siri, recommendation systems on platforms like Netflix, and image recognition software. ANI systems are highly specialised and cannot transfer their expertise to unrelated tasks.



— In contrast, AGI aims to replicate human cognitive abilities, enabling it to perform any intellectual task a human can do. AGI would possess general reasoning skills, understand context, and adapt to new situations across various domains. It would be capable of autonomous learning and problem-solving without requiring task-specific programming.

PM IN SA FOR G20, SAYS WILL PRESENT 'ONE FUTURE' VISION

PRIME MINISTER Narendra Modi reached Johannesburg on Friday evening to attend the 20th G20 Leaders' Summit, where he said he will present India's perspective in line with its vision of 'Vasudhaiva Kutumbakam' and 'One Earth, One Family and One Future'.

— This is the first time a G20 Summit is being held in the African continent.

— On the margins of the summit, the Prime Minister is expected to hold bilateral meetings with leaders including new Japanese PM Sanae Takaichi.

— He will also attend the sixth IBSA (India, Brazil and South Africa) Summit during his visit from November 21 to 23. In his departure statement Friday, the Prime Minister said, "I will present India's perspective at the Summit in line with our vision of 'Vasudhaiva Kutumbakam' and 'One Earth, One Family and One Future'."

— South Africa's presidency is the fourth developing country presidency on a trot and has helped keep the development agenda centre stage. This is the last presidency of the current cycle. With the US taking over the role next year, kicking off the second cycle, it is important to achieve outcomes for the Global South and Africa.

— The theme of this year's G20 is 'Solidarity, Equality and Sustainability', with which South Africa has carried forward the outcomes from the previous summits held in New Delhi and Rio de Janeiro, Modi said.

— South Africa, which took over the G20 presidency in December 2024, continued the focus on development issues, especially those pertinent to Africa. The summit priorities are — strengthening disaster resilience and response; ensuring debt sustainability for low-income countries; mobilising finance for a just energy transition; and harnessing critical minerals for inclusive growth and development.

G20 DECLARATION BARELY MENTIONS UKRAINE, TERRORISM, SKIPS GAZA PLAN

The G20 leaders' summit barely mentioned Ukraine, did not mention the Gaza peace plan or the conflict in the Middle East, and had a single line on terrorism — condemning it in all its forms and manifestations. This makes the G20 declaration in Johannesburg one of the weakest declarations in the history of G20 summits, which was boycotted by the US for the first time. So, the diplomats of G20 countries negotiated the declaration without the US being on board.

Key Takeaways:

— It however, said that all countries "must refrain from the threat or use of force to seek territorial acquisition against the territorial integrity and sovereignty or political independence of any state" — an oblique reference to conflicts between Russia and Ukraine, the Middle East, and in the Indo-Pacific where China's belligerent behaviour is visible.



— The 122-paragraph G20 declaration was adopted by world leaders, including PM Narendra Modi, who have gathered in South Africa, for the first time in the African region.

— Officials said India managed to echo the key outcomes of the Indian G20 presidency in the G20 South African Summit, where the leaders declaration ensured that the issues and priorities of the Global South are reflected.

— From India's point of view, terrorism in all its forms and manifestations has also been condemned. "We condemn terrorism in all its forms and manifestations," the one-line sixth paragraph said.

— The declaration, which was adopted by South African President Cyril Ramaphosa, said, "We, Leaders of the G20, who gathered in Johannesburg, South Africa... for the first time, G20 Leaders have convened in Africa. In the spirit of Ubuntu, we recognise that individual nations cannot thrive in isolation. The African philosophy of 'Ubuntu', often translated as 'I am because we are', emphasises the interconnectedness of individuals within a broader communal, societal, economic, and environmental context."

— It also said, "We affirm our unwavering commitment to act in accordance with international law including international humanitarian law and the Charter of the United Nations and its principle of peaceful settlement of disputes and in this regard, we condemn all attacks against civilians and infrastructure."

— India also pushed for a call to reform the UN Security Council that improves its representation. The G20 declaration said, "We pledge to reform the Security Council through a transformative reform that aligns it with the realities and demands of the 21st century... We call for an enlarged Security Council composition that improves the representation of the underrepresented and unrepresented regions and groups, such as Africa, Asia-Pacific and Latin America and the Caribbean."

— Flagging the issue of drug trafficking including that of fentanyl, Prime Minister Narendra Modi told the G20 leaders' summit Saturday that this poses a serious challenge to global security and is a major means of financing terrorism. To effectively address this global threat, he proposed the "G20 Initiative on Countering the Drug-Terror Nexus" to "weaken" the "drug-terror economy".

— Modi, who arrived in Johannesburg Friday and was welcomed by South African President Cyril Ramaphosa at the summit, reached out to Africa by proposing a G20-Africa Skills Multiplier initiative that will train one million certified trainers in Africa over the next 10 years.

— He also proposed formation of a G20 Global Healthcare Response Team, creation of a Global Traditional Knowledge Repository, an Open Satellite Data Partnership and a Critical Minerals Circularity Initiative. In all, the Prime Minister, elaborating India's approach to growth, development and well-being for all, proposed six ideas for the G20 to consider.

— In the joint declaration, sources said India ensured "terrorism in all its forms and manifestations" is condemned.

— Sources said India has managed to echo the key outcomes of the Indian G20 presidency in the G20 South African Summit: Leaders Declaration as well as ensured that the issues and priorities of the Global South are reflected.



— The key outcomes from India's point of view span technology, women empowerment, role of traditional complementary medicine, climate finance and UN Security Council reforms.

— The importance of embracing sustainable production and consumption patterns and mainstreaming Lifestyles for Sustainable Development (LiFE) has been recognised, sources said, adding that India also pushed for a call to reform the United Nations Security Council that improves its representation.

— Group of 20 leaders adopted a declaration addressing the climate crisis and other global challenges on Saturday over U.S. objections, prompting the White House to accuse South Africa of weaponizing its leadership of the group this year.

— The declaration, which was drafted without input from the United States, "can't be renegotiated," South African President Cyril Ramaphosa's spokesperson told reporters, reflecting strains between Pretoria and U.S. President Donald Trump's administration, which boycotted the event.

Do You Know:

— The G20, or the Group of Twenty, is an informal grouping of 19 countries (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, and the United States), European Union, and African Union.

— Notably, the African Union, a grouping that represents 55 countries, was admitted as a new member of the G20 in June 2023.

— The Global Alliance Against Hunger and Poverty was officially launched at the G20 Leaders' Summit in Rio de Janeiro (Brazil). It aims to accelerate efforts to eradicate hunger and poverty while promoting the Sustainable Development Goals (SDGs).

US CLEARS EXCALIBUR ARTILLERY SHELLS, JAVELIN MISSILE SYSTEMS TO INDIA

The US has approved the sale of Excalibur guided artillery projectiles and the anti-tank Javelin missile system and related equipment worth over \$90 million to India, marking a significant step forward for Delhi's big-ticket military procurements from Washington.

— The Defence Security Cooperation Agency, in two separate statements, said the State Department has made a determination approving a possible Foreign Military Sale to India of Excalibur Projectiles and related equipment at an estimated cost of \$47.1 million and of the Javelin Missile System and related equipment at an estimated cost of \$45.7 million.

— The Defence Security Cooperation Agency delivered the required certification notifying Congress about the sales. It said the proposed sale will improve India's capability to meet current and future threats by providing precision capability equipment, which will increase first strike accuracy of its brigades.

— In 2019, the Army had procured around 600 rounds of the Excalibur munition to increase its artillery firepower. This included around 500 rounds of ammunition with an accuracy of 20 metres from the target and around 100 rounds which could hit targets with an accuracy of two metres.



— The ammunition can be fired from all 155 mm guns in the Army's inventory, including Bofors, M777 Howitzer, K9 Vajra and Dhanush artillery guns. Soon after its induction in 2019, the Army had tested the Excalibur precision-guided shells from the US-made M777 Howitzer in Pokhran.

— According to the Raytheon website, Javelin is an anti-tank guided munition that can be carried and launched by a single person. It is made by the Javelin Joint Venture, a partnership between Raytheon and Lockheed Martin.

— It is a medium-range, 'fire-and-forget' missile for use against multiple targets including armoured vehicles, bunkers and caves. The Javelin can be fired from a remote launcher mounted on an unmanned ground vehicle.

Do You Know:

— In February this year, following a meeting between Prime Minister Narendra Modi and President Donald Trump, the two sides had announced plans for the new 10-year defence framework.

— The vision for bilateral defence cooperation was encapsulated in the September 2013 Joint US-India Declaration on Defence Cooperation and the 2015 Framework for the US-India Defence Relationship, in which the two countries committed themselves to increasing cooperation in the sector.

— Between 2016 and 2020, the two sides signed four more agreements, including the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016, the Communications Compatibility and Security Agreement (COMCASA) in 2018, and the Basic Exchange and Cooperation Agreement (BECA) in 2020.

— In August 2024, both countries signed a Security of Supply Arrangement (SOSA) and Memorandum of Agreement regarding the Assignment of Liaison Officers, among other bilateral military agreements that have enhanced defence and security cooperation.

BLOW TO STATES

By holding that the judiciary cannot fetter Governors and the President to “one-size-fits-all” timetables or usurp their functions by assuming “deemed consent” of proposed Bills by States, and also clarifying that these authorities cannot resort to “prolonged and evasive inaction”, the Supreme Court’s answer to the 16th Presidential Reference appears as a constitutional balancing act. But, substantively, it is a blow to federalism as it effectively allows Governors unchecked powers to block or delay State legislation without constitutional accountability. This opinion contradicts a progressive judgment in April 2025 that had prescribed three-month timelines and used Article 142 to grant deemed assent to some Bills passed in the Tamil Nadu Assembly. The Court invoked separation of powers to reject timelines and Article 142’s use, but this empowers Governors at the cost of State rights. The judgment claims that Articles 200 and 201 prescribe no deadlines, but disregards explicit constitutional text. In Article 200, the Governor must declare his decision “as soon as possible” — the Court called it too “elastic” to support timelines, rendering constitutional text unenforceable. The Court’s assertion that Governors are not bound by the Council of Ministers’ aid and advice contradicts constitutional history. The framers explicitly removed the phrase “in his discretion” — a phrase in the Government of India Act, 1935 — from Articles 200 and 201. Even the Sarkaria Commission recommended a six-month period for Governors to decide on Bills.

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR

12

Telegram: http://t.me/DreamIAS_Jamshedpur



The Court did rule that withholding assent must be followed by returning the Bill to the Assembly. But the judgment rules that even if the Assembly passes the Bill a second time, the Governor retains the option to reserve it for the President. This kills the binding nature of the legislature's second passage. Consequently, whether at first instance or after reconsideration, a Governor can refer a Bill to the President under Article 200. Once there, Bills can languish indefinitely as the judgment ruled that the President has no obligation to consult the Court. The Assembly has no recourse to re-pass Bills in a binding manner, and the judgment provides no guidance on when referring a Bill to the President is appropriate. While the judgment talks of a "limited mandamus" for prolonged inaction, it refuses to define what constitutes a "reasonable period of time", forcing States into legal battles to prove delay. By removing procedural safeguards (timelines and deemed assent), extraordinary remedies (Article 142), and oversight (judicial review of actions under Article 200), the Court's opinion has allowed the possibility of executive overreach. States have little mechanism to challenge arbitrary delays, no automatic approval after reasonable periods, and no remedy when Bills are referred to the President, even on subjects under the State List. And these are situations that have recently transpired in many Opposition-ruled States. The Court appears to have found a way to turn the letter against the spirit of the Constitution.

NO TIMELINES FOR PRESIDENT AND GOVERNORS ON BILL: SUPREME COURT

— The opinion essentially rolls back parts of the April ruling by a two-judge bench headed by Justice JB Pardiwala which held that the Tamil Nadu Governor's delay in granting assent was unconstitutional and set specific timelines for action. The SC had then also granted "deemed assent" to certain Bills that were pending.

— The SC's advice to the President states that while timelines cannot be set and "deemed assent" cannot be granted by the SC itself, states have a right to approach the Court when there is a delay. The advice seeks to protect a line in the sand on the separation of powers between the executive and the judiciary.

— The court clarified that the if the Governor sits on the bill forever, it would invite "limited judicial scrutiny" though courts cannot go into merits of action.

— In striking this balance, the SC has effectively defined its role in the fraught political issue as that of a facilitator of dialogue between the states and Centre instead of adjudicating it as an adversarial constitutional case. The opinion refers to the Governor's role in granting assent as the "initiation of a dialogic process."

Do You Know:

— Article 163 of the Constitution outlines the Governor's general powers, while Article 200 specifically addresses the Governor's role in granting assent to Bills. Both the provisions are read together to determine the contours of the power the Governor holds on this issue.

— According to Article 200, "When a Bill has been passed by the Legislative Assembly of a State or, in the case of a State having a Legislative Council, has been passed by both Houses of the Legislature of the State, it shall be presented to the Governor and the Governor shall declare either that he assents to the Bill or that he withholds assent therefrom or that he reserves the Bill for the consideration of the President."



FOURTEEN QUESTIONS AND COURT'S RESPONSES

While it is not appropriate for the judiciary to impose timelines on the President and Governors, in glaring circumstances of indefinite inaction, the court can intervene, the Supreme Court said in its advisory to the Presidential Reference. Here are the 14 questions posed by the President and the court's responses:

What are the constitutional options before a Governor when a Bill is presented to him under Article 200 of the Constitution?

To assent, reserve the Bill for the consideration of the President, or withhold assent and return the Bill to the legislature with comments if the Bill is not a Money Bill.

Is the Governor bound by the aid and advice tendered by the Council of Ministers under Article 200?

The Governor enjoys discretion and is not bound by the aid and advice of the Council of Ministers.

Is the exercise of constitutional discretion by the Governor under Article 200 justiciable?

The discharge of the Governor's function under Article 200, is not justiciable.

However, in glaring circumstances of indefinite inaction, the court has a limited power to issue a mandamus to the Governor to decide within a reasonable time period.

Is Article 361 an absolute bar to judicial review in relation to the actions of a Governor under Article 200?

Article 361 is an absolute bar on judicial review in relation to personally subjecting the Governor to judicial proceedings.

Can timelines be imposed under Article 200?

It is not appropriate as the Constitution is silent.

Is exercise of constitutional discretion by the President under Article 201 justiciable?

For the same reasoning as held with respect to the Governor, the President's assent too is not justiciable.

Can the President be bound to timelines while exercising power under Article 201?

For the same reasons as indicated in the context of the Governor, the President, too, cannot be bound by judicially prescribed timelines.

Is the President required to seek advice of the Supreme Court whenever a Governor reserves a Bill for assent?

The President is not required to seek SC's advice. Subjective satisfaction of the President is sufficient.



Are decisions of the Governor and President under Article 200 and Article 201 justiciable at a stage anterior into the law coming into force?

The decisions of the Governor and President under Articles 200 and 201 are not justiciable at a stage anterior into the law coming into force. It is impermissible for courts to undertake judicial adjudication over the contents of a Bill before it becomes law.

Can the exercise of constitutional powers and the orders of/by the President/Governor be substituted in any manner under Article 142?

The exercise of constitutional powers and the orders of the President/Governor cannot be substituted in any manner under Article 142 nor does it allow for the concept of 'deemed assent' of Bills.

Is a law made by the State legislature a law in force without the assent of the Governor granted under Article 200 of the Constitution?

There is no question of a law made by a State legislature coming into force without assent of the Governor under Article 200.

In view of the proviso to Article 145(3), is it not mandatory for any Bench of the court to first decide whether a case involves substantial questions of law and has to be referred to a Bench of minimum five judges?

Returns unanswered. Irrelevant to this reference.

Do the powers of the Supreme Court under Article 142 of the Constitution limited to matters of procedural law?

Not possible to answer in a definitive manner. Scope of Article 142 answered as a part of earlier question.

Does the Constitution bar the Supreme Court from resolving Centre-States disputes except by way of a suit under Article 131?

Irrelevant to the functional nature of the reference. Hence, returned unanswered.

SC COUNTERS 'APPEAL IN DISGUISE' ARGUMENT OF NON-BJP-RULED STATES

The Supreme Court on Thursday countered objections raised by States ruled by non-BJP parties that the 2025 Presidential Reference was an "appeal in disguise" against the court's own binding verdict in the Tamil Nadu Governor case. The court observed that an advisory opinion could even go so far as to "overrule, if necessary" a judgment.

This divergence may open the path for the government to take the Presidential Reference route against an uncomfortable apex court judgment in future, rather than opting to file review or curative petitions. Tamil Nadu had argued before a five-judge Bench headed by Chief Justice of India B.R. Gavai that the May 13 Presidential Reference posing 14 queries on the role and power of the President and Governors was only a thinly veiled "appeal" against the April 8 judgment in the Tamil Nadu Governor case.

Tamil Nadu had contended it was impermissible to overrule an earlier precedent [April 8 judgment] of the Supreme Court while exercising advisory jurisdiction under Article 143.



Countering this objection, the Reference Bench pointed to a majority opinion delivered by Justice Y.V. Chandrachud (retired) for a seven-judge Bench in a 1978 Presidential Reference in which he observed that “our opinion may even go so far as to overrule, if necessary”.

The Reference Bench said a subsequent opinion in a Reference in ‘Natural Resources Allocation’ (2G case) had reiterated Justice Chandrachud’s view.

However, the Constitution is itself silent about whether an opinion given by the Supreme Court under Article 143 would overrule a binding judgment.

Article 141 of the Constitution mandates that “the law declared by the Supreme Court shall be binding on all courts within the territory of India”.

Further, Article 144 of the Constitution adds that “all authorities, civil and judicial, in the territory of India shall act in aid of the Supreme Court. These two Articles make it clear that the law declared by the Supreme Court, through its judgments, is binding and “all” authorities are bound to comply with it.

The Union government could have sought a review of the April 8 judgment if it was unhappy with it, but chose, through the President, to issue a Presidential Reference.

Now, the Centre may use this “authoritative opinion” of the court as a prize weapon to seek a review of the April 8 judgment of the court itself.

APEX COURT WARNS MAHARASHTRA GOVT.ON 50% QUOTA LIMIT

The Supreme Court on Monday said the Maharashtra government should not “question the powers of the court” and exceed the 50% threshold while reserving seats for Other Backward Classes (OBC) in local bodies which are scheduled to go to the polls in December.

A Bench of Justices Surya Kant and Joymalya Bagchi said the court would allow the elections to go ahead only if the OBC quota remained within the bounds of the 50% mark set by a Constitution Bench in K. Krishna Murthy v. Union of India.

Solicitor General Tushar Mehta, for Maharashtra, urged the court to allow the election process to go ahead for now. “The Constitution Bench judgment is very clear. The vertical reservation in local bodies cannot go beyond 50%,” Justice Bagchi remarked.

Senior advocate Vikas Singh, appearing for petitioners, said the State was holding elections as per the 2022 J.K. Banthia Commission report, which had recommended a 27% quota for OBCs. “If this happens, the aggregate reservation would go up to 70%,” he submitted.

“If the plea [of the State] is that nomination has begun and the court should stay its hand, then we will stay the elections. Do not test the powers of this court,” Justice Kant said, addressing Mr. Mehta.

On May 6, the top court had allowed the local body elections to be conducted in the State, provided the OBC reservation was maintained as it had existed before the J.K. Banthia Commission report.

The local body elections in the State have been stuck since 2022 due to litigation over the implementation of the OBC reservation. The order to go ahead with the elections was passed in May 2025 in the spirit of upholding the Constitutional mandate of grassroots democracy.



On Friday, the Bench reminded the State government that the question of validity of the Banthia panel report was still sub judice. It then posted the case for further hearing on Wednesday.

BREAKING THE RULES

The majority decision by a Bench of the Supreme Court to reverse its May 2025 order, which had stayed the grant of post-facto environmental clearances, illustrates the difficulty of dealing with the seemingly irreversible consequences of a much-abused law. The controversy is also about the form of the Environment Ministry's instruments that normalised those exceptions. The Environment (Protection) Act 1986 and EIA notifications of 1994 and 2006 are framed around prior environmental clearance (EC), which means that large construction and industrial projects must not start work until an authority has assessed their consequences. Decisions by the Court including *Common Cause* (2017) and *Alembic Pharmaceuticals* (2020) treated post-facto EC as impermissible where prior EC was mandatory. The order in May, in *Vanashakti*, read this as ruling out post-facto ECs altogether for such projects. The new majority does not say 'EC first' is no longer the rule but locates a narrow space for post-facto clearances by relying on *Alembic*, *D. Swamy*, and others to allow 'regularisation' when considerable resources have already been committed, usually with fines. This still means that the Ministry can maintain 'EC first' as the legal default and allow post-facto clearances only in rare, highly constrained cases. In any case the spirit of the EC regime remains *ex ante*.

A clearance granted after construction has begun or finished cannot replicate the EIA's rationale, which is to make environment-related decisions before the potential cumulative consequences are underway. Post-facto clearances can only impose penalties, prescribe mitigation or order closure or demolition. Even if the judiciary permits such ECs in some circumstances now, the clearances will be remedial and sit uneasily with the structure of environmental jurisprudence in India since the 1990s. The majority's concern about differential treatment of past and future violators is also understandable, even if its remedy is not. *Vanashakti* struck down the 2017 notification and subsequent Environment Ministry office memoranda that facilitated post-facto ECs, but it let existing post-facto ECs stand. The majority treated this as discriminatory, which is fair, but unequal treatment during a shift from a permissive to a stricter regime is to be expected during regulatory housekeeping. Its existence does not by itself require that an old route be revived. The Court has also recalled the bar on post-facto ECs and reopened the legal question, indicating that limited post-facto regularisation is not in itself untenable. In the end, the Ministry must treat post-facto ECs as exceptional not least because they are inherently at odds with the legal framework. Any complaint about discrimination between past and future violators should be addressed by tightening legacy clearances, not by normalising post-facto regularisation.

SC INVALIDATES TRIBUNAL REFORMS PROVISIONS, SAYS GOVT BROUGHT BACK CLAUSES REMOVED EARLIER

Underlining that "the Constitution is what the Court says it is" and Parliament's "discretion is broad but not absolute," the Supreme Court Wednesday struck down key provisions relating to the appointment process in the Tribunals Reforms (Rationalisation and Conditions of Service) Act, 2021, as unconstitutional and violative of separation of powers and judicial independence.

— The bench of Chief Justice of India B R Gavai and K Vinod Chandran said provisions already struck down by it in an earlier Ordinance had been reenacted in the 2021 law with minor tweaks.



— The ruling is the latest in a series of five judgments since 2010 in which the Supreme Court has struck down government interference in the regulation of tribunals. The judiciary's rationale is that since the executive is often a party to litigation before tribunals, it cannot be permitted to play a dominant role in appointing their members.

— The search-cum-selection committee proposed under the law is chaired by the Chief Justice of India or a Supreme Court judge nominated by the CJI, and includes two secretaries to the Government of India, and one additional member, who may be the outgoing or sitting chairperson of the tribunal.

— In case the sitting chairperson seeks reappointment, a retired Supreme Court judge or retired Chief Justice of a High Court nominated by the CJI would be a member. The Supreme Court, in its earlier verdicts, has said that the inclusion of Central government secretaries (whose ministries are often litigants) in the selection committee undermines the impartiality of the process of appointment.

— On July 14, 2021, the Supreme Court, in a 2:1 verdict, struck down certain provisions of the Tribunals Reforms (Rationalisation and Conditions of Service) Ordinance, 2021, relating to the minimum age requirement of 50 for appointment as chairperson or members and fixing their tenure at four years. But in August 2021, the government brought in the Tribunal Reforms Bill, 2021, containing provisions substantially similar to those of the earlier law.

— It said that the impugned Act does not "cure" the law declared earlier, but consciously defies it.

— The bench underlined that "the architecture of our Constitution is firmly rooted in the principle of constitutional supremacy" and not in "judicial supremacy" or "parliamentary supremacy."

— The Centre had argued that the court cannot test a legislation on the touchstone of "abstract principles," such as separation of powers or judicial independence. It said only constitutional amendments can be tested on the benchmark of whether they violate the basic structure doctrine.

— The bench said its tests "are not vague, free-floating ideals. They are structural pillars of our constitutional order and integral components of constitutionalism worldwide."

— The bench reiterated its earlier direction to the Centre to set up a National Tribunals Commission, saying it "is an essential structural safeguard designed to ensure independence, transparency, and uniformity in the appointment, administration, and functioning of tribunals across the country." It gave the Centre four months for this.

Do You Know:

— The doctrine of separation of powers stands for a form of government in which the mechanism of governance is divided into three branches, namely Legislature, Executive and the Judiciary in the majority of democratic nations.

— The doctrine of separation of powers evolved with the famous work of Aristotle, The Politics, in which he discussed the concept and stated that every constitution should include different branches of government, namely the judiciary, public officials, and the deliberative branch.



WHAT ARE DIGITAL PERSONAL DATA PROTECTION RULES?

The story so far:

The Digital Personal Data Protection Rules (DPDP), 2025 were notified this week, kicking off the formation of the Data Protection Board of India (DPBI), and the legal framework for safeguarding the data of Indians online. The DPDP Act itself was passed in Parliament in August 2023, and the draft of the Rules that were notified on November 14, 2025 were released for consultation in January.

What do the DPDP Act and Rules do?

The DPDP Act, 2023 is India's data protection law just as other major countries have their own data protection regimes such as that in Europe (the General Data Protection Regulation (GDPR)) and Singapore (Personal Data Protection Act, 2012). Like these regimes, the Act sets out some baselines for how companies ("data fiduciaries") should handle data of their users in India ("data principals"). For instance, there must be access control and encryption, along with security audits for large firms ("significant data fiduciaries").

Further, data principals are required to take "informed" consent from their users, and anyone whose data they collect, by giving a summary of what data they are collecting, and how they will use it. The Act also gives users the right to erase or modify data they provide to firms, or to delete it. After a specified period of inactivity, firms are under an obligation to delete the data they have on users. A Data Protection Officer (DPO) has to be appointed by large firms, who will oversee compliance.

The Act also restricts targeted advertising and certain data collection from children. The Rules carve out an exemption here for parents tracking their children's location.

To allow users to exercise rights across a variety of fiduciaries (accounts over several platforms), the Act and Rules set out the framework for a "Consent Manager," a service that will allow users to manage their data across several fiduciaries, similar to the permissions manager settings on a smartphone.

Data breaches must be reported as soon as possible, the Act says.

Fines for non-compliance for different parts of the law range from ₹10,000 to ₹250 crore.

Are these requirements in force?

No. While over two years have gone by since the Act was notified, the Ministry of Electronics and Information Technology (MeitY) has chosen to give firms up to 18 more months to comply. Some requirements, like having a DPO be appointed for large firms, goes into effect one year from now.

However, some parts of the Act have kicked into action — such as the DPBI's formation. The DPBI will oversee the Act's implementation and will be a subordinate office of the MeitY. The body will have four members.

Another part of the Act that goes live is the amendment to the Right to Information Act, 2005, which has been furiously resisted by digital rights and transparency groups alike.



Why is the amendment controversial?

The 2023 Act amended Section 8(1)(j) of the Right to Information Act, 2005, which allows citizens to request public information from government bodies. That section allowed government bodies to refuse requests for “personal information”, but said that this exemption would not apply if there was a larger public interest in disclosing the information.

The DPDP Act removed that carve-out, allowing government organisations more discretion in what is and isn’t personal information, and decline it even if doing so would be in the public interest. The 2023 law was not going to be in force — including this amendment — until the Union government notified it. Transparency activists, such as those belonging to the Mazdoor Kisan Shakti Sangathan (MKSS) and the National Campaign for the People’s Right to Information (NCPRI), spent years (since the DPDP Act’s 2022 draft was published) resisting this change.

But on Friday, the government disregarded that pushback, and specifically invoked its power to push the amendment through in the form of a notification. Another amendment, to the Information Technology Act, 2000, is not yet in force.

Organisations like the MKSS have worked with grassroots movements to get access to ration “muster rolls” and work order logbooks, allowing them to scrutinise public records for signs of graft and misspending. By implementing a broader definition to what constitutes as “personal information”, they have argued, citizens may have no room to conduct such social audits. The amendment could also be used to shield powerful officials’ misconduct, they have said. Nikhil Dey, an MKSS founding member, vowed that “[w]e the people’ will fight back” after the amendment went into force.

THE TRAJECTORY OF ANTI-RAPE LAWS IN INDIA

Forty-six years after the Supreme Court acquitted two policemen in the custodial rape of a teenage tribal girl in Maharashtra, concluding she consented to the sexual intercourse as there were no visible marks of physical injury on her, Chief Justice of India B. R. Gavai India called the judgment “a moment of institutional embarrassment”. The judgment reflected a deeply regressive and patriarchal understanding of consent, effectively denying the social context of power, coercion, and vulnerability in which sexual violence often occurs.

The Chief Justice said the “troubling” judgment in *Tukaram versus State of Maharashtra* in 1979 became a turning point as the verdict brought the nation together in protest, for the legal system had failed to protect the dignity of the very person it was meant to safeguard. The acquittal ignited the women’s rights movement for stronger rape laws in India.

It also forced Parliament to address the lapses in criminal law; to strengthen legal protections against custodial rape; to make punishments under the Dowry Prohibition Act more stringent; and to introduce the Family Courts Act. A series of Criminal Law Amendments, from 1983 to the spirit of changes made in sexual offences’ provisions in the Bharatiya Nyaya Sanhita (BNS) in 2023, trace their spirit to the top court’s “institutional failure” in the *Mathura rape (Tukaram versus State of Maharashtra)* judgment.

The trajectory of the case

The 1979 judgment, which further condemned a custodial rape survivor, was pronounced even before the “the ink had dried” in Justice Krishna Iyer’s verdict in the *Nandini Satpathy (1978)* case.



The court, speaking through Justice Iyer, condemned the practice of calling women to police stations and declared that a woman must be questioned by the police only at her residence.

The incident in the Mathura rape case happened in March 1972. The rape survivor, an orphan aged between 14 and 16 years, was one among four who were called to the police station at night. After a brief questioning, she was asked to stay behind while the others were asked to leave. She was subjected to sexual assault by two policemen, a head constable and a constable inside the police station. The trial court, in its judgment, found the rape survivor a “shocking liar” whose testimony “is riddled with falsehood and improbabilities”. The court came to the conclusion that she had sexual intercourse while at the police station but rape had not been proved and that she was “habituated” to sexual intercourse.

The Bombay High Court, in 1976, overturned the Sessions Judge’s findings and concluded the teenager was subject to forcible sexual intercourse amounting to rape. The High Court had held that the so-called ‘consent’ to act was only ‘passive submission’ by a helpless victim to persons in authority whose advances she could hardly repel by herself. In an appeal by the two policemen, the Supreme Court set aside the High Court judgment, agreeing with the petitioners that the “alleged intercourse was a peaceful affair” as there were no marks of injury on her person.

A letter which shook the nation

What brought the Mathura rape case into national consciousness and sparked outrage was a letter written by four intellectuals to the court in September 1979, shortly after the acquittal of the two accused policemen.

The September 1979 letter by Upendra Baxi, Vasudha Dhagamwar, Raghunath Kelkar and Lotika Sarkar pointed out to the judges the clear difference, both in law and common sense, between ‘submission’ and ‘consent’. Consent involves submission; but the converse is not necessarily true. Nor is absence of resistance necessarily indicative of consent, they argued.

The letter pointed out that there was not a single word in the judgment condemning the very act of calling a teenage girl and detaining her at the police station in gross violation of the law. Nor was there a single word in the judgment condemning the use of the police station as a theatre of rape or submission to sexual intercourse. “The Court gave no consideration whatsoever to the socio-economic status, the lack of knowledge of legal rights, the age of the victim, lack of access to legal services, and the fear complex which haunts the poor and the exploited in Indian police stations. May we respectfully suggest that you and your distinguished colleagues visit incognito, wearing the visage of poverty, some police stations in villages adjoining Delhi?” the letter had challenged the Supreme Court judges.

Myriad amendments

The public furore following the 1979 judgment led Parliament to introduce the Criminal Law Amendment Act of 1983 in which custodial rape was included as a separate offence under Section 376 of the erstwhile Indian Penal Code (IPC). The amendment shifted the burden of proof in custodial rape cases from the rape survivor to the accused if the fact of sexual intercourse was established. The top court framed the Vishaka guidelines against sexual harassment at the workplace when a public interest petition was filed after the gangrape of Bhanwari Devi, a Kumhar woman and an auxiliary nurse midwife, who raised her voice as part of her job against child marriage, especially in upper caste families.



The brutal gangrape and fatal assault of a 22-year-old physiotherapy intern in a moving bus by six men on a December 2012 night had the nation rise in protest again, demanding stricter laws to protect women and punish their attackers. The Criminal Law Amendment Act, 2013, loosely crafted on the recommendations of the Justice J.S. Verma Committee, introduced, among others, provisions to punish police officers who do not record an FIR in sexual violence cases against women, or hospitals which do not provide free care to sexual assault victims. The 2013 amendments broadened the definition of rape as in Section 375 to include acts other than forcible sexual intercourse.

Most importantly, it clarified that silence or a feeble no by a woman cannot be translated as a 'yes'. Besides, the amendments raised the age of consent from 16 to 18 years.

The amendments awarded death penalty to repeat offenders or if rape led to the death or 'persistent vegetative state' of the victim.

The Unnao and Kathua rape cases of 2017 and 2018 compelled Parliament to usher in further amendments to make criminal laws for sexual offences against women more stringent. In the Unnao case, former BJP MLA Kuldeep Singh Sengar was convicted for the kidnap and rape of a minor girl.

The Criminal Law Amendment Act of 2018 provided death penalty as a punishment in rape cases in which the victims are below 12 years of age. The 2018 amendments also included a minimum of 20 years imprisonment if the victim is under 16 years of age. The amendments fast-tracked investigation as well as the trial and appeal proceedings in rape cases — two months to complete a probe and trial, and six months to wrap up appeals.

Finally, the Criminal Law Amendment Act, 2023 through the BNS, made sexual offences against women and children gender-neutral for both the victims and the perpetrators. It uniformly made gang rape of a woman aged below 18 years punishable with death or life imprisonment. The BNS also brought in new offences like sexual intercourse under false pretences and broadened the definition of sexual harassment.

NOWGAM BLAST: WHAT IS THE SOP FOR TRANSPORTING, STORING EXPLOSIVES?

At least nine people were killed and 29 others were injured in a powerful explosion inside the Nowgam police station in Jammu and Kashmir on Friday. The explosives had been seized as part of the probe into the Red Fort blast and the terror module linked to it. The Jammu and Kashmir Police said the blast was accidental, triggered during a forensic sampling procedure.

— First of all, during any raid or seizure, if the recovered material appears to be an explosive or an IED (Improvised Explosive Device), the enforcement agency must immediately have it examined by the Bomb Detection Team (BDT) and the Bomb Disposal Squad (BDS) available in the district concerned.

— They can also inform the Controller of Explosives at the Petroleum and Explosives Safety Organisation (PESO) for the destruction process.

— The first instruction is to keep the material away from people and store it in an isolated location, without electricity or any other source of ignition.



— Storing such large quantities of explosives at police stations or in any residential installation should be avoided unless the location has been specifically designated for that purpose.

— Some explosives, or the chemicals used in them, can catch fire immediately if left exposed to open air. For example, sodium is not an explosive, but if it is kept in the open air, it will ignite. Similarly, phosphorus—which is used in some hand grenades—must be kept in water. Therefore, such materials need to be attended to immediately.

— The officer in charge of that particular raid should immediately move the material to a properly isolated area. An FIR should be registered without delay, and the matter should be referred to the Judicial Magistrate of the area, who will grant permission for its immediate destruction.

— While these procedures are underway, the explosives must be stored in licensed explosive magazines or in an open, secure location with proper guarding and monitoring.

— An explosive van may not be available to every district police force, even though it is a very important component in handling explosives. These vans are specially constructed trucks or containers, typically covered with aluminium sheets, with the interior lined with wood.

Do You Know:

— PESO: With an overall objective of ensuring safety and security of public and property from fire and explosion, the Organisation as a statutory authority is entrusted with the administration of Explosives Act, 1884, Petroleum Act, 1934; Inflammable Substances Act, 1952 and the following Rules framed under these Acts.

— Forensic analysis of explosives that led to the November 10 blast outside the Red Fort has confirmed the use of a mixture of ammonium nitrate and triacetone triperoxide (TATP), highly potent chemicals whose sale and handling are heavily regulated, The Indian Express has learnt.

— According to the initial findings of the forensic science laboratory, at least 30-40 kg of ammonium nitrate was present in the car, which only could have led to an explosion of such a magnitude.

NEW RECKONING

With his swearing-in as Chief Minister of the NDA-led government in Bihar, Nitish Kumar has begun his tenth term cumulatively at the helm of the State. This remarkable political longevity reflects not just his personal acumen but also the JD(U)'s electoral performance, which saw the party double its previous tally to 85 seats. His success owes much to the social coalition he has painstakingly built over the years. The JD(U)'s support base among the EBCs and Dalits, augmented by substantial backing from women across these sections, has provided accretion to the support bases of the BJP and other NDA allies. This multi-caste, multi-class coalition gave the alliance a decisive social edge over the Opposition Mahagatbandhan, helping it stave off anti-incumbency. That voters have prioritised welfare deliveries over Mr. Kumar's serial realignments speaks to the efficacy of targeted benefits in insulating incumbents. Yet, electoral success cannot obscure the hard reality that confronts the septuagenarian leader. Bihar remains at the absolute bottom on virtually every socioeconomic indicator. It continues to be the largest source of out-migration, a consequence of inadequate employment opportunities. Its economy remains trapped in a vicious cycle: agriculture hampered by fragmented landholdings and concentrated ownership, and a services sector largely confined to government employment. The near absence



of organised industry and the State's inability to attract investments represent a governance failure that transcends political partisanship. Years of administration have prioritised road and bridge construction, while education and health have languished.

The Opposition's inability to capitalise on these deficiencies is telling. The RJD's limited social coalition, the Congress's organisational weaknesses, and the Left's confinement to pockets of support have failed to convert economic distress into political momentum. Welfare doles have evidently shielded the government as well. However, the Opposition's inadequacy does not invalidate the critique of the government's economic record. A State cannot thrive on transfer payments and handouts. With the JD(U) occupying a pivotal position at the Centre, there is little excuse for the new administration to continue on this trajectory. The government must pivot toward securing sustainable livelihoods. Catalysing sectors such as food processing, leveraging Bihar's agricultural fertility, and creating an enabling environment for investment are essential. More ambitious measures, including land reforms that transfer holdings from absentee landowners to sharecroppers, may be politically difficult, but remain necessary. Mr. Kumar's tenth term must be measured not by electoral arithmetic but by whether it marks an inflection point in Bihar's development trajectory.

THE NEED FOR A SOCIAL AUDIT FOR SIR 2.0

On the Election Commission of India's (ECI) Special Intensive Revision (SIR) 2.0 in 12 States and UTs, The Hindu editorial said, "The experience in Bihar suggests that the process... could risk the disenfranchisement of a significant number of people... As this exercise unfolds, it is incumbent upon civil society, the media and parties to assume a role of intense vigilance lest this affects the integrity of India's electoral democracy."

The Bihar exercise

Bihar has just undergone a SIR of its electoral roll. The documentation-heavy process, which sought to re-verify the voter eligibility of residents, triggered widespread concern over mass disenfranchisement and the stealth operationalisation of a citizenship screening regime. The 'revised electoral rolls' have several serious flaws including a sharp decline in the adult-electoral ratio, disproportionate deletions of women and Muslim voters, and duplicate names and bogus entries. Disenfranchisement, as feared, has already taken place.

The ECI's conduct throughout the Bihar SIR has raised troubling questions about its impartiality and institutional integrity. Its court filings and public statements reveal that the institution appears to have become increasingly unresponsive to scrutiny and resistant to accountability and more concerned with defending its own authority than ensuring genuine inclusivity and integrity of the electoral roll.

The Supreme Court, which has been monitoring the legality of the exercise, has refused to address the core question of legality — the ECI's powers to conduct an SIR and existence of any Rules thereof — and has allowed the exercise to proceed unchecked. Its interventions mitigated some procedural inequities but failed to prevent their consolidation. By failing to ensure meaningful corrective action, the Court risks legitimising an unwarranted framework that has produced far-reaching and discriminatory outcomes for minority and marginalised sections.

Furthermore, there is an issue of voting rights for internal migrants which is particularly serious in Tamil Nadu. Section 19 of the Representation of the People Act, 1950, requires that a person is



'ordinarily resident' in a constituency for inclusion in its electoral roll. Section 20 provides the meaning of the term 'ordinarily resident'. It is archaic and does not address the three distinct categories of present-day migrants: long-term or semi-permanent migrants — those who relocate for a longer period, often for education or permanent employment; short-term/seasonal migrants — those who move for a specific period, typically for work during a particular season; circular migrants — those who move back and forth between their home and work destination.

Participatory democracy

The current SIR is bereft of proper Rules, oversight, scrutiny or audit. This brings out the case for a mandatory social audit for electoral roll revision and verification. Social audits in India are an institutionalised process of participatory democracy by which individuals and communities are empowered to "audit" any activity or service carried out for their benefit or in their name. This would therefore involve the public auditing of the entire cycle of an activity by the people themselves.

The Constitution under Article 243A and 243J empowers such monitoring and audit. Social audit has become an institutionalised mechanism mandated by law. The Comptroller and Auditor General of India has also approved social audits as necessary for universal monitoring of any mass-based programme and has laid down processes and procedures these.

India's electoral system is anchored on universal adult franchise. This is only ensured when every eligible voter finds their name on the electoral roll. The current SIR has no checks and balances and is susceptible to external influences and interferences. Besides, in a country where 30% to 40% of registered voters don't even turn up to vote, to expect the entire voting population to actually apply and reapply to be on the voting list is unfair and impractical. To ask them to produce fresh proof of citizenship through copies of documents named is an abdication of responsibility by the ECI to prepare the rolls and make accurate additions and deletions. This is a task best carried out with the involvement of the people through an open and mandatory social audit process.

Social audit is an open, individual and collective application of mind of the people, using existing base documents and records, and providing testimonies to corroborate the records or question the information they contain. The panchayat/ward/booth-level social audits are the best possible intensive revision of electoral rolls that will ensure the least possible manipulation and the greatest possible inclusion for universal adult franchise in India.

Such a social audit process was tested and put to use by the ECI and citizens' groups in 2003 when J.M. Lyngdoh was the Chief Election Commissioner. Based on the suggestions from citizens' groups, the ECI had ordered that decentralised social audits be carried out in every gram sabha and/or ward sabha of the five States that were going to the polls later that year. The existing electoral rolls, as updated by the booth-level officer, were used as a base. In Rajasthan alone, over 7 lakh changes were made as a result (or consequence) of this process. So, there is precedence.

The ECI would be well advised to follow this path and lay down Rules including mandatory social audit in consultation with civil society and political parties before proceeding further with SIR 2.0. This is a must to safeguard the integrity of electoral democracy.



BLO DUTY PREVENTING COMPLETION OF SYLLABUS FOR HALF-YEARLY EXAM, SAY TAMIL NADU SCHOOL TEACHERS

As the half-yearly exam approaches, schools with teachers assigned as Booth Level Officers (BLO) to the special intensive revision (SIR) duty in Tamil Nadu are struggling to complete the syllabus in time.

“We can’t even think about teaching now. The form distribution takes up our entire day. With so much pressure from higher officials to complete our duty, we really can’t think about the children right now. Our primary job has now become second priority,” said a secondary grade teacher from Erode, who is on deputation as a BLO.

Over 68,000 teachers, Anganwadi workers, noon meal works, and electricity bill readers, among others in Tamil Nadu have been deputed as BLOs.

While the teachers have to conduct their BLO duty after school hours, most of them, fearing the backlash of not completing the duty, are not going to school.

WhatsApp groups

As the teachers on BLO deputation can not teach their classes, the responsibility now falls on other teachers. Some teachers are following up on WhatsApp groups to ensure that their students were keeping up with their studies.

Noting that the School Education Department is aware of the circumstances, a senior official from the department said, “We have advised schools to appoint teachers through the School Management Committee and also use surplus teachers to manage the need for teaching.” Despite repeated attempts, the Chief Electoral Officer could not be reached.

ONCE THERE WAS A RED CARD

In 2008, Mishro Devi, aged 69, became the first Indian to receive a Multipurpose National Identity Card (MNIC), a smart card issued by the Union government under a pilot scheme in Pooth Khurd, Delhi. The card, with an embedded electronic chip, had Mishro’s biometric details: 10 fingerprints, an iris scan, her photograph, and thumb impression. It also had details such as her name, date of birth, parents’ names, place of birth, place of issue, and 10-year validity period.

The issuing authority was the Registrar General of Citizens, under the MHA, which determines citizenship in India. Under the pilot project, which concluded on March 31, 2009, as many as 12.88 lakh MNICs were issued to citizens aged 18 and above. Biometric data of about 30 lakh people was captured.

On August 12 this year, while responding to a question in the Lok Sabha, the MHA did not specify the “categories of valid documents” required for people to prove citizenship in India. Communist Party of India (Marxist-Leninist) Liberation MP Sudama Prasad had asked for the details.

Minister of State for Home Nityanand Rai stated in a written reply: “The citizenship of India is governed under the provisions of the Citizenship Act, 1955 and rules made thereunder.” Without specifying the admissible documents, the reply stated that citizenship “can be acquired by birth (Section 3), by descent (Section 4), by registration (Section 5), by naturalisation (Section 6), or by incorporation of territory (Section 7)”.



Determining citizenship

A debate around citizenship and what documents are required in order to be called an Indian was reignited when the Election Commission of India (EC) decided to conduct a special intensive revision (SIR) of electoral rolls in Bihar in June this year. Besides cleaning up and updating voter rolls, one of the objectives of the exercise was to weed out illegal immigrants – a mandate of the MHA.

According to the June 24 order of the EC for rolling out the SIR in Bihar, now being conducted in 12 other States and Union Territories, people could furnish any of the 11 valid documents for inclusion in the voter rolls. Residents whose parents' names were included in the 2003 electoral rolls, the last time SIR was carried out, could skip submitting documents, it stated. On the list of admissible documents were birth certificate, passport, education certificate, but not the Aadhaar card. Following petitions in the Supreme Court, the EC agreed to accept Aadhaar cards too. As citizenship is the MHA's domain, Opposition parties flagged the EC's mandate to steer such a drive in the name of a clean-up of electoral rolls.

In 2015, then Minister of State for Home Kiren Rijiju informed Parliament that under the Citizenship Act, 1955, the "Central government may compulsorily register every citizen of India and issue (a) National Identity Card" to them. He added that accordingly, the government had decided to create the National Register of Indian Citizens (NRI/NRC) by verifying the citizenship status of all people in the National Population Register (NPR).

Updating details for the NPR, which was to be carried out simultaneously with the first phase of the Population Census 2027, has been put on hold. The citizenship of each individual would be separately determined at the time of preparation of the NRC, a subset of the NPR.

The NPR has a database of 119 crore residents of the country. Unlike the Census, where statistical data up to the village level is made public, NPR data is collected household-wise and can be shared with government agencies and States. NPR data was first collected in 2010 along with the first phase of the 2011 Population Census. It was last updated in 2015.

The first phase of the Census is to be conducted from April-October 2026; the pre-test is currently in progress across the country from November 10-30. Unlike previous instances, this time questions related to the NPR are not being asked or updated by enumerators in the pre-test phase.

Updation of the NPR was put on hold following riots and violence in 2019-20 after the Citizenship (Amendment) Act (CAA) was passed by Parliament on December 9, 2019. There were fears and apprehensions that CAA – which grants citizenship to members of six undocumented non-Muslim communities from Pakistan, Afghanistan, and Bangladesh who entered India on or before December 31, 2014 – followed by a countrywide compilation of the NRC will disenfranchise Muslims and undocumented Indians.

It was felt that while the CAA would come to the rescue of non-Muslims excluded from the NRC, excluded Muslims would have to prove their citizenship. Eighty-three people were killed in protests and riots from December 2019 to March 2020 in Assam, Uttar Pradesh, Karnataka, Meghalaya, and Delhi after the CAA was passed.

Though the Union government informed Parliament that "till now" no decision has been taken to prepare the NRC at the national level" and denied that the CAA and NRC are linked, the Citizenship Rules 2003 under the Citizenship Act, 1955 – which enables the process – has neither been



amended nor dropped. No new legislation is needed to conduct the NRC. Assam is the only State where the NRC was compiled on the orders of the Supreme Court and the draft register excluded 19 lakh out of the 3.29 crore applicants.

In 2013, the then United Progressive Alliance government informed Parliament that the NPR is a register of residents: citizens as well as non-citizens. “The objective of creating an NPR is to net all usual residents of the country at a given point of time. The proposed resident identity (smart) cards will not be proof of citizenship and would carry a disclaimer that the card does not confer any right to citizenship. The citizenship of each individual would be separately determined at the time of preparation of the NRC,” it stated.

The idea of a unique identification system, however, goes back to 2001 when then Home Minister L.K. Advani proposed the issue of MNICs. During a meeting of a Parliamentary Consultative Committee on Home Affairs on August 21, 2003, a presentation by the government quoted a recommendation by a Group of Ministers on reforming the National Security System.

“Illegal migration has assumed serious proportions. There should be compulsory registration of citizens and non-citizens living in India. This will facilitate preparation of a national register of citizens. All citizens should be given an MNIC,” it stated. It added that non-citizens should be issued identity cards of a different colour and design. It recommended that the exercise be started in border districts or in a 20-km border belt and extended to the rest of India gradually.

The efficacy of the Aadhaar card is now being contested by the Union government. The EC, during a hearing in the Supreme Court, stated that Aadhaar is only proof of identity, not citizenship. Mishro’s son, Deepak Dabas, who works in a school, has kept the MNIC wrapped in a plastic sheet along with other important documents in his almirah. “The whole family got the cards. I was young then. The village head filled our details and we only had to give our biometrics at a camp organised by authorities. We were not charged any money by the government,” says Deepak, adding that he has never used the card and he knows it has no value.

BAD TIDINGS

Sonbhadra is a name that indicates wealth and good tidings. As a part of a region straddling Uttar Pradesh, Chhattisgarh, Bihar, Jharkhand and Madhya Pradesh — arguably India’s richest in terms of mineral resources though not in human development — this district in Uttar Pradesh is also India’s energy capital. It is home to some 6,000 MW of coal plant capacity — nearly half of all of Tamil Nadu’s. On Saturday, a stone quarry collapsed over nearly a dozen workers in Obra in the district. The death toll is mounting even as hopes are still alive that some may have survived. The State government has ordered a three-tier probe by the district administration, the police and the mining department. An FIR has been filed against the quarry owner alleging negligence of safety protocols. But if there were indeed violations, what was the government doing? State disaster response workers reached the site from Mirzapur, making a case for their local stationing in an area that has over a dozen stone quarries and other mines such as coal along the Vindhyas-Kaimur hill range. Questions have been raised about the level of safety training of workers and them having adequate safety gear.

But the problems are deeper and structural. Opposition allegations of rampant illegal quarrying are not fanciful stuff. Stone quarries represent the lowest end of mining, and often the least safety conscious. Stone quarry contractors are often small-time operators. Ideally, micro geological studies need to be done to plan the cutting. These studies will clearly flesh out the weak joints and



fracture lines on hill slopes where cutting should be avoided. The government may do broad and general geological studies at the macro level before leasing the blocks. But once contracts are given out, micro studies, say at the square kilometre level, are rarely done by the individual contractors. It is just luck that there are not many more accidents, geologists point out. Blasting design is a science that accurately assesses the size and throw of explosives needed and, therefore, at what distance the explosives should be set off. But explosive size and distance are often just rule of thumb decisions. Such open mines need to be benched — small horizontal plateaus cut along the slope of a hill. This ensures safety and decreases chances of a wholesale quarry collapse, as in Obra. Investigators will need to find out to what extent these basic measures were followed not just at the site but across the region. Ironically enough, some of the best minds and technologies are available at IIT (ISM) Dhanbad. Whether there is political will to leverage them fully in the area is the bigger question.

3 STATES, 25 YEARS: STORY SO FAR, ROAD AHEAD

The month of November holds a special place in the political history of independent India. 2025 marks the 25th anniversary of the formation of Chhattisgarh, Uttarakhand, and Jharkhand—three states that were established in November 2000.

— Jharkhand was carved out of Bihar on November 15, 2000, the birth anniversary of Birsa Munda, the revolutionary Adivasi leader who led the late 19th-century Ulgulan ("The Great Tumult").

— The date of its (Jharkhand) formation is significant: the state was the product of a lengthy struggle to protect Adivasi identity and resources. Twenty-five years later, Jharkhand's foundational promise has only partially been fulfilled.

— The idea of a sovereign Adivasi territory could be traced to Birsa Munda's popular slogan: "Abua dishum, abua raj" (Our land, our rule). Throughout the late-18th and 19th centuries, colonial forces upturned the Adivasi way of life in Chhotanagpur. These disruptions led to periodic rebellions, such as the Hul of 1855-56 and the Ulgulan of 1899, which saw Adivasis take up arms against imperial officers and their non-Adivasi collaborators.

— After decades of struggle against Diku moneylenders and zamindars, the Chota Nagpur Tenancy Act was passed in 1908, restricting the transfer of Adivasi land to non-Adivasis. While significant, this was far from the "Abua raj" that Birsa Munda spoke about.

— In 1912, the province of Bihar was carved out from the erstwhile Bengal Presidency, comprising present-day Bihar, Jharkhand and Odisha. It was this division which gave birth to demands for a separate Jharkhand.

— The earliest articulations for Jharkhand were made by Theodore Surin, who argued that the region's culture and way of life were distinct from that of the rest of Bihar. In 1912, J Bartholomen, a Christian from Chaibasa, took part in the Dacca Student Council. Inspired, he would return to his homeland and establish the 'Catholic Students Organisation'.

— In 1915, this organisation was renamed Chhota Nagpur Unnati Samaj, a title suggested by Bishop Kennedy of the Anglican Mission. The Samaj's primary objective was the socio-economic progress of Adivasis, and the preservation of their cultural identity — a vision that laid the intellectual foundation for the 'idea of Jharkhand'.



— In 1928, the Samaj formally submitted a memorandum to the Simon Commission, demanding the creation of a separate province in the Chhotanagpur region. This demand was rejected.

— The 1930s saw the emergence of a number of Adivasi organisations across Chhotanagpur. In 1930, the Chhotanagpur Kisan Sabha, which advocated for farmers' rights, came up in response to the growing exploitation of ryots by zamindars. In 1933, the Chotanagpur Catholic Sabha and other tribe-specific associations, such as the Ho-Malto Marang Sabha and the Munda Sabha, took shape; each voiced the socio-political concerns of their respective communities.

— Eventually, these organisations united to form the Chotanagpur-Santhal Pargana Adivasi Sabha in 1938, bringing together Ho, Munda, Santhal, and Oraon leaders to one platform. This was a time when the Jharkhand movement transitioned from one calling for social reform to political mobilisation. The creation of Orissa (now Odisha) in 1936, and the lack of Adivasi representation in the Bihar Congress government of 1937 gave impetus to the movement. In 1939, the Sabha became the Adivasi Mahasabha.

— Over time, Munda understood that the demand for a separate state would not be fulfilled without taking into account the electoral realities of Chhotanagpur. Put simply, Adivasis made up just about a third of the region's population; for Jharkhand to become reality, the movement would have to appeal to a lot more people.

— With this in mind, the Adivasi Mahasabha was renamed as the Jharkhand Party on December 31, 1949. On January 1, 1950, Munda announced that this party would now be open to both tribals and non-tribals, emphasising unity across castes and communities for the cause of statehood.

— The Jharkhand Mukti Morcha (JMM) was born in 1972. It was the product of the merger of three organisations: the Shivaji Samaj of Kurmi-Mahato leader Binod Bihari Mahato, the Marxist Coordination Committee of trade unionist A K Roy, and the Sonot Santhal Samaj of Santal leader Shibu Soren.

— As the JMM became more mainstream, more radical organisations emerged to take its place. As political turmoil gripped India in the 1990s, Jharkhand became a political football for national and regional parties. In 1989, the Centre had formed the Jharkhand Subject Committee, which recommended the administrative division of Bihar; the Jharkhand Area Autonomous Council (JAAC) was established in 1995.

— The bifurcation of Bihar was prima facie to Jharkhand's benefit: the new state, having inherited the region's mineral and industrial resources, had a significantly higher per capita income of roughly Rs 10,451 (per annum) compared to Bihar's 6,554.

— While Jharkhand was created based on the promise of protecting Adivasi identity and improving their economic outlook, the state failed to deliver on this promise: poverty, unemployment and poor health and educational infrastructure continue to hold the state back. This is despite Jharkhand boasting close to 40% of India's mineral wealth.

— A sense of alienation fuelled the push for Chhattisgarh in the 1990s. Although a part of undivided Madhya Pradesh, the region was far away from the Bhopal-based administration, both physically and "emotionally".

— Since attaining statehood on November 1, 2000, Chhattisgarh has had a remarkable journey. But challenges remain.



— Chhattisgarh boasts India's third largest coal and iron ore reserves. It produces roughly 20% of the country's steel and aluminium, and 15% of its cement. Roughly 44% of its area is under forest cover. Despite these riches, the state was the most backward part of united Madhya Pradesh.

— The state also is home to a large tribal population: roughly 34% of its citizens belong to one of 42 tribes. "Regions such as Sarguja, Bastar, Raigarh, Bilaspur and Raipur had their own geographical, linguistic and cultural distinctions. Even the tribal communities have their own identities," said Sushil Trivedi, Chhattisgarh's first state election commissioner.

— There are similarities in the stories of Chhattisgarh and Jharkhand. But Chhattisgarh's story is distinct. "Chhattisgarh, a tribal-dominated state, had neither a strong religious and spiritual identity like Uttarakhand nor a highly motivated tribal leadership like Jharkhand," said Sushil Trivedi, 81, a retired IAS officer and Chhattisgarh's first state election commissioner.

— What fuelled Chhattisgarh's statehood demand, instead, was the competitive political landscape of the 1990s.

— The state has come a long way since its creation. Its budget rose from nearly Rs 6,000 crore in 2000-2001 to Rs 1.65 lakh crore in 2025-2026 — a 2,650% increase. In 2000, under its first chief minister Ajit Jogi, the government launched decentralised paddy procurement — a move that helped make Chhattisgarh one of India's top rice producers today.

— Yet, challenges — such as poverty, health, education, and unemployment and a struggle with Maoism— persist.

— Environmental activist Alok Shukla said the state has failed to empower tribals, farmers, and labourers. "Rapid mining and industrialisation have turned the state into a grazing ground for corporations, sharply degrading the environment. Air pollution has worsened in cities such as Korba. Rivers are polluted, groundwater is depleted, temperatures are rising, and man-animal conflicts have increased," he said.

— Uttarakhand marks 25 years of its formation today (November 9). While the demand for a hill state had been sporadically raised even before Independence, the Uttarakhand movement gathered momentum in the 1990s, and the state came into being in 2000, along with Jharkhand (carved out of Bihar) and Chhattisgarh (from Madhya Pradesh).

— Though the earliest demands for special rights for the region date back to 1815 after the East India Company annexed Kumaon, the cause attained prominence in 1938 when Jawaharlal Nehru supported it in the Congress's special session.

— The demand was revived in 1952, when veteran CPI leader PC Joshi proposed a separate hill state. Over the next four decades, three Chief Ministers of Uttar Pradesh came from Uttaranchal (GB Pant, HN Bahuguna, and ND Tiwari), but all three opposed the creation of a separate hill state while they ruled.

— When the region's first political outfit, Uttarakhand Kranti Dal, was formed in July 1979, there flowed a steady and popular support for the formation of a hill state.

— Apart from the aspirations of the hill people, another argument made for a separate state was that Uttar Pradesh was too large to be governed effectively.



— The per capita income of Uttarakhand in 2023-24 was at Rs 2.6 lakh, while that of UP was Rs 93,514. The Gross Domestic Product (constant prices) for the year 2023-24 (2024-25 not available for UP) for Uttarakhand was Rs 2 lakh crore, while UP's GSDP stood at Rs 14 lakh crore (figures as per Niti Aayog).

— In human development indices, Uttarakhand fares (slightly) better than Uttar Pradesh. As per the National Family Health Survey 5 conducted between 2019 and 2021, the sex ratio at birth in rural UP is 943 (females for every 1,000 male children) and 933 in urban UP. In Uttarakhand, the sex ratio at birth in rural areas is 937 and in urban areas is 1,094.

— Uttarakhand's education and health sectors have remained largely underdeveloped. In terms of school education deprivation, though Uttarakhand fared better than UP with 4.65 per cent deprived, this figure has seen an increase from NFHS 4, which pointed at a deprivation of 4.37 per cent. The population deprived of education in UP was at 10.91 per cent.

Do You Know:

— Article 3 of the Indian Constitution empowers Parliament to form new states and alter existing states by a simple majority and without the need for the concurrence of the state concerned.

— Once the government has decided to form a new state and a cabinet decision has been taken, the President is requested to make a reference to the legislature or legislatures of the state(s) involved for their views.

— A bill needs to be drafted with details on geography, financial status, capital, high court, and division of various elements: assets, infrastructure, human resources, river waters between the old and new states. Once the views are sent, the bill is introduced. Once it is passed by both houses of Parliament and gets the President's assent, the new state comes into being.

WHY ACCESS TO KNOWLEDGE IS CRUCIAL FOR INNOVATION

The current Nobel Prize in Economics has been given to three economists — Joel Mokyr, Philippe Aghion, and Peter Howitt — who have studied the role of technological change and creative destruction in economic growth. While the work of the latter two would be more readily recognisable to the modern economist, Mokyr adopts a historical lens to study the relationship between knowledge, ideas and economic growth.

What was Mokyr's model?

Mokyr's model makes a distinction between two kinds of knowledge: propositional and prescriptive. The former is knowledge about scientific phenomena and principles, while the latter concerns knowledge about techniques. Economic growth occurs with an increase in both kinds of knowledge, where societies possess not just scientific or theoretical knowledge, but also the knowledge of techniques to put them into use. What is important to understand is that it is not enough for society to merely possess knowledge; what matters is that a majority of members are able to access this knowledge, and that social norms promote the sharing of knowledge and free exchange of ideas. Technological progress is not merely an economic process, but a social and cultural outcome regulating the spread and sharing of knowledge amongst society.

Mokyr tells us the importance not just of generating new ideas, but of sharing and communicating these ideas. Free markets do not automatically guarantee growth, and state intervention does not



ensure negative growth prospects. Instead, anything that restricts the free flow of information directly hampers innovation and growth. In that respect, one can point to certain social institutions in India that have hampered growth — such as caste — while being aware of the potentially negative effects of job polarisation and automation in restricting the spread of knowledge amongst theorists and practitioners.

Does the caste system stop growth?

The social institution of caste in India has ensured that knowledge was the preserve of an elite minority, with violence being used to restrict access. Following Independence, policy proposals such as reservations have been introduced to rectify this balance. However, access to high quality education still remains out of reach for many, while the slow retreat of the public sector ensures quality education once again remains the preserve of the elite.

Mokyr's work shows us the dangers of not ensuring universal access to quality knowledge. What matters is not just the extent of knowledge accumulated by a society, but whether enough individuals have access to it in order to use it to tinker, experiment, and devise new techniques to introduce economic innovations. The existence of knowledge but with no meaningful access to it is as good as a society that possesses no knowledge at all. The extreme fragmentation of caste implies that not only is education restricted, but rigid conventions that ensure communities do not meaningfully interact further restricts innovations.

In this regard, one can see the importance of breaking down caste barriers, and improving educational access as well as ensuring quality education for all. This is of relevance given the slow retreat of the state in education and the rise in private universities. Much of the population may be unable to access quality education owing to high fees and lack of reservations in private universities.

What about automation?

Current labour markets have been thrown into disarray and profound uncertainty with the introduction of automation driven by AI.

The threat of job displacement is serious, but there is another, deeper question: what happens to the sharing of practical knowledge about capital and techniques when fewer individuals have access to it? Automation brings with it the problem of job polarisation, where much of routine work is performed by machines and/or AI, with humans in either highly skilled tasks or performing service occupations, such as in restaurants. This could potentially reduce the share of workforce who actually have knowledge of modern techniques. The transmission of knowledge about techniques of production requires long periods of familiarising oneself with the methods of operation, through personal contact, training and hands-on experience. Automation can have significant productivity effects, and might even prove to raise growth over time. But what happens to the sharing of knowledge of techniques if much of the labour force does not even have access to these new techniques?

If inaccessible education and restrictive social institutions keep propositional knowledge restricted, and job polarisation and automation ensure prescriptive knowledge is out to reach, economy-wide innovation is bound to suffer. The transformation of knowledge into innovations and growth depends on the cultural and social norms determining the costs of access to knowledge. Democratisation of education, far from being inimical to economic efficiency, is actually an important condition to ensure faster growth.



WHY UNIVERSITIES ARE BOYCOTTING GLOBAL RANKINGS

In September, Sorbonne University, a top research institution in France, became the most recent institution globally to flag concerns about international higher education rankings and announce its withdrawal from the Times Higher Education (THE) World University Rankings.

— Widely publicised and closely watched, global higher education rankings produced by different organisations, analysts or platforms can determine perceptions among prospective students and employers, and drive policy decisions. The ranking tables have, however, drawn flak over the years. Key concerns among institutions, including a few Indian ones, have been that the rankings are not fully transparent in terms of the data they consider, and that a score and rank do not capture the extent and diversity of activities, contributions, and research in higher education.

— There are three prominent global higher education rankings. One, the QS rankings, which are produced by global higher education analysts QS Quacquarelli Symonds, headquartered in London. Two, THE rankings, which provide higher education-related data, services, and news, and is headquartered in London. Three, the Shanghai Ranking or the Academic Ranking of World Universities (first published in 2003), which is produced by the Shanghai-based ShanghaiRanking Consultancy.

— From 2004 to 2009, QS and THE produced their world university rankings together. They now produce separate annual rankings of universities worldwide, in addition to releasing rankings by subject and region.

— The Sorbonne University— ranked 72 in the 2026 QS ranking, 76 in the 2026 THE rankings, and 43 in the 2025 Shanghai Ranking — flagged concerns about indicators that measure reputation and research.

— The university referred to the rankings as “black boxes that operate as closed systems: the data on which they are based is not shared, and the methodology is only partially disclosed. As a result, these rankings cannot be reproduced and questioned by the universities concerned, who are therefore unable to fully appropriate them.”

— The older IITs, including IITs Delhi, Kharagpur, Madras, Kanpur, Bombay and Roorkee, had said in 2020 that they would not participate in the THE rankings on account of concerns over transparency. In the 2020 edition of the rankings, no Indian institution made it to the top 300. The highest-ranked Indian institutions were IISc and IIT Ropar (301-350 rank band).

— Indicating a continued boycott, only five of the 23 IITs featured in the 2026 edition of the rankings released in October – Indore, Ropar, Patna, Gandhinagar, and Mandi. The top-ranked Indian institution is IISc (201-250 rank band).

— Institutions have also raised concerns about the subscription-based tools that rankings use to arrive at a score for research metrics. The ranking systems use data on research publications from databases like Scopus (owned by Elsevier) and Web of Science (owned by Clarivate).

— In the statement announcing its withdrawal from THE rankings, Sorbonne University pointed to the importance of using open research information.



Do You Know:

— In QS rankings, institutions are scored on 10 indicators — academic reputation (highest weightage of 30%), citations per faculty (20%), employer reputation (15%), employment outcomes, faculty-student ratio, international faculty ratio, international research network, international student diversity, international student ratio, and sustainability.

— For the academic and employer reputation indicators, QS collects data through surveys sent to academics and employers. Institutions can submit up to 400 contacts who can be involved in these surveys. The 2026 edition ranked more than 1,500 institutions, and IIT Delhi had the highest rank (123) among Indian institutions.

WHAT ARE THE THREATS FROM GNSS SPOOFING?

The story so far:

In early November, aircraft flying over Delhi encountered GNSS spoofing or manipulated Global Navigation Satellite System signals, catching pilots off guard as there had been no prior warning of such activity. Such interference is rare, barring at India's border regions or conflict zones. The government has since ordered an inquiry under the National Security Adviser Ajit Doval-headed National Security Council Secretariat (NSCS).

Is it a recent occurrence?

Aircraft flying over Delhi reported incidents of GNSS spoofing. These counterfeit signals cause erroneous navigation data in the cockpit, including incorrect aircraft positions and terrain warnings. An Air India pilot told The Hindu that he encountered spoofing on all six days he flew in and out of Delhi in the first week of November. Another pilot said his cockpit systems issued a false terrain warning, suggesting obstacles ahead where none existed. Other pilots encountered similar warnings while taking off from the airport. These events were being reported by aircraft within 60 nautical miles of Delhi. The disruption in navigational equipment often requires manual intervention, with controllers providing direct navigation guidance to cockpit crew. GNSS spoofing, or misleading satellite signals sent to trick air-borne receivers such as enemy drones, is increasingly used in modern warfare and is a growing menace for aircraft systems that rely on GNSS signals. It is a relatively recent phenomenon seen in conflict regions in West Asia, eastern Russia, and India's border with Pakistan and Myanmar since 2023. But such activity had not previously been documented over inland metropolitan airspace, barring sporadic instances of GNSS-jamming (blocking of GNSS signals) during VIP flight movements or Republic Day security protocols. However, this time no notice to airmen (NOTAM) were issued, warning of military exercises in Delhi that could explain why these signals were being encountered.

Since the media reported the occurrences, the Directorate General of Civil Aviation (DGCA) issued a stricter Standard Operating Protocol (SOP) requiring pilots and air traffic controllers to report these events within 10 minutes of occurrence to enable agencies to swiftly recognise the source of false signals. The NSCS, headed by Mr. Doval, has set up a probe committee to investigate the matter. Officials have dismissed suggestions that VIP movements ahead of Bihar elections might have triggered these events, clarifying that security protocols during such operations involve GNSS jamming, not the transmission of false signals.



What is GPS spoofing?

Modern aircraft systems rely heavily on GNSS for accurate position, navigation, and timing. When these signals are tampered with, it can affect many systems, including terrain and runway warning systems, automatic braking, surveillance, and communication links between pilots and air traffic control. GNSS spoofing doesn't immediately hamper the safety of an aircraft, as aircraft systems are built with several redundancies, including the Inertial Reference System that's also used for navigation, which continue to operate safely for up to five hours even if a primary system fails. But such interference, whether intentional or accidental, can threaten safety by reducing pilot awareness, generating false alerts, and increasing their workload. The problem is harder to manage because affected areas are not always mentioned in NOTAMs, leaving crews unprepared.

According to a report by the OPS Group (a community of about 8,000 volunteers, including pilots, flight dispatchers, and air traffic controllers who exchange new information on risks to aviation safety) in 2024, GPS spoofing began to severely impact civil aviation in September 2023. In the first few months, relatively few aircraft were affected, but by January 2024, an average of 300 flights a day were being spoofed. By August 2024, this had grown to around 1,500 flights per day. An analysis by the OPS Group showed that for the one-month period from July 15-August 15, 2024, a total of 41,000 flights experienced spoofing. The report identified the Delhi region among the top 10 regions in the world that encountered large amount of spoofing after locations in Cyprus, Israel, Egypt, Turkey, Russia, Pakistan, Belarus, and Lebanon. According to government data, 465 GPS interference and spoofing incidents were reported in its border regions, primarily in the Amritsar and Jammu areas, between November 2023 and February 2025, which is an average of one event daily.

Primary actors currently carrying out GPS spoofing include military units targeting hostile drones in conflict zones or GPS-guided ammunition and missiles. But there have also been allegations of malicious attempts to target civilian aircraft, particularly against Russia.

What solutions have been proposed?

In September, the International Air Transport Association (IATA) presented a paper at the 42nd Assembly of the UN aviation safety watchdog International Civil Aviation Organisation in which it proposed a multi-faceted approach to respond to what it called "a persistent and growing risk to aviation safety". This includes developing a standardised reporting mechanism, strengthening cross-border cooperation and information-sharing, and enforcing national regulation concerning the sale, possession and use of jamming devices and more stringent national and international spectrum management. Other steps involve deployment of advanced detection systems, encouraging avionics manufacturers to proactively develop and deploy more resilient GNSS receivers with enhanced anti-jamming and anti-spoofing capabilities.

THE THREAT OF DIGITAL TRADECRAFT IN TERRORISM

The story so far:

The unfolding investigation into the recent car explosion near Delhi's Red Fort has exposed a chilling dimension — modern terror modules are no longer merely exploiting ideological or logistical networks, they are also leveraging advanced digital tradecraft to plan and coordinate such attacks. While law enforcement agencies continue to verify all leads, emerging revelations



from the probe reify well-established academic research on how violent actors exploit encrypted platforms, decentralised networks, and spy-style communication to evade surveillance.

What happened?

On November 10, a car exploded near Gate No. 1 of the Red Fort Metro Station. The blast killed at least 15 people, and over 30 others were injured, making it one of the deadliest terror incidents in Delhi in recent memory. Indian authorities moved quickly to treat the incident as a terrorist attack, rather than a mere accident, and handed over the investigation to the National Investigation Agency (NIA) under counter-terrorism laws.

Central to the probe are three doctors allegedly connected to the terror module: Dr. Umar Un Nabi, Dr. Muzammil Ganaie, and Dr. Shaheen Shahid, all linked to the Al Falah University in Faridabad. According to investigators, these individuals were deeply involved in the operational planning of the attack.

What were the major findings?

So far, some of the more alarming aspects uncovered include:

Encrypted communication: The trio is alleged to have communicated via the Swiss messaging app Threema, a platform known for its high privacy design. Threema does not require a phone number or email to register; instead, it assigns users a random user ID unlinked to any personal identifier. Investigators suspect that the three accused may have established their own private Threema server, creating a closed, isolated network through which they shared maps, layouts, documents, and instructions. The server may have been hosted either within India or abroad (investigations are ongoing as to its origin). Threema's architecture is particularly useful to evade detection because it offers end-to-end encryption, no storage of metadata, and allows message deletion from both ends. These features make it extremely difficult for digital forensics teams to reconstruct full communication chains.

Sharing information using 'dead-drop emails': In what is being described as a classic "spy-style" technique, the suspects apparently used a shared email account (accessible to all module members) to communicate via unsent drafts. Instead of sending messages, they would save drafts; another member would log in, read or update them, and delete them — leaving no outgoing or incoming record on conventional mail logs. This method, sometimes referred to as a "dead drop," is particularly insidious because it generates almost no digital footprint.

Reconnaissance and ammunition stockpiling: As per interrogations and forensic data, the accused conducted multiple reconnaissance missions in Delhi before the attack. Investigators allege that ammonium nitrate, a powerful industrial explosive, was stockpiled, possibly via a red EcoSport vehicle that has now been seized. The use of a familiar vehicle, rather than something more suspicious, may have helped the module remain under the radar during logistics buildup.

Operational discipline and external linkages: Sources suggest that Dr. Umar, who was reportedly the driver of the car that caused the blast, "switched off his phones" and cut digital ties after the arrest of his associates, a sophisticated tactic to limit exposure. Moreover, though investigations are ongoing, some sources suggest that the attack has links with the Jaish-e-Mohammed (JeM) or was following a JeM-inspired module. The layered communication architecture — encrypted apps, dead-drop emails — coupled with infrequent but deliberate physical reconnoitres, suggests a cell that counts operational security among its highest priorities.



What about academic scholarship?

The tactics reportedly used in this attack directly align with patterns documented in counter-terrorism scholarship. Researchers have long warned that extremist actors are increasingly using end-to-end encrypted (E2EE) tools to coordinate, share files, and plan in relative anonymity.

Apps like Threema, which minimise or eliminate metadata retention, make it significantly harder for surveillance agencies to reconstruct communication graphs. Moreover, by running a private server, the threat actor effectively bypasses centralised infrastructure and associated law-enforcement touchpoints. The use of unsent email drafts is characteristic of old-school spycraft adapted to the digital age. This method leaves no obvious transmission record, thereby thwarting standard surveillance or legal intercepts.

The blending of encrypted apps, anti-trace techniques (like VPNs), and physical tradecraft (recce, minimal digital footprint) suggests a multi-domain approach to operational security — exactly what academic counter-terrorism analysts have been warning about for years.

What are the implications?

As more terror modules adopt privacy-preserving technologies, traditional surveillance such as phone tapping, metadata collection, and email intercepts have become less effective. This should force law enforcement agencies to rethink investigative architectures.

Threema is reportedly banned in India (under Section 69A of the Information Technology Act, 2000), yet the suspects seem to have continued using it via VPNs and foreign proxies. This suggests that bans alone may not stem the misuse of such apps, especially by sophisticated operators. Investigators need advanced capabilities such as being able to track private servers, reverse engineer encrypted networks, and apply memory forensics to trace such modules. Standard device seizures may not be sufficient without specialised technical expertise.

Moreover, if a link to external handlers (such as the JeM) is proved to be true, this attack may be part of a wider network. The level of planning and security discipline shown suggests not a lone cell, but a well-trained, possibly transnational, group.

What are some policy solutions?

There are multiple policy and strategic solutions to strengthen counter-terrorism capabilities and posture. First, is to build a dedicated digital forensics teams. There is a necessity to establish and expand teams skilled in encrypted-platform analysis, server forensics, and memory dumping to recover ephemeral data. The government should invest in units that specifically monitor misuse of E2EE platforms, anonymising services, and VPN exit nodes for potential terror tradecraft.

Secondly, self-hosted communication infrastructure needs to be regulated. The state needs to craft regulatory frameworks mandating private servers hosting communication platforms to comply with lawful access obligations, while balancing privacy rights. Cooperation with technology providers needs to be encouraged in order to enable lawful interception under strictly controlled, judicially-supervised processes.

Third, legal frameworks need to be enhanced. For example, counter-terrorism laws need to be updated so that it explicitly addresses threats posed by encrypted, decentralised communication. Introduce or refine digital dead-drop detection mechanisms in investigations. Law enforcement should be trained to look for shared accounts, draft-only mailboxes, and similar tradecraft.



Fourth, community and institutional engagement needs to be prioritised. The fact that the suspects were reportedly doctors from a university is deeply concerning; such institutions need support to detect radicalisation early. Counter-radicalisation programs tailored to highly educated recruits may be deployed. Modules operating in professional spaces (doctors, academics) are often less visible, but may wield more technical or ideological sophistication.

And finally, international collaboration needs to be strengthened. Given the possible transnational nature (encrypted apps, private servers, cross-border funding) of the attack, the state should deepen cooperation with foreign intelligence and law enforcement agencies. It should also encourage tech diplomacy, and engage with countries where encrypted-messaging apps like Threema are based to explore lawful but privacy-respecting access to self-hosted infrastructure linked to terror cases. There should also be public awareness about how modern terror cells operate.

What next?

The Red Fort blast investigation illustrates how modern terrorist modules are evolving rapidly. They no longer rely solely on brute force or mass propaganda — they are integrating advanced digital tradecraft with traditional radicalisation and operational planning.

These developments resonate strongly with academic insights into extremist behaviour in the digital age. As violent actors become more technically adept, states too must adapt — not just by strengthening brute-force capacity, but by cultivating sophisticated, multidisciplinary intelligence, cyber-forensics, and legal tools.

For India — and democracies globally — this case is a sobering reminder that the next frontier in counter-terrorism is not just on the physical terrain, but also in encrypted, decentralised, and deeply private digital spaces. If we are to safeguard our cities and societies, we must meet this threat not only on the streets and borders, but also on servers and in code.

INDIA'S FIRST PRIVATE PSLV LAUNCH LIKELY EARLY 2026

The first flight of privately-built PSLV rocket is likely to happen early next year, with at least two more launches planned for next year, according to one of the industry partners developing the rocket.

- For the first launch, the PSLV-N1 will carry on-board earth observation satellite EOS-10.
- Initially, the mission was scheduled for the first quarter of 2025. According to sources, at least one mission with the privately manufactured PSLV would have been possible this year itself, however, it got delayed as the satellite it is to carry was not ready.
- The Indian Space Research Organisation had called for commercialisation of its workhorse launch vehicle PSLV in 2022, making it the first vehicle to undergo the process after the space sector was opened up to private players.
- While the contract awarded to the HAL and L&T consortium calls for manufacturing five launch vehicles for the space agency, there may be a possibility of more in the future.



— "This is different from the SSLV model about which ISRO was very clear upfront about the companies having to produce the launch vehicle, sell the launches from day 1. It was on the company to see the potential demand and cater to it," he said.

— The SSLV technology was transferred to HAL, which is also a part of the PSLV consortium.

Do You Know:

— Satellites don't go into space on their own. They have to be carried there by launch vehicles, or rockets, like the PSLV. The rockets have powerful propulsion systems that generate the huge amount of energy required to lift heavy objects like satellites into space, overcoming the gravitational pull of the earth.

— The Polar Satellite Launch Vehicle (PSLV) is the third generation of Indian satellite launch vehicles. first used in 1994. More than 50 successful PSLV launches have taken place to date. It has also been called "the workhorse of ISRO" for consistently delivering various satellites into low earth orbits (less than 2,000 km in altitude) with a high success rate.

— Geosynchronous Satellite Launch Vehicles (GSLVs) have been instrumental in launching communication satellites in the geosynchronous transfer orbit. According to the European Space Agency (ESA), telecommunications satellites are usually placed in geostationary Earth orbit (GEO). It is a circular orbit 35,786 kilometres above Earth's equator.

— The LVM3, formerly GSLV Mk-3, is ISRO's most powerful rocket. It is capable of carrying up to 8,000 kg to low Earth orbit and 4,000 kg to geosynchronous orbit.

— LVM3 uses a combination of solid, liquid, and cryogenic engines and has already launched key missions like Chandrayaan-2, Chandrayaan-3, and OneWeb satellites. For this mission, the targeted orbit was lower (around 29,970 km at its highest point) to accommodate the heavier satellite.

— ISRO modified the rocket to increase its payload capability by 10 per cent compared to the previous LVM3 launch (LVM3-M4) carrying the Chandrayaan 3. The vehicle has been dubbed 'Bahubali' for its weight capacity. The vehicle's cryogenic upper stage was upgraded from the C25 (carrying 28,000 kg fuel and generating 20 tonnes thrust) to a more powerful C32 stage (carrying 32,000 kg of fuel and producing 22-tonne thrust).

NOW, DESI GENE EDITING TECHNOLOGY TO AID CHEAPER, COMMERCIAL GE CROP BREEDING

In a boost to indigenous efforts at genome-edited (GE) crop breeding, Indian scientists have developed what is claimed to be a "miniature alternative" to the proprietary CRISPR-Cas proteins-based technology to precisely cut and tweak the DNA of plants.

— The new GE technology — for which the Indian Council of Agricultural Research (ICAR) has recently been granted a patent — deploys the so-called TnpB or Transposon-associated proteins.

— These, just like the most widely used CRISPR-associated Cas9 and Cas12a proteins, act as "molecular scissors" to cleave the DNA of a gene at a predetermined target site and change its



sequence. Such editing is aimed at bringing forth desirable alterations in that gene's expression and function.

— The CRISPR-Cas technologies are controlled mainly by the Broad Institute (a partnership between the Massachusetts Institute of Technology and Harvard University) and the US seeds-cum-crop protection chemicals giant Corteva Agriscience.

— While Broad Institute owns the patents for CRISPR-Cas12a, Corteva has a joint licencing agreement with the former to offer access to CRISPR-Cas9 technology for agricultural applications.

— While scientists have developed rice varieties using CRISPR-Cas technology, they face a major hindrance in commercial cultivation since the intellectual property (IP) rights are with global companies/institutions that may demand license fees. Here's where indigenous genome-edited crop breeding tools will help.

— The advantage with the TnpB proteins used by Dr Molla's team is their compactness: They are much smaller, having 400-500 amino acids per molecule, compared with 1,000-1,400 for Cas9 and about 1,300 for Cas12a.

— The bulkiness of Cas9 and Cas12a makes it more challenging to deliver these proteins into the cells where the targeted DNA/genetic material resides. The transfer of Cas proteins is done via agrobacterium tissue culture media.

— GE differs from the more controversial genetic modification or GM, which involves introduction of genes from unrelated species into host plants. These could, for instance, be genes from *Bacillus thuringiensis*, a soil bacterium, that code for the production of proteins toxic to various insect pests in cotton.

— GE entails mere "editing" of genes naturally present in the host plant, leading to mutation or changes in their DNA sequence. No foreign genes or DNA are incorporated here.

— GE has both a "molecular scissors" (whether Cas or TnpB proteins) and a so-called guide RNA that acts as a "navigator". The latter contains a sequence that is complementary to the target DNA. It, then, guides the Cas/TnpB protein to that specific location/address in the plant genome. Once at the precise target site, the scissors make a cut in the DNA to alter or disable the particular gene.

Do You Know:

— In May 2025, the ICAR announced the release of two GE rice varieties bred by its affiliate institutions, the Hyderabad-based Indian Institute of Rice Research (IIRR) and the Indian Agricultural Research Institute (IARI) at New Delhi.

— These have been named 'Kamala' and 'Pusa DST Rice 1'. They have better stress tolerance, improved yields, and climate adaptability without any compromises with their existing strengths.

— DRR DHAN 100 (KAMALA): Developed by the ICAR-Indian Institute of Rice Research (ICAR-IIRR), Hyderabad, this variety promises significantly higher yields, improved drought tolerance, and early maturity compared to its parent variety, Samba Mahsuri (BPT 5204).



— According to the ICAR, DRR Dhan 100 (Kamala) has been developed using genome editing technology targeting the Cytokinin Oxidase 2 (CKX2) gene (also known as Gn1a), to increase grain numbers per panicle.

— PUSA DST RICE 1: This new genome-edited variety has been developed over the widely cultivated fine-grain variety called MTU1010 by ICAR-Indian Agricultural Research Institute (ICAR-IARI), New Delhi.

— Developed through Site Directed Nuclease 1 (SDN1) genome-editing, the new variety, Pusa DST Rice 1, targets the Drought and Salt Tolerance (DST) gene to improve the plant's resilience to harsh soil and climate conditions.

WHERE DOES INDIA STAND IN TACKLING TB?

The story so far:

The World Health Organization (WHO) released its Global Tuberculosis Report 2025 this week which states that TB remains one of the world's deadliest infections, claiming over 12 lakh lives and affecting an estimated 1.07 crore people in 2024.

Which countries have a heavy disease load?

In 2024, 87% of the world's TB patients were concentrated in 30 countries, with the highest rates found in India (25%), Indonesia (10%), the Philippines (6.8%), China (6.5%), Pakistan (6.3%), Nigeria (4.8%), the Democratic Republic of the Congo (3.9%) and Bangladesh (3.6%), the report noted. It added that despite measurable progress in diagnosis, treatment and innovation, persistent challenges in funding and equitable access to care threaten to reverse hard-won gains in the global fight against TB.

What does the report state about India?

India has a large volume of TB cases, but TB incidence has dropped by 21% from 237 per lakh population in 2015 to 187 per lakh population in 2024 — almost double the rate of decline observed globally. The Union Health Ministry noted that as per the WHO report, treatment coverage had increased to 92%, placing India ahead of other high-burden countries.

In 2025, Uttar Pradesh has the highest number of TB cases, followed by Maharashtra, Bihar, and Madhya Pradesh. While these States have the highest burden in terms of case numbers, Delhi has the highest TB infection prevalence rate.

What are the challenges?

In 2020, the government renamed the Revised National Tuberculosis Control Programme (RNTCP) as the National TB Elimination Programme (NTEP) and set for itself the goal to eliminate TB by 2025, five years before the global target of 2030.

India has missed this goal, and the disease continues to impact many, posing serious health, social, and economic challenges. This includes a high burden of drug-resistant TB, weak healthcare infrastructure, especially in rural areas, and socio-economic disparities affecting access to diagnosis and treatment, said a healthcare worker engaged in the TB elimination programme. Other key issues, he added, include supply chain disruptions leading to stockouts (though central authorities have officially refuted claims of a nationwide stockout), a shortage of trained



personnel, and social stigma attached to the disease. An article, ‘Stockout of anti-TB drugs: Are we going to lose the gains achieved in year 2022–2023?’, published last year highlighted several problems plaguing the TB eradication programme. It called out the TB drugs stockout in most States which led to patients being forced to skip doses.

How is India bringing down the numbers?

“The Central Government has aggressively worked towards TB elimination starting with extensive screening of vulnerable individuals and setting up the largest TB laboratory network in the world, comprising 9,391 rapid molecular testing facilities and 107 culture & drug susceptibility testing laboratories,” said a Health Ministry official. He added that community screening efforts have been enhanced by over 500 AI-enabled hand-held chest X-ray units available across the country, with an additional 1,500 machines being delivered to the States/UTs. Through 1.78 lakh Ayushman Arogya Mandirs across the country, the programme has been able to decentralise services and take TB care closer to communities.

The Ministry has also expanded nutritional support provided to TB patients. The Direct Benefit Transfer (DBT) under the Ni-kshay Poshan Yojana (NPY) was increased from ₹500 to ₹1,000 per month per patient for the entire treatment duration. ASHA workers have been trained to identify early warning signs in TB patients in their areas and refer them to better treatment facilities.

What is the global trend?

The report pointed out that between 2023 and 2024, the global rate of people falling ill with TB declined by nearly 2%, while deaths from TB fell by 3%. The WHO added that timely treatment for TB has saved an estimated 8.3 crore lives since 2000. However, it said that global funding for TB has stagnated since 2020.

In 2024, only \$5.9 billion was available for prevention, diagnosis, and treatment, which is just over a quarter of the \$22 billion annual target set for 2027, the report said. Funding for TB research also lags, reaching only \$1.2 billion in 2023 (24% of the target). In terms of tools to fight TB, the report says that as of August 2025, 63 diagnostic tests were in development and 29 drugs were in clinical trials, up from just eight in 2015. Additionally, 18 vaccine candidates are undergoing clinical trials.

GLOBAL TB REPORT 2025

While the burden of tuberculosis in India continues to decline, the country is nowhere close to achieving elimination, according to the Global TB Report 2025, released on Wednesday (November 12). In 2024, India recorded around 27.1 lakh cases and more than three lakh deaths, making it one of the top contributors to the number of TB cases across the world, the analysis said.

— Last year, TB was the deadliest infectious killer globally, as it infected 10.7 million people and killed 1.23 million.

— The findings of the Global TB Report 2025 are crucial, as the Union Health Ministry has not released detailed data for 2024 so far. Usually, the government releases the India TB report in March every year, coinciding with World TB Day. This year, however, the report has not come out.

— India diagnosed the highest ever 26.18 lakh cases in 2024, further closing the gap between the estimated number of cases and the ones actually diagnosed. There were only around one lakh



“mission cases”. This is significant considering that people who miss out on a diagnosis under the programme continue to spread the infection further.

— India was among the eight high-burden countries that were able to diagnose more than 80% of the estimated cases last year. However, with the highest burden of TB cases, India was among the top countries contributing towards the global gap. The country accounted for 8.8% of the global gap, which was behind only Indonesia, which accounted for 10% of the global gap between estimated and diagnosed cases.

— In 2018, Prime Minister Narendra Modi announced India’s ambitious target of eliminating TB by 2025, five years ahead of the global target. Although there has been a consistent decline in the estimated number of TB cases — as well as the rate of TB cases per 100,000 population — India is nowhere close to its target of eliminating the bacterial disease by 2025.

— Note that while elimination is defined as less than one case per million population, the WHO End TB strategy targets an easier 80% decline in new TB cases and 90% decline in TB deaths by 2030 as compared to the baseline year of 2015.

— The Global TB Report 2025 shows that India has achieved only a 21% reduction in new cases and a 28% reduction in deaths between 2015 and 2024. This does not even come close to the End TB milestones for 2025 — a 50% reduction in TB incidence and 75% reduction in TB deaths. In fact, it essentially means that India in 2024 was able to meet only half of the global milestones set for 2020 — reducing TB cases by 20% and deaths by 35% as compared to 2015.

— But this reduction achieved by India is ahead of the global average. TB incidence reduced only by 12% between 2015 and 2024 across the world.

— The Global TB Report shows significant improvement in India’s treatment coverage, which stood at 92% in 2024, increasing from 85% in 2023. “India’s innovative case finding approach, driven by the swift uptake of newer technologies, decentralisation of services and large-scale community mobilisation, has led to the country’s treatment coverage to surge to over 92% in 2024 from 53% in 2015,” the Union Health Ministry said in a statement.

— The expansion of treatment coverage came due to initiatives such as the BPaL regimen, which can cut the treatment time for resistant infections to six months from a previous 18 to 24 months.

— India also continues to be a big contributor towards drug-resistant TB, accounting for nearly a third of the global cases. While the burden of such resistant infections has not reduced, it has not increased significantly either. In 2024, 12.63% of those previously treated for TB and 3.64% of the new cases were drug-resistant in India. This increased from 12.5% and 3.53% the previous year, according to the new report. This translates to around 1.27 lakh people with drug-resistant TB in 2024, up from 1.26 lakh in 2023 and 1.24 lakh in 2024.

— The report also shows that the success rate of TB treatment — for those who initiated their treatment in 2023 — stood at 90%. The Union Health Ministry said that this was ahead of the global success rate of 88%.

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.

SWING, BUT DO NOT MISS

The World Health Organization's Global Tuberculosis Report 2025 was a mixed bag for India. While the tuberculosis (TB) incidence had the highest decline rate, globally, by 21% from 237 per lakh population in 2015 to 187 per lakh population in 2024, India remains among the countries with the highest rates of TB, bearing 25% of the world's burden. This also means that India recorded the maximum number of cases of TB in 2024. Within the country, Uttar Pradesh has the highest number of cases, followed by Maharashtra, Bihar and Madhya Pradesh. Delhi has the highest TB infection prevalence rate, though its actual case numbers are not that high. As far as multidrug-resistant TB (MDR-TB) is concerned, the scenario seems quite challenging. India, as per the report, also recorded the highest number of drug-resistant TB cases in 2024 — accounting for 32% of global MDR-TB- and rifampicin-resistant (RR-TB) cases. With a treatment success rate for new and treated cases hovering at 90%, and at 77% for MDR-/RR-TB cases started on second line treatment, the saga of the mixed bag continues. India's TB mortality rate dropped from 28 deaths per one lakh population in 2015 to 21 deaths per one lakh population in 2024. Despite this improvement, the figure is still over three times higher than the government's elimination target.

India has missed the target it set for itself, having advanced for itself the aim to eliminate TB — by 2025, five years before the global target of 2030. While incremental gains have not shored up to a dramatic result, this indeed has meant several million lives saved over the years. In this then, there is hope for a successful TB control programme in a country that has been battling TB for decades. Among the factors that have contributed to the gains include: harnessing advanced technologies, including AI and newer tools for molecular diagnosis and rapid detection of infection and resistance, facilitating better nutrition to prevent TB in susceptible populations, a scheme tailored to address drug-resistant forms of TB and the introduction of newer therapies (including BPaLM). The National TB Elimination Programme has set itself on a progressive path for the future, but unless crucial issues such as gaps in diagnosis (particularly in rural areas), taking care of stark socio-economic disparities and the high MDR-/RR-TB case burden, frequent drug shortages and looming malnutrition, are addressed with vigour, Indian efforts will continue to stay in the realm of swing and miss.

OVERCOMING RESISTANCE

The introduction of the second iteration of the National Action Plan on Antimicrobial Resistance is an acknowledgement that, but for some marginal gains, implementation of version 1 was, at best, sluggish. In a welcome move, the Centre has released a further version of the policy, though the details are not yet available in the public realm, to give the nation a booster shot at trying to fix the rather humongous AMR problem that the country has had to contend with, increasing volumes to boot. In October, WHO released its Global antibiotic resistance surveillance report, which recorded that in 2023, approximately one in three bacterial infections in India were resistant to commonly-used antibiotics. Globally, it was one in six confirmed infections. It spelt out why India was disproportionately affected — factors included a high infectious disease burden, overuse and misuse of antibiotics and gaps in the surveillance and healthcare infrastructure. E.coli and Klebsiella pneumoniae have exhibited high resistance to critical antibiotics, making the very last line of drugs ineffective. But human health is not the sole footprint



AMR possesses; there is scarcely a field in the food chain where its cold arms have not touched — from veterinary practices to contaminating soil and water health and, thereby, agriculture and aquaculture. This ubiquitous spread of AMR has spurred scientists to push the One Health technique — it integrates the prisms of human health, animal health and environmental health — to handle growing resistance in communities.

The time is, no doubt, ripe for India to take AMR seriously and push for an enhanced, committed antibiotics stewardship programme. While the first National Action Plan played a key role in raising the profile of AMR, the actual implementation suffered. It is true that the country expanded its national surveillance programme by adding a solid laboratory network (thanks, in part, to the COVID-19 pandemic), it also scored a win with the ban on Colistin as a growth factor in the animal husbandry sector. However, the programme flailed as it failed to secure potent collaborations with States. A few States drew up their own policies, but only Kerala implemented it well enough to see a slight drop in AMR levels in the community, recently. This policy will have to tackle every aspect of AMR's causative factors, including the rampant overuse and misuse of antibiotics. The One Health approach will have to be strengthened, and better co-ordination with States ensured. This time around, the policy will have to be the real deal and deliver, against resistance.

A SNAKEBITE THAT SPARKED A CHANGE

On October 10, following in the footsteps of Karnataka and Tamil Nadu, Kerala declared snakebite envenomation a disease of public health importance under the Kerala Public Health Act, 2023. This notification is in accordance with the Centre's directive to implement the 2024 National Action Plan for Snakebite Envenoming, an initiative to halve snakebite-related deaths in India by 2030. Of the nearly 78,600 snakebite deaths annually reported worldwide, over 64,000 deaths occur in India, according to a study published in the peer-reviewed journal, Nature Communications, in 2022.

Dr. Ajan M.J., Assistant Director, Health and Family Welfare Department, who is the State nodal officer for snakebite envenomation management, says the notification will enable more accurate tracking of snakebite cases, including their frequency, severity, and geographic spread. "This, in turn, will provide clearer epidemiological insights by revealing trends, hotspots, and vulnerable populations. More importantly, it will help us ensure adequate stock of ASV (anti-snake venom) in high-incidence regions and in boosting hospital readiness," he says.

This moment did not appear out of nowhere. It was shaped, painfully and irrevocably, by a sequence of events that forced the State to confront the cost of human-wildlife conflict.

The success of SARPA

Kerala, with its dense tropical forests, extensive wetlands, and high population density, has for years grappled with the deadly threat of snakebites. The region is home to more than 130 snake species, of which around 10 are venomous, according to the Forest Department.

Snake envenoming, often occurring in agricultural fields, forested areas, and urban spaces, has always presented a major health challenge. Data from the State Health Department show that nearly 5,000 cases of snakebites are reported annually in the State. Yet, the actual figures could be far higher, with many snakebite incidents going unreported, particularly in rural areas. Besides the human toll, over the past decade, nearly 70% of the wildlife-related deaths reported in Kerala have been due to snakebites, according to the department.



The senior forest official adds that the initiative is the first of its kind in India. With traditional rescue methods deemed unscientific and risky, snake rescuers and department officials are now trained in the scientific 'bag and pipe' method using safety gear. This is a technique that involves the use of a pipe inserted into a sturdy cloth bag to guide a snake to safety without direct physical contact. So far, nearly 6,200 people have received training under the programme. These include people from a cross-sections of society, including doctors, professors, advocates, IT professionals, casual labourers, and researchers.

Anwar, who is also the State nodal officer of SARPA, says the initiative has been successful. "Within five years, snakebite-related deaths have reduced from 123 in 2018-19 to 34 in 2024-25," he says. There have been 14 deaths so far during the ongoing fiscal, with the latest being reported on November 21, when an infant was bitten by a cobra in Malappuram. "Nearly 58,000 snakes have been safely rescued and released back into their natural habitats," he adds.

Pramod G. Krishnan, Chief Wildlife Warden, says the recent declaration of snakebite envenomation as a notifiable disease will be a "shot in the arm" for Kerala's goal of zero snakebite deaths by 2030. The Forest Department is now all set to launch the second phase of SARPA with expanded resources and training.

Environmental and lifestyle shifts have also contributed to fewer human-snake encounters. "The elimination of open defecation, near-universal LPG coverage and reduced dependence on firewood, and mechanised farming practices have all helped," says Dr. Jaideep C. Menon, Professor, Adult Cardiology and Public Health, Amrita Institute of Medical Sciences, Kochi.

Besides, the Local Self Government Department, the General Education Department, and other departments have adopted many precautionary measures. "Safety audits are being regularly conducted in schools before each academic year to identify and rectify potential hazards," Anwar says.

The State has also prioritised supplying safety equipment, including gumboots and gloves, to Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) workers, given the risks of snake encounters in rural regions.

Wayanad-based physician Dr. Rajesh Kumar M.P., who also serves as a SARPA educator, says efforts are being made to spread awareness about snakes and venomous species, particularly among the youth. SARPA Padam, an educational programme, is being rolled out across educational institutions. Awareness sessions are also conducted for groups such as Kudumbasree.

The hurdles that remain

Despite achieving significant progress in handling snakes and preventing snakebite-related fatalities, Kerala still faces challenges, however.

Nationally, snakebite mitigation largely centres around the Big Four snake species — the Indian cobra, the common krait, the Russell's viper, and the saw-scaled viper. However, in Kerala, the hump-nosed pit viper is increasingly responsible for snakebite cases. The viper is an endemic species to the Western Ghats.

Dr. Menon attributes the rise in hump-nosed pit viper bites to the shift in agricultural patterns from paddy cultivation to plantation-based cash crops, such as rubber and cardamom. The venomous species is known to prefer cool, moist environments, such as dense forests and plantations. It is mostly found in leaf litter and thick bushes.



The polyvalent ASV that is produced in India utilises venom from the Big Four. However, studies have shown that it is ineffective in neutralising the venom of the hump-nosed pit viper.

Dr. Menon, who also heads the ICMR-Collaborative Centre of Excellence in Snakebite, stresses the need to establish regional venom collecting centres. “This is necessary to improve antivenom production by developing both region-specific and species-specific antivenoms,” he says.

At present, like most other States, Kerala relies on the ASV produced from the venom extracted by the Irula Snake Catchers’ Industrial Cooperative Society in Chengalpattu, Tamil Nadu. The Irula are an indigenous community known for their traditional skills in snake and rat catching. In July 2025, while inaugurating the World Snake Day observance in Thiruvananthapuram, Forest Minister A.K. Saseendran announced plans to locally produce ASV to address the perceived ineffectiveness of current antivenoms due to geographical variation in venom potency.

Sustaining SARPA’s momentum is another challenge, according to a senior forest official. Of the 3,300 trained and licensed snake rescuers, fewer than 1,000 remain active. “While many snake enthusiasts have undergone training in snake rescue, they are rarely available on short notice, given their daily jobs,” the official says.

A rapid response team (RRT) member in Pathanamthitta points out that snake-related emergencies in the region are primarily handled by Forest Department personnel, largely due to the lack of licensed snake handlers in the area. While RRT teams have been effective in managing a range of emergencies, their resources are increasingly being stretched, particularly as forest fringe areas report a rise in conflicts involving other wild animals such as elephants and wild boars. To address the issue, the department is mulling steps to ensure at least one active licensed snake handler in each local body.

Persisting medical challenges too remain a significant barrier to effective snakebite management. “There is clinical hesitancy in administering ASV, primarily due to fear of anaphylaxis (a severe, life-threatening allergic reaction). This is often linked to inadequate training and insufficient infrastructure to manage complications,” says a health officer.

Timely and effective pre-hospital care too is vital in reducing snakebite-related mortality. While emergency services exist, most snakebite victims still rely on private transport. Experts have called for strengthening ambulance services to include snakebite management protocols, and for implementing a hub-and-spoke model, where community health centres and taluk hospitals support a network of primary health centres.

Herpetologist Sandeep Das says Kerala’s focus on snakebite mitigation in recent times has had a cascading effect on conservation efforts. “Snakes play a vital role in maintaining a healthy ecosystem by controlling rodent population. This in turn helps reduce the spread of zoonotic diseases,” he says.

As the State pushes towards its goal of zero snakebites, the systemic overhaul sparked by a child’s death continues to serve as both a cautionary tale and a catalyst for change.

EXPERTS RED-FLAG ULTRA-PROCESSED FOOD RETAIL SURGE

Ever-increasing consumption of ultra-processed foods is taking a toll on the health of Indians, leading to a surge in medical conditions such as obesity, type 2 diabetes, high blood pressure, depressive symptoms, and issues linked to the heart, kidneys, and gastrointestinal system.



— According to the latest Lancet series, retail sales of ultraprocessed foods in India surged from \$0.9 billion in 2006 to nearly \$38 billion in 2019, a 40-fold increase. During the same period, obesity cases doubled in India, it says.

— In India, obesity affects one in four people (28.6 per cent), diabetes affects one in 10 (11.4 per cent), prediabetes affects one in seven people (15.3 per cent), and abdominal obesity affects one in three (39.5 per cent), according to ICMR-India data of 2023. Childhood obesity is rising at an alarming rate (from 2.1 to 3.4 per cent between 2016 and 2019-21), according to the National Family Health Survey data.

— In its latest three-paper series authored by 43 global experts, the Lancet study shows how ultra-processed foods are rapidly overtaking the diet pie, a challenge that needs to be tackled with uniform food policies globally.

— “This worrisome shift is fuelling obesity and other non-communicable diseases. India is witnessing the same shift that the Lancet series warns about,” says Dr Arun Gupta, co-author of the study, and also the convenor, Nutrition Advocacy for Public Interest (NAPI) and former member of PM’s Council on India’s Nutrition Challenges.

— Experts have suggested a nutrition information panel and traffic light labelling, a panel that not only shows the amount of fats, salt, sugar and other nutrients present in a serving of the packaged food but also colours it red, orange or green based on how healthy it is. They have also proposed a star rating based on how healthy the product is at first glance.

Do You Know:

— Ultra-processed foods are those which go through multiple industrial processes, use manufactured ingredients, preservatives and additives rather than whole foods, and are designed to be convenient with a long shelf life. Examples are soft drinks, chips, chocolate, candy, ice-cream, sweetened breakfast cereals, packaged soups, chicken nuggets, hotdogs, fries, ready-to-heat foods and more.

— Ultra-processed foods are associated with an increased risk of 12 health conditions, including obesity, Type 2 diabetes, high blood pressure, depressive symptoms, heart, kidney, and gastrointestinal diseases, as well as premature death from all causes.

IN DELHI STUDY, RAGAS IN THE OPERATION THEATRE CUT ANAESTHESIA USE

At first glance, the photograph looks like a scene from a science-fiction film or one of those viral, digitally altered images. A woman lies calm on an operating table under bright white lights, a headset snug over her ears. But it’s real and was taken inside a hospital in New Delhi more than a year ago.

It’s a snapshot of an unusual clinical trial by a group of anaesthesiologists from Lok Nayak Hospital and Maulana Azad Medical College. They wanted to investigate if music flowing through headsets during a minor surgery could soften the blow of strong medicines.

“All our surgeries are in completely new environments for patients and we give them general anaesthesia to produce unconsciousness,” Sonia Wadhavan, director professor of Anaesthesia and Intensive Care at Maulana Azad Medical College, said. “But since all these groups of drugs come



with some amount of side effects, we asked: if we integrate music therapy with our anaesthetic agents, can it help us reduce the requirement of these drugs?"

Dr. Wadhavan and her team designed a randomised controlled trial, which is a kind of experiment where people are split into groups by chance, like drawing names from a hat, to see if something truly works. One group listened to slow, soothing ragas for the entire surgery; the other did not. The results were telling: people who heard the music needed 15% less anaesthetic. Their heart rates stayed steady, their blood pressure held firm, and stress hormone levels fell. The study suggested that music helps patients heal with less strain and less medicine.

The music the researchers chose wasn't random. It featured two Hindustani ragas: the bright, uplifting tones of Raga Yaman and the calm, soothing notes of Raga Kirvani. They chose these ragas because they believed the tones could gently steer the body's "fight or flight" system, which raises heart rate and blood pressure under stress, towards a calmer and steadier state.

Even under anaesthesia, the brain doesn't shut down. The auditory cortex still registers sound, catching rhythm and tone. As surgery begins — with its pokes, pricks, and cuts — the body's stress systems stir. The levels of cortisol and other hormones rise, pushing up blood pressure and blood sugar to cope with the strain. The person feels nothing but the body still braces. Music seems to mellow this response, releasing endorphins and oxytocin to steady the heart, ease stress, and support healing.

"It's non-pharmacological, low-cost, and safe," said Farah Husain, co-investigator and a certified music therapist. "All it needs is a Bluetooth device and a pair of headphones. There's no side-effect, only potential benefits."

'Complementary approaches'

Alex Street is a senior research fellow at the Cambridge Institute for Music Therapy Research in the UK. He studies how music stirs the brain, the nervous system, and emotions, and how it can be used in real therapy.

For instance, fentanyl is a synthetic opioid often used to control severe pain during surgery. But just 2 mg of fentanyl can kill an adult human. It has become the leading cause of death for Americans aged 18 to 45, surpassing car accidents and gun violence. This is part of the opioid crisis, driven by the overuse of powerful painkillers. The epidemic shows why gentler ways to ease pain and stress are needed now more than ever.

In the Lok Nayak Hospital study, patients who listened to soothing music needed less fentanyl during surgery, signalling that non-drug approaches could reduce reliance on powerful painkillers.

Dr. Street added a practical reminder: that patients still need to hear the surgical team, even when the music plays.

"You can't just block everything out with noise-cancelling headphones," he said. "The patient needs to be able to hear what people are saying."

The Delhi team now hopes to test their music experiment with more surgeries and larger groups. In a country where hospitals overflow and resources are stretched thin, every drop of drug and every minute saved can ease costs, speed recovery, and free beds.



That image of a patient on an operating table with headsets on may soon feel less like science fiction and more like standard care.

WHAT CHANGES ARE PLANNED FOR THE PLANT VARIETY ACT?

The story so far:

Union Agriculture Minister Shivraj Singh Chouhan said that the Centre will amend the Protection of Plant Variety and Farmers' Rights Act (PPV&FRA Act), incorporating suggestions from stakeholders.

Have consultations started?

A committee headed by eminent agriculture scientist R.S. Paroda, appointed by the Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA), has started stakeholder consultations on the amendments. PPVFRA Chairman Trilochan Mohapatra told The Hindu that the committee will examine in detail the premises for amending the law and hold wide consultations with all stakeholders about the amendments. The committee will review various provisions of the Act in light of inherent deficiencies, present day challenges, and to further bolster farmers' interests. Prof. Mohapatra said the present Act has completed two decades, and in that time the sector has witnessed various technological and scientific advancements as well as changes in trade aspects and farmers' requirements.

What are major topics of discussion?

Though officials maintain that consultations are at the preliminary stage, discussions with farmers include amendments to the definition of 'variety needs' that could be modified to include 'combination of genotypes' so that it could be at par with the draft Seeds Bill of 2019. It was also proposed to include seedlings, tubers, bulbs, rhizomes, roots, tissue culture plantlets, synthetic seeds and other vegetatively propagated material in the definition of seed. There is a proposal to define the term "institution" occurring in the definition of 'breeder' to include both public and private establishments in the seeds sector. The committee also has questions for stakeholders on the Distinctness, Uniformity and Stability (DUS) test. Stakeholders are being told about the importance of trait and the necessity to include it in DUS guidelines. Further, there are discussions to define "abusive act" so that acts such as producing, selling, marketing, exporting and importing a variety which has the same or an identical denomination of another variety can be made punishable.

What are the concerns?

The Samyukt Kisan Morcha (non-political) founding leader K.V. Biju, who attended the meeting, said the Act should have provisions to register all community-developed seeds. He said that seeds which went through DUS tests should not be allowed to register under a farmers' or an individual's name. "This is to prevent the misuse of the ownership of the seeds in future by private companies and to avoid monopolisation of seeds. The government should make it a priority that seeds developed by the farmers should remain under community control," he said. Mr. Biju added that there are suspicions of the misuse of the DUS test. He said farmers' groups suspect that in the case of njavara, a paddy seed from South India, proper DUS testing was not followed before registration. Policy analyst Shalini Bhutani said small peasantry is still largely outside of the system and many of them are not aware of techno-legal issues. She said that as per their biocultural practices, they have been approaching seeds as a shared material. "This does not fit



into the Intellectual Property Rights framework of granting exclusive economic rights over seeds," she said adding that many countries are operationalising open-source ideas to keep their local plant varieties outside of the IPR system. She said there have been attempts to arm twist developing nations so that domestic laws are compliant with the International Union for the Protection of New Varieties of Plants. On another matter of seed quality, "despite provisions for accountability for non-performance of IP-protected propagating materials in the original Act, the criteria for compensating farmers are not yet detailed out in its Rules," she said.

INDIA'S CLIMATE ACTION PLAN FOR 2035 TO BE OUT BY YEAR-END: ENVIRONMENT MINISTER

Ending the suspense over India's next set of climate action plan, called Nationally Determined Contributions or NDCs in climate jargon, Environment Minister Bhupender Yadav said the country's NDCs for the year 2035 will be finalised and released before the year-end deadline.

— Yadav was making a national statement at the ongoing COP30 climate conference here. He said India had already achieved the targets it had set in its previous NDCs well ahead of schedule, setting an example for developed countries to follow.

— Yadav said along with its 2035 NDCs, India would also release its first Biennial Transparency Report (BTR), as mandated under the Paris Agreement. BTRs are part of reporting mechanism instituted under the Paris Agreement, though which countries are supposed to periodically provide information about their greenhouse gas emissions inventory...

— NDCs, on the other hand, are climate action plans that outline efforts to reduce greenhouse gas emissions and adapt to climate change impacts. Countries are required to update them every five years with progressively higher targets. India's last NDC, for the period 2030, was announced in 2022 and the latest NDC is to be announced for the year 2035.

— "We shall be declaring our revised NDCs for 2035 and also the first Biennial Transparency Report (BTR), in line with the objectives of the Paris Agreement, by the end of the year," Yadav said.

— There was a lot of expectation that India, the world's third largest emitter of greenhouse gases, would release its 2035 NDC at the COP30 event, but Yadav said there was still some time, and India would announce the plan after getting the clearance of the Union Cabinet.

— The minister also stated that climate and energy sustainability initiatives adopted by India such as the International Solar Alliance and Global Biofuel Alliance have become global platforms for affordable and clean energy.

— He said that India's newly launched nuclear mission and green hydrogen mission have also accelerated India's journey towards reaching its net zero target by 2070. Net zero is a situation in which a country's total emissions are balanced by carbon absorption or removals from the atmosphere. India has said it will achieve this status by 2070.

— "India's non-fossil fuel-based energy capacity, currently around 256 Giga Watt (GW), accounts for more than half of its total electric store capacity (500 GW).

— Our NDC target (for 2030 has been) achieved five years ahead of schedule. India has demonstrated successfully that development and environmental stewardship can advance in



tandem. India's emission intensity has declined by over 36 per cent since 2005," Yadav said in his speech.

Do You Know:

— The analysis by Centre for Research on Energy and Clean Air (CREA) for Carbon Brief, a UK-based climate-focussed publication, shows that the CO₂ emissions from India's electricity sector between January and June this year dropped 1 per cent compared to the first half of 2024.

— This is significant because the electricity sector is the largest contributor to India's greenhouse gas emissions, accounting for almost 40 per cent of the country's annual emissions. India's emissions, the third largest in the world, have been rising steadily over the years, in sync with its expanding economy, and this is the first time that a drop has been witnessed even at the sectoral level.

— India is targeting 500 GW of installed non-fossil electricity capacity by 2030, of which 252 GW has already been achieved. Projects already in the pipeline, if executed before 2030, were enough to take the installed capacity to 482 GW, the analysis said.

IS AIR POLLUTION A SOUTH ASIAN CRISIS?

The story so far:

Delhi is in the spotlight once again for its consistently deteriorating AQI levels. And like every year there has only been a knee-jerk reaction to the problem, rather than a sustainable solution. The Commission for Air Quality Management has gradually switched from stage 1 and 2 to stage 3 of the Graded Response Action Plan, and advisories have been issued for citizens who battle serious health risks. However, there is a dire need to understand the collusion of natural and man-made reasons for air pollution, for Delhi's air pollution crisis goes beyond India's sovereign borders.

What is happening in South Asia?

In November 2024, eastern and northern Pakistan and north India faced a severe pollution event that came to be known as the '2024 India-Pakistan Smog'. Lahore and Delhi virtually competed on the scale of the most polluted city with the highest AQI reading globally. 'Brown clouds' formed in swathes over the cities distinctly visible in satellite images. While Lahore was faced with the worst AQI, Delhi's air gradually deteriorated due to a shift in wind patterns that carried pollutants across borders and within the region. Now in 2025, Delhi is once again followed by Lahore. The Dawn from Karachi reported that local pollution and smoke drifted in from India due to low-speed winds.

Bangladesh also has a significant share in the air pollution crisis. Dhaka is witnessing worsening AQI in the range from moderate to very poor during the winter season, as reported by the U.S. thinktank Atlantic Council. Likewise in the capital of Nepal, AQI remains alarmingly high every year, between moderate and unhealthy.

What are the reasons?

The Greenpeace 2023 World Air Quality Report underlined that poor air quality in South Asia is due to anthropogenic sources such as industrial and vehicular emissions, and burning of solid fuel and wastages. The shared air pollution across the Indo-Gangetic Plain and beyond, with tier-1 cities facing the consequences, can be accounted by for factors such as the fixed topography of the



region. Although separated by cartography, the regional topography of South Asia causes fixed ventilation of natural air and dispersal of pollutants. A trans-national and regional haze surfaces due to the complex composition of air particulates. Alongside the natural geography, there is a transnational and regional commonality — the failure in managing such crises due to abysmal political will.

The World Bank report on 'Air Pollution and Public Health in South Asia' in 2023 informed that nine out of the world's 10 cities with the worst air pollution are in South Asia. Sri Lanka, Maldives and Bhutan are known to be relatively less affected by transregional air pollution in the region of South Asia. This interplay of factors shows that mitigation requires attention to not only short-term solutions but also long-term strategies that focus on strong decarbonisation measures and structural reforms in agricultural practices and industry emissions across national borders.

Is this a crisis of development?

Air pollution is related to larger issues of development and its adverse consequences for the environment. A World Bank study estimates that high AQI levels in India results in about 3% of its GDP being spent on healthcare and lost labour capital. The Lancet Health Journal highlighted that in 2019 India's GDP reduced by 1.36% due to premature morbidity and mortality as a result of air pollution. A steep rise in the sale of automobile vehicles, lack of public transport, negligible support for non-vehicular mobility, and building concrete structures at the expense of urban greenery are some of the reasons which lead to deteriorating air quality. A 2023 UNEP report shows how current patterns of consumption and production are driving climate change, which in turn drives the air pollution crisis. Thus, the World Health Organization (WHO) accurately recognises that air quality significantly affects life expectancy, public health, economic productivity, and environmental justice. These sordid AQI figures are the result of poorly thought-out development. The consequences are visible not only in north India. Experts warn of worsening air in Mumbai and other cities on the southeast coast.

What next?

A more nuanced model of governance with strong political will to curb the sources of the crisis; a caring human development model addressing the needs of the working class and farmers; and a more regionally informed model are some of the imperatives needed to find sustainable solutions.

A recent study by IIT Bhubaneshwar highlighted the importance of a broader regional airshed scale management strategy to tackle air pollution, rather than merely addressing the issue in piecemeal.

Only with stronger policies that involve varied stakeholders from across borders and states, can one evolve a meteorological mindset to uproot the sources of air pollution.

HUMAN ACTIVITIES AND POLLUTION: WHAT THREATENS INDIA'S SEA COWS

A new report launched at the International Union for Conservation of Nature (IUCN) Conservation Congress, in Abu Dhabi, United Arab Emirates, last month, highlighted the growing threat to the dugong population in India.

— In the South Asian region, dugongs, also known as sea cows, are primarily found in the Gulf of Kutch, the Gulf of Mannar–Palk Bay region (located between India and Sri Lanka), and the Andaman and Nicobar Islands.



— The report, 'A global assessment of dugong status and conservation needs', said that the marine mammal's long-term survival in the Gulf of Kutch and the Andaman and Nicobar Islands was "highly uncertain" and "challenging" respectively. Meanwhile, in the Gulf of Mannar-Palk Bay, its population appears to be "much lower" than in the recent past.

— Currently, the IUCN, which compiles the official Red List of endangered species, lists sea cows as a species vulnerable to extinction. In India, they are listed under Schedule I of the Wild Life (Protection) Act, 1972, which grants the species the highest legal protection against hunting and trade.

— Dugongs (*Dugong dugon*) are a marine mammal, which are believed to have inspired ancient seafaring tales of mermaids due to their gentle — seemingly benign — disposition.

— The mammals are exclusively herbivorous, and seagrass meadows are their main source of food — the reason why they are also called sea cows.

— Dugongs play a crucial role in maintaining healthy seagrass ecosystems. For instance, when they graze seagrass, the leaves are pruned and old shoots are uprooted.

— Also, while feeding on seagrass, dugongs help release nutrients from the sediment, which are consumed by other marine species, especially commercially important fish, shellfish, and numerous invertebrates such as sea cucumbers.

— Human activities and degradation of coastal habitats are the primary drivers of decline in the dugong population currently. For instance, a majority of sea cows die due to accidental entanglement in fish nets.

— Sivakumar said, "High turbidity, pollution and fishing are the threats to dugongs in the Gulf of Kutch. Fisheries bycatch and pollution are the major threats in Tamil Nadu. In the Andamans, fisheries-related mortality is higher."

— A recent study, 'Toxic traces: First insights into metals and metalloids in dugongs (*Dugong dugon*) from India', published in the journal *Marine Pollution Bulletin*, found five toxic elements — arsenic, cadmium, chromium, mercury, and lead — in tissues of various organs from 46 stranded dugongs in India.

— Over the years, the Centre and state governments have taken several steps to help conserve the dugong population in the country. For instance, the MoEFCC in 2010 constituted a 'Task Force for Conservation of Dugongs' to examine the issues related to the conservation of sea cows.

— Subsequently, a national dugong recovery programme was launched in partnership with the governments of Tamil Nadu, Gujarat and the Andaman and Nicobar Islands.

About Dugongs

* In the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), it is listed in Appendix I which prohibits the trade of the species and its parts.

* They are found in over 30 countries. In the South Asian region, dugongs are primarily found in the Gulf of Kutch, the Gulf of Mannar-Palk Bay region (located between India and Sri Lanka), and the Andaman and Nicobar Islands.



Do You Know:

- Recently, the IUCN World Conservation Congress 2025 has adopted a motion to recognise India's first dugong conservation reserve in Tamil Nadu's Palk Bay as a global model for marine biodiversity conservation.
- The IUCN World Conservation Congress took place in Abu Dhabi, United Arab Emirates, from 9 to 15 October 2025.
- It is organised every four years, which enables IUCN's more than 1,400 Member organisations to democratically determine the most pressing issues in nature conservation and actions to address them to help guide humanity's relationship with our planet.
- The IUCN is a global organization comprising 160 member countries and hundreds of civil society groups that work together towards environmental and biodiversity protection.

RARE DOLPHIN-FISHER KINSHIP IN ASHTAMUDI LAKE TO BE STUDIED

Standing waist-deep in the turbid waters of Ashtamudi lake in Kerala, the artisanal fishers may appear to be solitary figures, patiently attuned only to the tide's rhythm. But in reality they are waiting for some cue from their allies who are beneath the water. In a classic instance of inter-species collaboration, Indo-Pacific humpback dolphins (*Sousa plumbea*) drive dense schools of fish to the shallow, shoreline waters and signal the fishers with a dramatic tail-slap or roll. Nets are cast instantly and the catch is mostly great, while the dolphins seize the scatter.

This rare strategic cooperation will now be studied as part of an international collaborative research project launched by the University of Kerala and the study will continue up to 2028. The team includes researchers Mauricio Cantor (Oregon State University, U.S.A.), Fabio Jorge Daura Jorge (Universidade Federal de Santa Catarina, Brazil), Damien Roger Farine (Australian National University, Australia), A. Biju Kumar (University of Kerala) and Dipani Sutaria (Dakshin Foundation, Bengaluru).

The Ecology and Evolution of Cultural and Cooperative Behaviour among Dolphins and Humans, a study supported by the National Geographic Society and coordinated globally by the Oregon State University aims to unravel the mechanisms driving the cooperation between the wild dolphins and traditional fishers in Ashtamudi lake.

"This study examines one of the world's scant remaining examples of human-wildlife cooperation, analysing the behavioural coordination utilised by both species to secure reciprocal advantages," says Prof. Biju Kumar, principal investigator, India, who along with Smrithy Raj of Kerala University, first documented the interaction at Ashtamudi.

The research will be conducted by utilising detailed photo and video documentation. Crucially, No animals will be harmed in the process.

REMEMBERING BATUKESHWAR DUTT, THE FORGOTTEN COMRADE OF BHAGAT SINGH

On April 8, 1929, the Hindustan Times in Delhi rushed out a special evening edition, while The Statesman in Calcutta cabled its story to London to evade colonial censorship. That afternoon, two young men had thrown harmless bombs into the Central Assembly Hall, now Parliament, raising slogans of Inquilab Zindabad (Long Live the Revolution) and Samrajyavad ka Nash Ho (Down with



Imperialism). They scattered red pamphlets titled 'To Make the Deaf Hear'. Reporters caught the words, and newspapers across India and abroad carried dramatic headlines. One international paper proclaimed: "Reds Storm the Assembly!"

The two young men were Bhagat Singh and Batukeshwar Dutt. Both were arrested, tried, and convicted. While Bhagat Singh went on to become one of the most iconic figures of the Indian freedom struggle, his comrade Dutt gradually faded from public memory, remembered only occasionally, and rarely honoured with the dignity he deserved.

A revolutionary's journey

Batukeshwar Dutt was born on November 18, 1910, in the Burdwan district of Bengal. Convicted in the Delhi Assembly Bomb Case on June 12, 1929, he spent nine years in prisons across India — Multan, Jhelum, Trichinopoly, Salem, and even the Andamans. In each jail he resorted to hunger strikes, twice fasting for over a month, demanding humane treatment for political prisoners.

When Bhagat Singh, Rajguru, and Sukhdev were executed in Lahore on March 23, 1931, Dutt was languishing in the Salem jail. That night he dreamt of Singh in chains, a vision that haunted him. Released in 1938, Dutt was rearrested during the Quit India movement of 1942 and spent another four years in jail.

After his release, he married Anjali, a school teacher, and settled in Patna with their daughter Bharti, who later became a Professor of Economics at Patna College. But life after independence offered little stability. The Bihar government allotted him a coal depot, but it proved financially unviable. President Rajendra Prasad intervened, urging the State to extend due consideration to him. The gesture resulted only in a token nomination to the Bihar Legislative Council — for the remainder of an existing member's six-month term.

Despite such neglect, Dutt remained respected by many political leaders. His health, however, declined in the mid-1960s. Afflicted with bone cancer, he was admitted to AIIMS, New Delhi, where he endured eight months of suffering. Leading orthopaedist Dr. Vig told his comrades that treatment could only ensure a "painless death". Plans to send him abroad were abandoned after the Indian High Commission in London reported that Delhi offered care equal to Europe's. Dutt passed away on July 20, 1965. Honouring his last wish, he was cremated at Hussainiwala in Punjab, alongside Bhagat Singh, Rajguru, and Sukhdev. The site, which remained in Pakistan until 1965, had only recently come under Indian control for the construction of a memorial to the martyrs.

Neglect and recognition

For a brief moment after his death, the nation honoured Dutt. His funeral procession was massive, attended by the President, Prime Minister, central ministers, the Lok Sabha Speaker, and the Punjab Chief Minister. The funeral drew vast numbers of people along the streets. Yet today, few remember that the farewell accorded to him rivalled those of the most revered leaders of his time.

Ironically, the Parliament building where he and Bhagat Singh had staged their act of defiance still does not display their portraits. In contrast, the portrait of V. D. Savarkar, once an accused in Gandhi's assassination case (though later acquitted), hangs prominently opposite Gandhi's. In 2014, MPs including Dharamvira Gandhi and Sitaram Yechury protested this omission, but the demand to include Bhagat Singh — and by extension Dutt — was ignored.



The story of this neglect was first documented by Chaman Lal Azad, a fellow revolutionary who later became a journalist. While caring for Dutt at AIIMS, Chaman Lal Azad wrote a series of articles in the Urdu daily Pratap. These were later compiled as *Bhagat Singh aur Dutt ki Amar Kahani* (1966), one of the most authentic, if scattered, accounts of the revolutionary movement. The book contains Bhagat Singh's letters, court statements, and postcards — some published for the first time — along with Gandhi's letter to Dutt and rare photographs of him with Nehru and Indira Gandhi in 1963.

The book also records Dutt's conversations about fellow revolutionaries. In it, he spoke of Hari Kishan Talwar, who was hanged in 1931 for shooting Punjab's Lieutenant Governor, and of his comrade Ehsan Ilahi, who migrated to Pakistan, became a musician, and died penniless despite Chaman Lal Azad's attempts to help him. Dutt also disapproved of films made on Bhagat Singh in the 1950s, which he and other comrades protested against. Only Manoj Kumar's *Shaheed* in 1965 won their approval, with the actor personally consulting Dutt.

Equally touching are accounts of his bond with Bhagat Singh's family. Mata Vidyawati, Bhagat Singh's mother, spent long periods with Dutt in his final days. She even sold a Hindi epic poem on Bhagat Singh, gifted to her by poet Sri Krishan Saral, to raise funds for Dutt's treatment. Revolutionary comrades such as Shiv Verma, Sadashiv Malkapurkar, and Jatin Das's brother Kiran Das remained constantly by his side. Leaders including Home Minister Gulzari Lal Nanda, Defence Minister Y. B. Chavan, Jagjivan Ram, Swaran Singh, and Dr. Sushila Nayyar also visited him in hospital, though such respect was rarely extended while he was alive and struggling.

Ode to the forgotten soldier

Chaman Lal Azad used his book to underline Bhagat Singh's intellectual legacy — his ability to rise above religion and envision socialism as the foundation of India's future. Dutt himself remarked that Singh was far-sighted, always with a book in hand, reading wherever he went.

Despite having a shared vision of India's future, history has not treated Dutt kindly. He remains absent from memorials, textbooks, and the national consciousness. While newer works such as Justice Anil Verma's *Bhagat Singh ke Sahyogi: Batukeshwar Dutt and Bhairav Lal Das's Viplvi Batukeshwar Dutt* (both post-2007) have attempted to reclaim his place, Chaman Lal Azad's earlier book, rich with first-hand memories, is nearly lost. Its Hindi translation, commissioned years ago by the Government's Publications Division, still lies unpublished due to copyright hurdles.

Dutt's life illustrates how revolutionaries in India are often remembered only in passing.

SHORT NEWS

AS US OFFICIALS ARRIVE IN UKRAINE TO DISCUSS ENDING WAR, PEACE PLAN MAY ASK KYIV TO CEDE TERRITORY AND TRIM FORCES

A US peace plan under discussion with Russia may require Ukraine to give up territory, surrender some weapons and reduce the size of its armed forces, reported *Reuters* citing sources familiar with the matter. The sources said Washington wants Kyiv to accept the main points of the draft framework, which Ukraine did not help prepare.



US President Donald Trump has approved a 28-point plan for peace to end the ongoing Russia-Ukraine war, which started in February 2024.

The Telegraph reported that, as per the proposal, Russia would take control of the Donbas region despite Ukraine maintaining legal ownership, with Moscow essentially paying rent for the land.

Donbas would be considered a demilitarised zone and neither Ukraine nor Russia will be allowed to position troops there.

UN SECURITY COUNCIL ADOPTS TRUMP'S GAZA PLAN

US President Donald Trump's 20-point peace plan for Gaza received the UN's stamp of approval on Monday (November 17), after the Security Council voted to adopt it.

Russia, which had drafted and distributed a different resolution than America abstained from voting along with China and the US-backed resolution was passed with a vote of 13-0. Countries, including the US, were hoping that Moscow doesn't use its veto power to block the resolution's adoption in the UN's most powerful body.

BRICS PRESIDENCY: INDIA TO FOLLOW G20 MODEL, TAKE MEETINGS, DELEGATIONS TO ALL STATES, UTS

For its year-long BRICS Presidency in 2026, India is going to follow the model of its 2023 G20 Presidency and take the meetings and delegations to all 28 states and nine Union Territories.

India will hold the Presidency of BRICS, which includes 11 member-states — Brazil, Russia, China, South Africa, Saudi Arabia, Egypt, United Arab Emirates, Ethiopia, Indonesia, and Iran — from January 1, 2026.

The BRICS meetings are likely to cover 60 cities, the sources said, adding that it will also showcase India's diversity, tourism offerings, culture and heritage.

The idea, as per those aware, is to build and project a strong image of India during the BRICS Presidency, and permeate this among Indian citizens of all age groups, covering rural as well as urban areas. The idea is also to showcase Brand India to an overseas audience, especially the Indian diaspora as well as audience from the participating BRICS countries.

IBSA

— On the sidelines of the G20 summit, Prime Minister Narendra Modi, Brazilian President Luiz Inácio Lula da Silva, and South African President Cyril Ramaphosa meet for the IBSA leaders' meeting.

— Modi told the leaders of Brazil and South Africa that the IBSA grouping can send a message of "unity, cooperation and humanity" at a time when the world appears fragmented and divided.

— PM Modi proposed setting up an IBSA fund to promote climate-resilient agriculture and a digital innovation alliance to enable sharing of digital public infrastructure such as the unified payments interface (UPI), health platforms such as CoWIN, cybersecurity frameworks, and women-led tech initiatives.



— IBSA is a unique Forum which brings together India, Brazil, and South Africa, three large democracies and major economies from three different continents, facing similar challenges.

7TH COLOMBO SECURITY CONCLAVE

National Security Advisor (NSA) Ajit Doval held a discussion with his counterparts from Maldives, Mauritius, Sri Lanka, Bangladesh, Seychelles and Malaysia at the 7th NSA-level meeting of the Colombo Security Conclave (CSC) here on Thursday.

During the meet, the NSAs discussed ways of enhancing cooperation under identified pillars, maritime safety and security; countering terrorism and radicalisation; combating trafficking and transnational organised crime; cyber security and protection of critical infrastructure and technology; and humanitarian assistance and disaster relief, including through training and capacity building.

The CSC Members welcomed the decision of Republic of Seychelles to accede to the CSC as a full member.

The CSC was formed to promote closer cooperation between member states on security matters and to strengthen partnerships for enhancing regional security in the Indian Ocean Region. The signing ceremony for the Founding Documents of the CSC was held in Sri Lanka in August 2024.

KEY TAKEAWAYS FROM COP30

— The 30th edition of the Conference of the Parties to the UN Framework Convention on Climate Change (COP30) concluded in Belem, Brazil, on 22nd November. The conference ended with the adoption of the Belem Political Package.

— The Presidency has framed this year's conference as the "implementation COP,"—was meant to focus less on what the world must do, rather on how to make it all happen.

— **Belem Health Action Plan:** It is a flagship outcome of Brazil's COP30 Presidency, which was unveiled on the dedicated Health Day of COP30 -13 November 2025. It is aimed at strengthening global health systems to cope better with the impacts of climate change.

— **Tropical Forests Forever Facility (TFFF):** Brazil, on 6th November, formally launched the TFFF, which is designed as a "payment-for-performance" model that uses agreed satellite monitoring standards and systems to reward tropical forest countries with a continuing source of funding as long as they preserve their forests.

— **Santa Marta conference:** In a move to push for a global phaseout of fossil fuels, Colombia announced an international conference on Just Transition Away from Fossil Fuels, to be co-hosted with the Netherlands, in Santa Marta on April 28-29, 2026.

INDIGENOUS PEOPLE PROTEST AT COP30

— Around 100 people from Brazil's Munduruku Indigenous group staged a protest November 14, blocking the main entrance gate to the Blue Zone — the restricted area set aside for negotiators — at the ongoing COP30 in Belém.



— The Munduruku, who live primarily in the Amazon states of Amazonas, Mato Grosso and Pará, are demanding an end to projects and extractive activities that threaten Indigenous territories, particularly in the Tapajós and Xingu River basins.

— At COP30, Brazil has announced the demarcation of 10 new Indigenous lands, covering almost 1,000 square miles. And about a fifth of the TFFF forest fund is set to go to Indigenous peoples protecting forests.

SACRED SAMAUMA TREE

— At COP30 in Belem, Brazil where policymakers, leaders and administrators have gathered to discuss ways to combat the global climate crisis, members of Brazil's indigenous communities and local residents are trying to bring to light various aspects of their culture, including the existence of the Samaúma.

— Samauma, known by the Portuguese nomenclature, is a 50-metre tropical tree of the Malvaceae family.

— It is considered to be sacred and the queen of the entire tropical forest that covers 40 per cent of Latin America, including large parts of Brazil, Bolivia, Colombia, Ecuador, Peru, and Venezuela, among others.

— It is also known as the Kapok tree which can grow up to a height of 70 metres or a 20-storeyed building, forming a natural canopy and towering over other trees in the rainforest.

— These trees have an average lifespan varying from 300-400 years, their buttress roots sturdy in nature and taller than a full-grown human. Due to their heights, the tree has expansive capacity for carrying out photosynthesis leading to an increased production of oxygen, which is then fed to the world.

— This tree plays a huge role in maintaining the rainfall cycle of the world. The crown of the tree releases large amounts of water vapour daily through the process of evapotranspiration, which leads to the formation of clouds, leading to rainfall.

Samaúma: The 'Queen of the Forest' that guides the lost

"It is very easy to get lost inside the rainforests. So, whenever any of us gets lost or if there is any emergency situation inside the forest, the first thing we do is find a Samaúma tree. Then we pick up a stick and start beating its roots. In the silence of the forest, the sound of the stick hitting the tree's roots echoes, and locals can easily understand that someone is lost in the woods or is in some danger, and is sending signals for help," Luciene Kaxinawà, a local resident who also hails from the indigenous Kaxinawà community.

SENTINEL-6B

— Sentinel-6B, a joint mission between the United States' NASA and NOAA, and the European Space Agency, was launched on November 16 from the Vandenberg Space Force Base in California.

— It is an ocean-tracking satellite with six onboard science instruments that will measure the rising sea levels and its impacts on the planet.



— Data from Sentinel-6B is expected to improve the accuracy of weather forecasts, including storm and flood predictions, enabling administrators to make better real-time decisions to safeguard public property and protect coastal infrastructure.

INDIA, CHILE TO HOLD FOURTH ROUND OF FTA TALKS NEXT MONTH

India and Chile are likely to hold a fourth round of negotiations on the proposed Free Trade Agreement (FTA) next month here, aiming to maintain momentum after talks in Santiago in late October. After the Chile talks, a team of negotiators travelled to Lima for the ninth round of the India Peru Trade Agreement from November 3–5. Both sides agreed to hold the 10th round in New Delhi in January 2026. Both countries hold some of the world's largest deposits. Chile is the top copper reserve holder and a major lithium supplier, while Peru has the world's second-largest silver reserves and is rich in copper and molybdenum.

INDIRA GANDHI PEACE PRIZE

— The Indira Gandhi Prize for Peace, Disarmament and Development for 2024 was presented to Michelle Bachelet, the first and only woman President of Chile and a former chief of UN Human Rights. Bachelet is a two-term President of Chile (2006-2010 and 2014-2018).

— The prize consists of an award of Rs.10 million and a trophy with a citation. The trophy is made of Haematite Jasper, the same stone which is used at the samadhi of Indira Gandhi at Shakti Sthala, New Delhi. Haematite Jasper is one of the hardest varieties of stone found in India and is estimated to be 2000 million years old.

INDIA, 5-NATION EAEU REVIEW ROADMAP FOR PROPOSED FTA

India and the five-nation grouping Eurasian Economic Commission have reviewed the roadmap for their proposed free trade agreement in goods with an aim to boost economic ties between the two, according to an official statement on Sunday. On August 20 this year, India and the Eurasian Economic Union bloc inked terms of reference to start formal negotiations for a proposed free trade agreement. The five members of the Eurasian Economic Union (EAEU) are Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia.

UTAH DELEGATION IN INDIA, BATS FOR COLLABORATION IN RARE EARTHS AND TECH

As Indian and US negotiators work to clear the sticking points on a trade deal, a Utah delegation comprising lawmakers and businessmen is holding discussions here about collaborating on critical minerals and hiring tech talent from India, pitching the state as the next Silicon Valley. China is currently the dominant global supplier of rare earths. Utah has critical minerals and is starting to mine them.

TEJAS FIGHTER CRASHES DURING AIR SHOW IN DUBAI, IAF PILOT KILLED

An Indian Air Force Tejas Mk1 fighter jet crashed during an aerial display Friday at the Dubai Airshow 2025, killing its pilot. The IAF identified the pilot as Wing Commander Namansh Syal.



The IAF has two operational squadrons of the Tejas Mk1, one each at Sulur near Coimbatore and Naliya in Gujarat. This is the second crash of a Tejas aircraft. In March 2024, a Tejas Mk1 aircraft went down near Jaisalmer during a training sortie. Its pilot ejected safely.

WOMEN IN TERRITORIAL ARMY (TA) BATTALIONS

- For the first time, the Army is planning to induct women soldiers in its Territorial Army (TA) battalions, aimed at gradually opening up greater opportunities for women in the force.
- According to the TA website, there are 11 TA Home & Hearth (H&H) battalions, eight of which were raised for Jammu and Kashmir and three for the North-East, in 2004-05.
- The TA H&H battalions, comprising the local population, have been raised in the northern and eastern theatres for counter-insurgency and counter-terrorism operations.
- They assist the regular Army and civil administration in multiple tasks, such as intelligence gathering, road opening, and assistance in case of natural calamities, among others.
- The TA is a citizen's army of volunteers who willingly enrol in this army to contribute to the nation's defence.
- The TA provides the volunteers an ideal opportunity to receive military training in their spare time and to serve the nation in times of national emergency and internal disturbances.

IN FIRST USE OF ACT FROM 1950, ASSAM ISSUES ORDERS TO 5 PEOPLE: 'REMOVE YOURSELF FROM INDIA WITHIN 24 HOURS'

In the first known invocation of the Immigrants (Expulsion from Assam) Act, 1950, since the state cabinet approved its implementation earlier this year, the Sonitpur district administration has issued orders directing five people – who had been declared foreigners by a tribunal this year – to “remove” themselves from India within 24 hours.

In September this year, the Assam cabinet approved standard operating procedures for the 1950 Act, which has been dormant since that year itself.

The IEAA 1950 was a legislation drafted by the Union Government of the time, following pressure from the then Assam government about the need for measures to check migration from then East Pakistan in the years following Partition.

BILL ON CIVIL NUCLEAR SECTOR AMONG 10 LISTED FOR WINTER SESSION

From proposing the inclusion of the UT of Chandigarh under the ambit of Article 240 of the Constitution, which empowers the President to make regulations for the UT and legislate directly, to seeking to open up the civil nuclear sector for private players, 10 Bills have been listed by the government for introduction in the Winter Session, beginning December 1. Besides the crucial Atomic Energy Bill, 2025, which seeks to govern the use and regulation of atomic energy in India, the Higher Education Commission of India Bill is also on the agenda. According to a Lok Sabha bulletin, the proposed law seeks to set up a Higher Education Commission of India to facilitate universities and other higher educational institutes to become independent and self-governing.



CENTRE'S BILL TO LET DELHI RUN CHANDIGARH DIRECTLY SETS OFF UPROAR IN PUNJAB

The Centre proposes to include Chandigarh under the ambit of Article 240 of the Constitution that empowers the President to make regulations for the Union Territory and legislate directly. This will pave the way for the appointment of an independent Administrator or Lt Governor, a move that is likely to weaken Punjab's claim to the city. According to a bulletin of the Lok Sabha and Rajya Sabha, the government will introduce The Constitution (131st Amendment) Bill 2025 in the upcoming winter session of Parliament that gets underway December 1. This has led to an uproar in Punjab where the ruling AAP and Opposition Congress are targeting the BJP-led Centre, saying it is a move to weaken the state's claim to Chandigarh, which it currently shares with Haryana as a joint capital. Currently, the Punjab Governor also holds additional charge as the Administrator of the UT of Chandigarh.

WHAT IS GRAP AND HOW IT IS IMPLEMENTED

Graded Response Action Plan (GRAP) is a mechanism to decide the actions that governments in Delhi-NCR must take as the levels of air pollution rise through various stages. The idea of GRAP is to put certain steps or restrictions in place as soon as air pollution reaches a specific level, instead of waiting for the air to become worse. The GRAP framework was approved by the Supreme Court in 2016, and its implementation has since been overseen by the CAQM. There are four stages in GRAP, each linked to the Air Quality Index (AQI) at the time.

CAG TO ASSESS 'EASE OF LIVING' IN 101 MAJOR CITIES

Comptroller & Auditor General of India (CAG) K Sanjay Murthy announced on Sunday that the apex audit body had identified a few key audit areas, including ease of doing business, and that it also aimed to assess progress made under the theme of "ease of living" across 101 major cities.

WITH QCO ROLLBACKS UNDERWAY, COMMERCE MINISTRY WEIGHS QUICK RESPONSE TO DUMPING CONCERNS

The anti-dumping wing of the Commerce and Industry Ministry, Directorate General of Trade Remedies (DGTR), is weighing provisional legal measures aimed at a quicker response to industries' concerns over dumping of goods from various countries, a senior government official said.

According to the World Trade Organisation (WTO), dumping is when a country exports a product at a price lower than its "normal value," which is usually the domestic price or below the cost of production. Dumping itself is not illegal, but the WTO allows importing countries to take action against it if it causes material injury to their domestic industries. These actions are known as anti-dumping measures and are governed by the WTO's Anti-Dumping Agreement.

CROP INSURANCE TO COVER LOSSES DUE TO WILD ANIMAL ATTACKS, PADDY INUNDATION FROM 2026 KHARIF SEASON

The Ministry of Agriculture and Farmers Welfare on Tuesday announced that it has now recognised the modalities for covering crop loss due to attack by wild animals and paddy inundation under the Pradhan Mantri Fasal Bima Yojana (PMFBY) from the Kharif season 2026.



The PMFBY was launched from Kharif 2016 with an aim to support production in agriculture by providing an affordable crop insurance product to ensure comprehensive risk cover for crops of farmers against all non-preventable natural risks from pre-sowing to post-harvest stage.

WHY BUYING BHAANG IS LEGAL BUT GROWING CANNABIS AT HOME ISN'T

The Kerala High Court on November 4 dismissed a petition by a man seeking to quash proceedings against him for growing cannabis. The court held that the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985, draws a clear line between the “cannabis plant” and the product “ganja”. While ganja is defined by its flowering tops, the Act separately and explicitly prohibits the cultivation of any plant of the genus cannabis. In 1985, India enacted the NDPS Act, largely succumbing to international pressure – specifically from the United States – to criminalise a substance that had always been a part of Indian culture. However, the law did not impose a blanket ban on every part of the plant. Section 2(iii) of the NDPS Act defines “cannabis (hemp)” to mean both charas, ganja and any mixture or drink prepared from the two. It defines charas as the “separated resin, in whatever form... obtained from the cannabis plant” – including hashish oil. Ganja is defined as the “flowering or fruiting tops of the cannabis plant.” This definition excludes “the seeds and leaves [of the plant] when not accompanied by the tops”.

'SOLAR MAMAS' BY BAREFOOT COLLEGE INTERNATIONAL

Barefoot College International, established in 1972, by Sanjit “Bunker” Roy has been training marginalised illiterate and semi-literate women from the Global South to become Solar Engineers and provide access to clean solar energy even in the remotest of regions. They learn how to design, make, install and repair solar lanterns and home-lighting systems and have become affectionately known as “Solar Mamas”.

Alongside its flagship solar power course, Barefoot College International offers programs for women in tailoring, beekeeping and sustainable agriculture.

Every woman who completes a program is trained in general health knowledge that they are expected to take back to their villages. The “solar mamas” are health catalysts in another way, by replacing harmful light sources like kerosene.

In recent years, Barefoot College International has scaled up across Africa, with other campuses in Madagascar and Senegal. In Tanzania’s semi-autonomous archipelago of Zanzibar, this programme has lit 1,845 homes.

GLOBAL BIG CATS SUMMIT

— India’s Environment Minister Bhupender Yadav while speaking at a high-level ministerial segment at COP30 conference, announced India’s decision to host a ‘Global Big Cats Summit’ in New Delhi next year.

— 17 countries were already formally associated with the International Big Cat Alliance (IBCA), with over 30 more expressing willingness to join.

— The IBCA is an initiative launched by Prime Minister Narendra Modi in April 2023 in Mysuru commemorating the 50th anniversary of Project Tiger.



— The objective of the IBCA is to ensure cooperation for the conservation of seven big cats: lion, tiger, leopard, cheetah, snow leopard, jaguar, and puma, and enhance knowledge exchange and threats associated with them.

HUMBOLDT PENGUINS

— Recently, Chilean scientists warned of further risks to the world’s shrinking population of Humboldt penguins.

— Chile’s Pacific coast is home to 80% of the world’s remaining Humboldt penguins, and scientists at the Universidad de Concepcion estimate that their numbers have dwindled to fewer than 20,000 from around 45,000 in the late 1990s.

— Last month, Chile’s Environment Ministry classified it as “endangered.”

— Competition for food from commercial fishing as well as habitat loss, pollution, bird flu, and the worsening impacts of climate change have contributed to declining numbers.

BRAHMAPUTRA, TEESTA RIVERS ERODING LAND FASTER THAN EVER IN BANGLADESH

In northern Bangladesh, families living on fragile river islands face frequent displacement as rivers such as the Brahmaputra, Teesta, and Dharla erode land at an accelerating pace. Residents repeatedly lose homes, farmland, and livestock to the advancing currents and must rebuild their lives on temporary islands formed by sediment. Despite efforts like embankments, flood forecasting, and community-based adaptation, the increasing unpredictability of the rivers, intensified by climate change and melting glaciers, continues to threaten livelihoods. Women, in particular, bear a heavy burden during these constant upheavals, struggling with the lack of privacy and safety. Innovative solutions, including geobags to reinforce riverbanks and elevated housing, have helped some communities remain in place for longer periods, offering hope and greater stability despite ongoing challenges. The situation highlights the urgent need for stronger international support and climate finance as Bangladesh grapples with visible impacts of climate change.

JAPAN BATTLES SPIKE IN BEAR ATTACKS

Northern Japan is experiencing a surge in bear attacks, with 13 fatalities since April—double the previous record—and over 100 people injured in six months. The spike is attributed to a growing bear population and a poor acorn harvest, leaving bears hungry and prompting them to enter towns. Measures include deploying troops for trapping and allowing riot police to shoot bears. The brown bear population, now around 12,000, has doubled over 30 years, fuelled by abundant food and a warming climate. Rural depopulation has also reduced human presence at forest edges, increasing bear encounters. Experts suggest culling as the most effective way to reduce risk, but resources and hunter numbers are dwindling despite new policies allowing population control.

AUDIT DIWAS

— The Audit Diwas is observed on November 16 as India’s first auditor-general assumed the office on this day in 1860. Sir Edward Drummond took charge as the first Auditor General. After India



became independent in 1947, the Comptroller and Auditor General of India was established as a constitutional authority with the adoption of the Constitution of India in 1950.

JAL SANCHAY JAN BHAGIDARI (JSJB) AWARDS

- President Droupadi Murmu presented the first-ever Jal Sanchay Jan Bhagidari (JSJB) Awards, with Telangana emerging as the top performer among states and UTs in the construction of water conservation structures.
- Telangana topped the list with the construction of 5.2 lakh water conservation structures under JSJB 1.0 initiative, followed by Chhattisgarh (4.05 lakh) and Rajasthan (3.64 lakh).
- The Jal Sanchay Jan Bhagidari Awards, launched in 2024 under Jal Shakti Abhiyan: Catch the Rain (JSA: CTR) campaign, honour outstanding community-driven water conservation efforts.

6TH NATIONAL WATER AWARDS

- Maharashtra has bagged the first prize for the Best State in the 6th National Water Awards which were given out by President Droupadi Murmu at Vigyan Bhawan in Delhi.
- Gujarat emerged in the second position, and Haryana was in the third.
- Instituted by the Department of Water Resources, River Development, and Ganga Rejuvenation (DoWR, RD &GR), under the Ministry of Jal Shakti, the awards are a part of a campaign to spread awareness about water management and water conservation on a national level.
- It focuses on the “good work and efforts made by individuals and organisations across the country in attaining the government’s vision of a Jal Samridh Bharat.

WORLD TOILET SUMMIT 2025

- The World Toilet Summit (WTS) is an annual event organized by the World Toilet Organization (WTO) to address the global sanitation crisis. This year, the World Toilet Summit (WTS) was held in New Delhi from November 19 to 21, 2025, hosted by Sulabh International. It is coinciding with the United Nations-designated World Toilet Day (19 November). The theme is ‘Sanitation in a changing world’, reminding us that no matter what the future holds, we’ll always need the toilet.

BLIND T20 WOMEN’S WORLD CUP

- India won the **inaugural Blind Women’s T20 World Cup** after defeating Nepal by seven wickets in the final played at the P Sara Oval in Colombo. India and Sri Lanka co-hosted the event, with fixtures in Delhi, Bengaluru, and Colombo.

IN A LONELY WORLD, ‘PARASOCIAL’ IS CAMBRIDGE’S ‘WORD OF THE YEAR’: WHAT THIS MEANS

The Cambridge Dictionary has crowned ‘parasocial’ as 2025’s ‘Word of the Year’, pointing to an increased interest in the term this year, and tying it to the “rise in popularity of AI (artificial intelligence) companions”.



BUSINESS AND ECONOMY

IMF FLAGS PAK'S CORRUPTION, ERODING PUBLIC TRUST, SYSTEM FAVOURING ELITE

Corruption is a "persistent feature" of Pakistan's governance landscape, its enforcement action in prosecuting money-laundering is "weak", "judicial institutions" are perceived as "corrupt" and anti-corruption institutions have a "history of political influence" — these are among the key findings of a scathing International Monetary Fund (IMF) report published earlier this week.

— The Governance and Corruption Diagnostic (GCD) was conducted at the request and with the support of Pakistan Government to identify and analyse governance weaknesses and corruption vulnerabilities that undermine economic performance. An interdepartmental IMF team, joined by experts from the World Bank, initiated the GCD in January 2025.

— Over the course of 8 months, and two field missions, the GCD took place within the context of a 37-month \$7-billion IMF Extended Fund Facility (EFF) approved on September 25, 2024. The publication of the report is a precondition for the IMF executive board's approval of a \$1.2-billion disbursement next month.

— The report comes at a time of the controversial 27th constitutional amendment, which increases the powers of Pakistan Army chief Field Marshal Asim Munir and curtails the powers of the Supreme Court by establishing another court above it.

— Pakistan is targeting 4.2% growth this year and IMF estimates that Islamabad could boost economic growth by about 5 to 6.5% over five years if it implements a package of governance reforms beginning within next three to six months.

— The diagnostic found that "corruption is a persistent feature of Pakistan's governance landscape, with significant adverse effects on economic growth, investment, and public trust". It said that Pakistan's governance indicators consistently rank poorly, reflecting weaknesses in controlling corruption, enforcing contracts, and protecting property rights.

— It said that Anti Money laundering/combating financing of terrorism frameworks have improved, enabling Pakistan's removal from the FATF grey list, "yet enforcement remains weak, especially in prosecuting corruption-related money laundering..."

Do You Know:

— Set up in 1945, the International Monetary Fund (IMF) works to achieve sustainable growth and prosperity for all of its 191 member countries. It does so by supporting economic policies that promote financial stability and monetary cooperation, which are essential to increase productivity, job creation, and economic well-being.

— According to the official website of IMF, "Unlike development banks, the IMF does not lend for specific projects. Instead, the IMF provides financial support to countries hit by crises to create breathing room as they implement policies that restore economic stability and growth. It also provides precautionary financing to help prevent crises."



RIL STOPS RUSSIAN OIL IMPORTS AT EXPORT UNIT FOR EU COMPLIANCE

In order to comply with the European Union's ban on import of petroleum products derived from Russian oil, private sector behemoth Reliance Industries (RIL) has stopped importing Russian crude into its export-oriented refinery.

— RIL operates the world's largest single-location refining complex in Gujarat's Jamnagar. The complex has two refineries, one of which is exclusively for fuel exports. RIL is India's largest fuel exporter, as well as the country's largest importer of Russian crude, accounting for around half of Russian oil flows to India.

— In July, as part of a sanctions package to force Russia to end the war in Ukraine, the EU had announced a blanket ban on imports of petroleum products derived from Russian oil in third countries from January 21.

— According to the EU, exporters of oil products to the bloc will have to show appropriate evidence that the products were not derived from Russian crude. The EU is a key market for RIL's fuel exports.

— The objective of such actions by Western powers is to curb Moscow's revenue from oil exports, which they say is helping fund Russia's war effort in Ukraine. Russia is among the world's top oil exporters.

— RIL is also steering clear of importing oil from Rosneft and Lukoil to avoid any risk of attracting secondary sanctions from the US, it is learnt.

— RIL has several US-based subsidiaries operating in various sectors, has raised debt through dollar-denominated bonds, and has strategic alliances with US companies, with major investments from American majors like Google, Meta, and Intel. Given such massive exposure to the US, the conglomerate cannot afford the risk of inviting secondary sanctions from Washington.

— Historically, Indian refiners have avoided oil imports from countries like Iran and Venezuela, whose oil was sanctioned by the US, and industry watchers and experts expect a similar approach on oil from Rosneft and Lukoil.

— Given Indian refiners' and banks' exposure to the US—from dollar-denominated trade to access to the American financial system and markets—potential secondary sanctions could have a significant impact on them.

Do You Know:

— Oil, Russia's biggest source of revenue, is a lever that the Trump administration believes it can use to force Moscow to end the war in Ukraine. New Delhi is the second-largest buyer of its oil after Beijing, and is in the midst of sensitive trade pact negotiations with Washington.

— It was clear that India did not want to compromise on its strategic autonomy and was unwilling to be dictated to by the US on whom it should be doing business with, particularly when it came to Russia, an old and key strategic partner.

— On its part, the Indian government has consistently maintained that the country will buy oil from wherever it gets the best deal, as long as the oil is not under sanctions.



— When Russia invaded Ukraine in February 2022, Moscow's share in New Delhi's oil imports was less than 2 per cent. With much of the West snubbing Russian crude following the invasion, Russia began offering discounts on its oil to willing buyers.

— Indian refiners were quick to avail the opportunity, leading to Russia—earlier a peripheral supplier of oil to India—emerging as India's biggest source of crude with a commanding market share, displacing the traditional West Asian suppliers.

HOW INDIA'S AGRI EXPORTS POSTED IMPRESSIVE GROWTH

India's agricultural exports are growing at a faster pace than overall merchandise exports. Government data shows the value of farm produce exports in April-September 2025, at \$25.9 billion, to have registered an 8.8% jump over the \$23.8 billion for the corresponding six months of 2024.

— That's more than the 2.9% growth of the country's total goods exports, from \$213.7 billion in April-September 2024 to \$219.9 billion in April-September 2025.

— During the 2024-25 financial year (April-March), too, India's farm exports grew by 6.4% (from \$48.8 billion to \$52 billion), as against the measly 0.1% rise for all merchandise exports (from \$437.1 billion to \$437.7 billion).

— The export growth this fiscal has been powered by non-basmati rice, buffalo meat, marine products, coffee, and fruits & vegetables.

— The US accounted for \$2.7 billion or 36.2% of India's marine products exports of \$7.4 billion in 2024-25. Given that, one would have expected the over-58% effective tariff levied by the US President Donald Trump's administration to have hugely impacted Indian seafood exports.

— However, the data for April-September 2025 over April-September 2024 points to an increase in exports (from \$3.4 billion to \$4 billion), despite a 0.4% dip to the US (to \$1.3 billion). Indian seafood exporters have seemingly absorbed the Trump tariff shock by ramping up shipments to markets such as China, Vietnam, Japan, Thailand, European Union and Canada.

— The Food and Agriculture Organization's (FAO) food price index plunged from an average of 119.1 points in 2013-14 to 90 points in 2015-16. The index – a weighted average of world prices of a basket of food commodities over a base period value (in this case, taken at 100 for 2014-16) – stayed at below 100 points till 2019-20, and then soared to 102.4, 133.1 and 140.6 points in the following three fiscals.

— As the FAO index has come down from those highs, it has been reflected in India's agriculture exports falling to \$48.8 billion in 2023-24 and \$52 billion in 2024-25. Some of that has also been a result of export clampdowns – on a host of produce, from wheat, rice and sugar to onions and de-oiled rice bran – by the Narendra Modi government as part of its inflation-containment policy measures.

— As for the Trump tariffs, the 26.9%, 45.1% and 17.8% drop in exports of marine products, spices and basmati rice respectively to the US in September is proof of their starting to bite. On the positive side, there are indications of a trade deal between India and the US materialising before the year end, even as Washington has apparently softened its earlier confrontational stance.



— Like with exports, India's farm produce imports have posted higher year-on-year growth during April-September 2025 (5.9%, from \$18.4 billion to \$19.5 billion), compared to overall imports (4.5%, from \$358.9 billion to \$375 billion).

— But unlike exports, which are well diversified, India's import basket is quite narrow and limited to a few commodities (table 2). At No. 1 position is vegetable oils, the imports of which have risen by 13.5% in April-September this fiscal and are poised to close in on the \$20.8 billion high of 2022-23.

BANK TREASURIES ADOPT CAUTIOUS STANCE ON BUYING G-SECS

A host of factors, including the possible fiscal impact of implementing the 8th Pay Commission recommendations, tighter investment guidelines and the Reserve Bank of India's higher inflation projection for the first quarter of FY27, have dampened bank treasuries' appetite to buy Government Securities (G-Secs).

This has led to the G-Sec yields going up despite repo rate being cut by a cumulative 100 basis points (bps) in the February-June period and retail inflation reading coming in at an all-time low of 0.3% in October.

Trading pattern

That bank treasuries have turned circumspect when it comes to their G-Sec investments is underscored by their trading pattern, as well as cancellation of a G-Sec auction by the Reserve Bank on October 31.

Banks net sold G-Secs amounting to ₹50 crore (bought: ₹36,666 crore; sold: ₹36,716 crore) on November 20 against net purchased G-Secs amounting to ₹6,716 crore (bought: ₹99,200 crore; sold: ₹92,484 crore) on June 6, according to the data released by the CCIL.

The Reserve Bank cancelled the auction of a G-Sec (6.28% GS 2032), through which the government wanted to raise ₹11,000 crore, as market players sought higher yields (wanted to buy the bond at a lower price vis-a-vis the prevailing secondary market price).

The yield of the benchmark 10-year G-Sec has hardened 24 basis points to 6.57% since it was first issued in early May 2025.

HOW BASE EFFECT, BULLION PRICE SHAPED CPI INFLATION

India's headline inflation rate, as measured by the Consumer Price Index (CPI), has been below the Reserve Bank of India's (RBI) medium-term target of 4 per cent for nine months in a row and fell to a record low of just 0.25 per cent in October.

— And whether this will lead to the RBI's Monetary Policy Committee (MPC) cutting the policy repo rate further in December or February 2026 will depend a lot on how India's interest rate-setters interpret the underlying inflation data – for there is plenty that explains how inflation has fallen so low and could have been even lower.

— First, there is obviously the impact of the Goods and Services Tax (GST) cuts that came into effect on September 22. Economists estimate companies are yet to pass on the full benefit of the tax cut to consumers, and this will be reflected in the inflation data for November that will be



released on December 12. Then there is the base effect, which was highly favourable not just in October but has been for much of 2025.

— According to calculations by The Indian Express, the favourable base effect in October was 133 bps – the joint second-strongest in 15 months. What this means is that headline retail inflation was 133 bps lower last month from September only because of how consumer prices moved in October 2024 – and they had moved up very sharply.

— Inflation is the percentage change in prices in a month compared to the same month last year. As such, the year-ago price is the denominator to calculate prices this year. If the prices last year were high, then that means the denominator is high – which exerts a downward force on the inflation rate this year.

— The opposite holds true when prices are either stable or declining in the year-ago period: the base effect is unfavourable and exerts upward pressure on the inflation rate.

— But this is the overall base effect – and the overall effect depends heavily on the base effect of the food index, which makes up 39 per cent of the CPI. For the Consumer Food Price Index, the favourable base effect was an even larger 256 bps in October.

— At present, CPI inflation is calculated by looking at price changes for 299 items; two of these items are gold and silver. Why? Because the consumption basket of households, which is what the CPI reflects, includes gold and silver.

Do You Know:

— Inflation refers to the rate at which the general price level for goods and services increases over a period of time, causing a decrease in purchasing power of money or real income. In other words, as inflation rises, each unit of currency can buy fewer goods and services than before.

— Rising inflation affects the financial well-being of households, especially those with lower incomes or fixed incomes. As the cost of goods and services increases, it reduces the quantity of goods and services that can be purchased with the same nominal income, thereby affecting households' cost of living.

— Typically, inflation relates to consumer prices of all goods purchased by the consumer which may be either domestically produced or imported. The government publishes CPI each month. CPI measures changes over time in the general level of prices of goods and services that households purchase for consumption.

The formula for calculating inflation is $\left(\frac{\text{CPI}_{x+1} - \text{CPI}_x}{\text{CPI}_x}\right) \times 100$.

CPI x = the value of the CPI in the initial/base year x.

— A base year is the first of a series of years in an economic or financial index. In this context, it is typically set to an arbitrary level of 100. New, up-to-date base years are periodically introduced to keep data current in a particular index. Base years are also used to measure the growth of a company. Any year can serve as a base year, but analysts typically choose recent years.

— A base year is used for comparison in the measure of business activity or economic or financial index. For example, to find the rate of inflation between 2016 and 2024, 2016 is the base year or



the first year in the time set. The base year can also describe the starting point from a point of growth or a baseline for calculating same-store sales.

WHAT CAN LOCAL BODIES EXPECT FROM THE 16TH FC?

The story so far:

On November 17, the 16th Finance Commission (FC) submitted its report to the President of India.

What are the expectations?

Main expectations include a percentage share for vertical transfer of resources from the Central revenue pool to the States for the next five years and the formula of its horizontal distribution among States. This is mandated under Article 280 of the Constitution.

What about panchayats, municipalities?

The other expectation is the recommendation to improve the finances of panchayats and municipalities as mandated under Article 280 (3) bb and c.

Like many other federations, local governments are the ones rendering essential public services, including drinking water, sanitation, public health, rural roads, maintenance of community assets etc. For this purpose, panchayats and municipalities are mandated to collect certain taxes like property tax, advertisement tax and non-taxes such as market fee, toll etc. However, a huge gap between revenues and expenditure responsibilities can be seen across States and Union Territories (UTs).

As per the 73rd and 74th constitutional amendments, State governments have the power to assign revenue handles and expenditure responsibilities to various rungs of panchayats and levels of municipalities. Due to this reason, there is a wide variation in fiscal powers of panchayats, municipalities across States.

In an ideal scenario, functional responsibilities should be closely linked to the financial powers delegated to local governments. However, there is no separate list for either functional responsibilities or revenue handles that should be assigned to panchayats and municipalities. While the 11th and 12th Schedules enumerate on 29 broad subjects for panchayats and 18 matters for municipalities respectively, they are merely illustrative and not binding. Moreover, it is the Union and State governments that are expected to design vertical schemes on economic development and social justice, while local governments implement them.

State governments tend to assign responsibilities to local governments without concomitant revenue handles or officials. As a result, panchayats and municipalities bear the financial brunt which not only affects their development but operational efficiency as well.

What is the role of the SFC?

Every five years, States constitute a State Finance Commission (SFC) which can make recommendations to State legislature. The recommended devolutions by SFC could be, inter alia, that panchayats and municipalities should have a share in the revenue pool of the State; be assigned revenue handles; receive both conditional and unconditional grants-in-aid; that local governments be assigned civic functions and functionaries; and various other administrative



measures. More than a hundred SFC reports have been submitted across States, but hardly a few have been respected.

In such a situation, the local government must count entirely on fiscal transfers from the Union government. For this purpose, the Constitution mandates the Union Finance Commission (UFC) to suggest measures to augment State finances for local governments.

What did the previous UFCs do?

So far, recommendations of six UFCs have been implemented. However, they weren't able to quantify the resource requirements of local governments, and made ad hoc arrangements and recommended lump sum grants. The 13th UFC, however, suggested calculating the grant as a percentage share in the union tax divisible pool. The 13th UFC did this consciously after a round of consultations with top legal experts and at the demand of the Union Ministry and several State governments. Neutrality to inflation was the first advantage of the proposal and share of local government in high buoyancy of union tax proceeds was the second major benefit. Sadly, the subsequent UFC took a complete U-turn and recommended lump sum grants. The 15th UFC followed its immediate predecessor in its route of fiscal transfers to local governments. This was not the only discontinuity in the recommendations made by the three successive bodies. The other major anomaly was in the form of conditional grants. In their zeal to reform panchayat and municipal administration, all these UFCs divided the grants into two components — basic and performance-based. While basic grants were unconditional, performance grants were tied to certain conditions identified by these UFCs as reform instruments. However, each UFC ensured to discontinue the line of reform initiated by the previous UFC. To illustrate, the 13th UFC stipulated six conditions for performance grants. None of the conditions could be fulfilled by most States. The 14th UFC refused to acknowledge any merit in the previous reform agenda and recommended fresh conditional performance grants. The conditions put forth by the 15th UFC were again of a different variety.

The 16th UFC, it is expected, must have gone beyond the oft-beaten approach and assessed the resource requirements of 2.7 lakh panchayats and about 5,000 municipalities, which would enable them to act as institutions for economic development and social justice.

TIMELY WAGES, HIGHER BASIC PAY, HEALTH CHECKUPS

Timely payment of wages, equal remuneration across genders, flexible working hours not exceeding 12 hours a day and 48 hours a week, an overtime rate at double the normal wage, and deductions from wages not exceeding 50 per cent, implying a higher basic pay — these are some of the key proposals for employees that will now come into effect after the notification of the long-stalled labour codes. A National Floor Wage for defining the baseline for wages across the country is also part of the proposals.

— With the four new labour codes — Code on Wages; Industrial Relations Code; Code on Social Security; and the Occupational Safety, Health and Working Conditions Code — the government primarily aims to create a uniform structure for wages, bonus and wage-related matters with the principle of equal remuneration for equal work.

Proposed changes for employees

— Wage- Includes basic pay; dearness allowance; and retaining allowance. Does not include bonus, value of house accommodation, house rent allowance, travel or conveyance allowance,

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



gratuity or retrenchment compensation among others. The Code on Wages states that deductions cannot exceed 50 per cent of the wages.

— This implies the whole component of wage (basic salary + dearness allowance + retaining allowance) needs to be at 50 per cent of the total pay by the employer. Thus, social security contributions like provident fund, gratuity, maternity benefits and bonus will be based on a larger portion of pay. But it also means the take-home salary will be reduced for an employee.

— Minimum wages for all: The Code on Wages states “no employer shall pay to any employee wages less than the minimum rate of wages notified by the appropriate Government”. This implies that the minimum wage needs to be paid to all the employees regardless of wage ceiling or the employment sector, whether organised or unorganised. This will provide a uniform legal safeguard across the country, reducing wage disparity and is expected to benefit worker groups like casual employees, daily wagers, and migrant labourers.

— At present, the provisions of the Payment of Wages Act, 1936 is applicable to employees below the wage ceiling of Rs 24,000 per month and the Minimum Wages Act, 1948 is applicable to the establishment covered in the scheduled employment only.

— The minimum wage will consist of a basic rate of wages and an allowance at a rate to be adjusted at specific intervals by the government. The government is likely to revise the minimum wage rate at an interval not exceeding five years.

— Working hours: The Code on Wages provides for the government to fix the number of working hours which shall constitute a normal working day inclusive of one or more specified intervals. The government will also detail a day of rest in every period of seven days which shall be allowed to all employees or to any specified class of employees and for the payment of remuneration for such days of rest.

— The Ministry has said that daily working hours could range between 8 hours and 12 hours, with a weekly limit of 48 hours.

— As per the International Labour Organization (ILO), the working hours in a week are not supposed to exceed 48 hours in the week and 8 hours in the day.

— If an employee works for less than six days in a week, if that flexibility is provided in the rules, the period of work will then be adjusted in such a manner that, including the interval for rest, it will not exceed 12 hours in a day, an official told The Indian Express. The remaining days of that week shall be a paid holiday for the employee.

— Overtime wages: Employers will now be required to pay employees at least twice the normal wage rate for any work beyond normal working hours. At present, The Factories Act limits a worker to a maximum of 10.5 hours daily, or around 63 hours in a six-day week. Of these, only 48 hours are considered regular work hours, 3 hours are considered rest intervals, and the remaining 12 hours count as overtime. Over a 13-week quarter, this would allow for 156 overtime hours, but another provision of the Factories Act caps overtime at only 75 hours per quarter.

— Social security coverage, fund for gig workers: The provisions of Employees’ Provident Fund Organisation (EPFO) will now apply to all establishments employing 20 or more employees, regardless of the type of industry. Currently, the EPFO Act is applicable only for the establishments mentioned in the Schedule 1 of the Act, primarily of the manufacturing sector. This norm has now been removed under the Code on Social Security.



— Also, the Code includes unorganised, gig, and platform workers within the ambit of social security benefits for the first time. Social security schemes such as life and disability cover; accident insurance; health and maternity benefits; crèche will be notified by the government under the Code, with schemes being partly or wholly funded by the Centre or the states or the contributions made by the aggregators. The aggregators employing gig workers will have to contribute 1-2 per cent of annual turnover for social security, with the total contribution not exceeding 5 per cent of the amount payable by the aggregator.

— No gender discrimination, night shifts for women: The Code on Wages states there shall be no discrimination among employees on the ground of gender in matters relating to wages by the same employer, in respect of the same work or work of a similar nature done by any employee in an establishment.

— This provision ensures equal pay for equal work, expands protection to cover not just wages, but also recruitment and employment conditions, and promotes workplace equality, giving women and men the same opportunities in hiring, pay, and treatment, the official said.

— The new labour codes also pave the way for women workers to work at night. The OSH Code permits women to work in an establishment before 6 AM and beyond 7 PM, subject to their consent and provisions for safety.

Do You Know:

— India's old labour laws were too many, too complex, and outdated. They increased the compliance burden and discouraged businesses from hiring. Many workers, especially gig, platform, MSME, and migrant workers, had no uniform social security. States had already begun reforming their labour laws, leading to fragmented rules. The new Labour Codes try to fix all this.

— Labour is a Concurrent List subject, and while most states have finalised rules aligned with the four Codes, central-level implementation remains pending. This delay results in: Uneven social security coverage for workers, and Compliance complexity for employers operating across multiple states

WHY PROPOSAL FOR TIGHTER EMISSION NORMS HAS TRIGGERED A SMALL VS BIG CAR DEBATE

India's plan to tighten fuel-efficiency rules under the proposed third phase of the Corporate Average Fuel Efficiency (CAFE) rules from FY28 has opened a sharp divide within the auto industry, with carmakers split over how the next phase of norms should treat small and large vehicles.

— The framework sticks to a weight-based formula that steadily tightens through FY32, but its structure means lighter cars face far steeper improvements than heavier SUVs.

— Companies with a predominantly small-car portfolio have argued that this puts an unequal burden on budget models, which already operate on wafer-thin margins and have limited room for costly technologies like hybrids.

— They warn that pushing stringent targets onto entry-level cars risks making them unaffordable for first-time buyers and could accelerate the market's existing shift toward larger, pricier vehicles.



— In several foreign jurisdictions such as the US, China, South Korea and Japan, smaller, lightweight cars have relaxed emissions norms. In Europe, for instance, which has some of the most stringent emissions norms, and from where India draws a lot of inspiration from for its Bharat Stage (BS) regulations, bigger cars have a lower absolute CO₂ target and smaller cars have relaxed targets.

— Under India's proposed CAFE 3 norms, which are expected to kick in from FY28, the efficiency formula is: $[0.002 \times (W - 1170) + c]$. It is measured in petrol-equivalent litres per 100 km. Here W is the average fleet weight, 1,170kg is the fixed constant for weight, 0.002 is a fixed constant multiplier, and 'c' is a constant that changes every year.

— Since 'c' continues to decrease from FY28 to FY32, the rules will become stricter over time. This constant starts at 3.7264 in FY28, then subsequently drops to 3.0139 in FY32. To calculate the CO₂ emissions, this has to be further multiplied with 23.7135, which is the petrol equivalent fuel consumption number.

— Some carmakers, which have a significant portfolio consisting of lighter cars, believe that the onus of reducing emissions is much higher on smaller cars than it is for bigger, heavier SUVs.

— They feel that in bigger cars, there is greater scope of implementing emissions reducing technologies, such as hybrid or full electric powertrains. But, in smaller cars, the scope is far lesser as these are built to a budget.

Do You Know:

— The BS — Bharat Stage — emission standards are norms instituted by the government to regulate the output of air pollutants from internal combustion engine equipment, including motor vehicles. India has been following European (Euro) emission norms, although with a time lag of five years.

— India introduced emission norms first in 1991, and tightened them in 1996, when most vehicle manufacturers had to incorporate technology upgrades like catalytic converters to cut exhaust emissions. Fuel specifications based on environmental considerations were notified first in April 1996 — to be implemented by 2000, and incorporated in BIS 2000 standards.

— Following the landmark Supreme Court order of April 1999, the Centre notified Bharat Stage-I (BIS 2000) and Bharat Stage-II norms, broadly equivalent to Euro I and Euro II respectively. BS-II was for the National Capital Region and other metros; BS-I for the rest of India.

MODIFIED UDAN PROPOSED AT ₹30,000 CRORE

The outlay for the modified UDAN (Ude Desh Ka Aam Nagrik) regional air connectivity scheme has been proposed at ₹30,000 crore, industry sources told businessline. The proposal is intended to continue the scheme beyond April 2027 through an expanded UDAN framework.

On Monday, the Expenditure Finance Committee (EFC) of the Ministry of Finance met to review the proposal, sources added, noting that the committee is expected to take "a call on it soon". The final policy draft would then be subject to the Union Cabinet's approval.

Of the proposed outlay of ₹30,000 crore, sources cited that ₹18,000 crore has been earmarked for new airport development, while the remaining ₹12,000 crore is intended for viability gap funding (VGF).



The scheme incentivises the creation of new airports as well as the refurbishment and expansion of existing facilities.

Besides, airlines are supported to connect underserved regions by offering them VGF and a host of concessions provided by airport operators, the central, and State governments.

Sources added that the revised scheme or the expanded framework is expected to address earlier challenges and attract more private participation while enhancing air access to remote areas.

The original version of UDAN was launched in October 2016 with an initial tenure of 10 years under the National Civil Aviation Policy. The scheme was conceived to promote regional air connectivity by making flying affordable for the common citizen, the central idea being encouraging airlines to operate flights on regional and remote routes through enabling policies and extending incentives.

The first UDAN flight was inaugurated by Prime Minister Narendra Modi in April 2017 between Shimla and Delhi. The maiden UDAN scheme had been provided with a support of over ₹8,000 crore. However, the scheme still faces challenges with 649 of the 915 valid routes having been operationalised under the scheme. These routes have connected 92 unserved and underserved airports, including 15 heliports and 2 water aerodromes across the country. A number of these airports remained unserved.

The Centre has accordingly devised the next tranche of the scheme. The proposal for the modified scheme was announced in the Union Budget 2025-26 by Finance Minister Nirmala Sitharaman.

The new version aims to connect 120 additional destinations and enable the travel of four crore passengers over the next decade. In addition, the scheme will support helipads and smaller airports in hilly areas, as well as aspirational and North-Eastern districts. Earlier this year, Civil Aviation Minister Ram Mohan Naidu told businessline that the modified UDAN scheme is a “major move on the part of the Centre to give a continued boost to the civil aviation sector in the country.”

Additionally, he had said the extension proposal, as put forward by the Ministry of Civil Aviation (MoCA), was based on an assessment of the need for continued support to operationalise and build more airports, water aerodromes, and helipads, besides aiding airlines in reaching far-flung areas with no air services.

The modified scheme will bridge the gaps and delays in the development of airports because of land unavailability, technical and operational constraints at certain airports and time taken in obtaining the relevant operators permit by new entrants. It will also address issues such as non-availability of suitable aircraft, aircraft leasing and maintenance.

The scheme operates under a market-driven model that allows airlines to assess passenger demand and propose routes during bidding rounds.

Official figures from last month, showed that the Centre has disbursed more than ₹4,300 crore as VGF along with an investment of ₹4,638 crore in airport development under regional air connectivity scheme. Under the scheme, 649 routes have been operationalised connecting 93 unserved and underserved airports, including 15 heliports and 2 water aerodromes, facilitating over 1.56 crore passengers through 3.23 lakh UDAN flights.



FDI, QCOS AND MSMEs

By revoking Quality Control Orders (QCOs) on key industrial input items, such as copper and aluminium, and on chemical intermediaries that play a crucial role in the textile value chain, the Indian government has begun a comprehensive overhaul of the standards framework.

— QCOs are the legal directives issued by government ministries or departments under the Bureau of Indian Standards Act, which requires products made or imported into India to meet a specific standard.

— While QCOs were welcomed by large industrial houses seeking greater control and dominance over the market, they were met with sharp pushback from the Micro, Small and Medium Enterprises (MSMEs), for whom the cost of importing essential input items mostly surged, posing additional challenges in production and staying competitive.

— The pullback came in the backdrop of an internal NITI Aayog report by a high-level committee headed by former Cabinet Secretary Rajiv Gauba. It said that a majority of the QCOs cover raw materials and intermediate products rather than finished goods, which is the norm globally. In the absence of an adequate number of testing facilities in the country, the new standards ended up causing “operational complexity” for MSMEs and “market concentration”.

— The surge in the use of these orders had a massive impact on supply chains. Between 2016 and 2025, the number of products brought under mandatory QCO coverage grew more than 11 times — from fewer than 70 to nearly 790.

— The Research and Information System for Developing Countries (RIS) said in its report that ideally, the push for expanding the scope of technical regulations should have been led by the Department of Consumer Affairs, particularly since the Bureau of Indian Standards (BIS) falls under its administrative control and already had enabling legislation in the form of the BIS Act. However, the actual impetus came from the Department of Commerce, driven by “strategic trade and market-access concerns”.

— As the government rushed to meet its trade goals, which meant seizing the China-plus-one global diversification opportunity by signing as many free trade agreements as possible, the domestic industry faced a steep compliance challenge.

— With large corporations better able to lobby for more and more QCOs that helped them restrict imports and reduce competition, market concentration increased in several key sectors, including labour-intensive sectors such as textiles. MSMEs not only raised concerns but, like in the case of copper cathode, also approached the courts.

— The NITI Aayog pointed out that, due to challenges faced by global suppliers in obtaining BIS certification, the implementation of QCOs has, in effect, led to “greater concentration among domestic suppliers in some sectors, giving them the ability to raise prices above global levels”.

— It added that quality control norms have affected the competitiveness of export-intensive and employment-oriented sectors such as footwear and electronics, which employ around 4.5 million people. Both sectors depend on imported intermediate materials that determine end-product performance and design flexibility.



NEW RATES, OLD CHALLENGES: CAN ROYALTY TWEAKS FIX INDIA'S CRITICAL MINERAL BOTTLENECKS?

The Union Government has approved revised royalty rates for four critical minerals — graphite, caesium, rubidium, and zirconium — all essential for green energy technologies. It said the move, cleared by the Cabinet Wednesday, would encourage domestic exploration and production, reducing India's import dependence and shielding the country from supply-chain vulnerabilities.

— The royalty system for graphite has shifted from fixed per-tonne rates to an ad valorem structure, where royalties are charged as a percentage of the mineral's sale value rather than a flat fee.

— Graphite with 80% or more fixed carbon – the share of pure carbon that determines its grade – will now attract a 2% royalty on the Average Sale Price (ASP), and lower-grade graphite 4%. Caesium and rubidium will draw a 2% royalty each, and zirconium 1% — a steep cut from the earlier uniform 12% rate.

— ASP refers to the weighted average of ex-mine prices of non-captive mines — those that sell their output in the open market rather than using it internally. The Indian Bureau of Mines (IBM) publishes ASP every month.

— The move comes against the backdrop of China's export restrictions, which for nearly a year disrupted global supply chains. China controls 90% of global critical mineral processing and has imposed curbs on several critical and heavy rare earth minerals amid trade tensions with the US.

— For India, the stakes are high. Its push for large-scale renewable energy expansion and EV adoption will sharply increase demand for these minerals, which the country still meets largely through imports.

— India is currently 100% import-dependent for some key critical minerals such as cobalt, lithium, nickel, rare earth elements (REEs) and silicon, considered crucial for batteries, solar, semiconductors and advanced electronics.

— The government has maintained that revised royalty rates will attract more bidders for upcoming auctions and help unlock associated minerals such as lithium, tungsten, rare earths and niobium.

— But progress has been slow. Since critical mineral auctions began in 2023, only 34 blocks out of 81 blocks put out for auctions have found successful bidders.

— However, royalty rate revision alone cannot ease structural challenges in India's critical mineral ecosystem. A paper titled 'Critical Mineral Supply Chains: Challenges for India' by the Centre for Social and Economic Progress (CSEP) highlights that India's ability to mine critical minerals is impeded by a weak regulatory framework, insufficient incentives for private exploration and mining, and limited technical expertise and financial resources for developing deep-seated deposits.

— An equally significant challenge lies in processing. India's mineral processing capacity for critical minerals is still nascent and it depends heavily on imports of refined minerals and components.



Do You Know:

- India defines “critical minerals” as those essential for economic development and national security, whose limited availability or concentrated production can expose the country to supply-chain risks. In the 30 minerals India classifies as critical, caesium and rubidium are not included, though they are considered critical by the US (both), Canada (caesium) and South Korea (caesium).
- In January 2025, India launched a National Critical Mineral Mission to help achieve self-reliance in the critical mineral sector. In 2023, the Centre also identified 30 critical minerals, including lithium, cobalt, nickel, graphite, tin and copper, which are essential for the country’s economic development and national security.
- The Rs 16,300-crore National Critical Minerals Mission (NCMM) is to promote the exploration of critical minerals within the country and at offshore locations. It aims to intensify the exploration of critical minerals within the country and in its offshore areas. It plans to create a fast-track regulatory approval process for critical mineral mining projects.
- According to a report published by the Institute for Energy Economics and Financial Analysis (IEEFA) in 2024, India’s demand for critical minerals is expected to more than double by 2030, while domestic mining operations may take over a decade to start producing.

E-COMMERCE FIRMS DECLARE COMPLIANCE WITH DARK PATTERN GUIDELINES

The Central Consumer Protection Authority (CCPA) said 26 digital storefronts had declared, through their parent companies, that they had eliminated so-called “dark patterns” from their sites, or that they never had any to begin with.

The storefronts that submitted such declarations include Flipkart, Meesho, BlinkIt, Zomato, BigBasket, and Reliance Retail.

What are dark patterns

Dark patterns are deceptive practices used online and designed to trick users into spending when they otherwise wouldn’t, such as by creating “false urgency” or “basket sneaking,” by adding items by default into a user’s cart at the time of checkout, according to guidelines published by the Central Consumer Protection Authority, which comes under the Department of Consumer Affairs (DoCA), in 2023.

Self audit reports

Earlier this year, the DoCA doubled down on those guidelines, directing e-com platforms to submit self-audit reports on operations’ compliance with the Guidelines for Prevention and Regulation of Dark Patterns, 2023.

The disclosures made public by the CCPA do not include Amazon India, arguably the country’s largest e-commerce platform.

Other companies the Central Consumer Protection Authority held consultations with whose disclosures weren’t sent in or uploaded by the authority include Airbnb, Apple, Ola Electric, Samsung, Indigo, Mastercard, Meta, Rapido, Shiprocket, Snapdeal, Uber, WhatsApp, Google and Paytm.



LIFE AND SCIENCE

ASTRONOMERS SPOT CORONAL MASS EJECTION ON ANOTHER STAR FOR FIRST TIME

Astronomers have said they have detected a powerful storm on a star other than our sun for the first time, discovering an explosion so violent it could have stripped away the atmosphere of any planets unlucky enough to be nearby.

Solar storms on the sun sometimes shoot out huge eruptions known as coronal mass ejections, which can disrupt satellites when they arrive at the earth, and create colourful auroras that dance across the sky.

In fact, a particularly powerful solar storm caused auroras as far south as the U.S. city of Tennessee on November 12, according to the National Oceanic and Atmospheric Administration. Auroras were also visible in the skies above New Zealand, images showed, with more expected into Wednesday night.

However, observing such a storm on a distant star had proven difficult for astronomers.

New research, published in the journal Nature has now revealed that an international team of researchers has finally achieved the feat.

The discovery used data from a European network of telescopes called LOFAR.

The team of astronomers has been using LOFAR since 2016 to detect the most extreme and violent events in the universe — such as black holes — which emit relatively stable radio signals over time.

"We always have stars in the telescope's field of view but generally we're not interested in them," Cyril Tasse, a Paris Observatory astronomer and the study's co-author, said.

However, the researchers have set up a data processing system that also records what is going on with the stars behind the behemoths they are chasing. In 2022, the team decided to find out "what had been caught in this net", Mr. Tasse said.

They found that there was a huge explosion which only lasted a minute on May 16, 2016. It came from a red dwarf star called StKM 1-1262 more than 133 light years away. The team then determined it was a coronal mass ejection.

"It's the first time we have detected one" on a star other than our own, Mr. Tasse said.

But this coronal mass ejection was "at least 10,000 times more violent than known solar storms" on the sun, he added.

Atmosphere killers

The discovery could have an impact on the search for planets beyond our solar system that have the potential to host life.

Red dwarfs, which have a mass of between 10% and 50% that of our sun, have proven to be the most likely stars in the universe to host planets that are roughly the size of the earth.



"The first radio detection inaugurates a new era for space weather applied to other star systems," said Philippe Zarka, research director at the Paris Observatory and a study co-author. "This emerging field opens up major perspectives for how the magnetic activity of stars influences the habitability of the planets that surround them."

Mr. Tasse said that it appears that red dwarf stars have "much more erratic and violent" behaviour than the sun.

"The implication is that these stars can be rather inhospitable when it comes to life and exoplanets," because they have storms so powerful they could destroy the atmospheres of planets nearby, he added.

WHY ARTIFICIAL INTELLIGENCE MODELS STRUGGLE TO DISCOVER NEW DRUGS

In November 2020, as the world battled COVID-19, Google DeepMind said its AlphaFold model had solved the protein-folding problem, one of biology's toughest puzzles. The achievement was hailed as a Holy Grail that would revolutionise drug discovery. Yet five years later, the expected flood of new medicines hasn't appeared. Despite billions of dollars spent, discovering a new drug remains a slow and costly process. This paradox lies at the heart of Eroom's Law, the inverse of Moore's Law.

When Gordon Moore predicted that computing power would double every two years while costs halved, he captured the speed of digital progress. In medicine, however, the opposite has occurred. Eroom's Law ('Moore' spelt backwards) observes that the number of new drugs discovered per billion dollars has steadily declined.

The real constraint in drug discovery has never been the quantity of hypotheses but their quality. Every new treatment begins with a hypothesis: an educated idea/guess about how a molecule might influence disease. Even before the advent of artificial intelligence (AI), scientists generated millions of hypotheses, most of which ultimately failed. Today's AI systems can expand this to billions but they can't enhance the outcome into anything meaningful. Algorithms can multiply possibilities, they can't imbue them with intuition or creativity. The leap from quantity to quality remains a distinctly human privilege.

AI thrives on well-defined patterns. The protein-folding challenge was ideal because scientists had already mapped more than 1.5 lakh structures over decades. There was a known question, a vast dataset, and an idea of what a correct answer (all conceptualised by humans) should look like. AlphaFold's success was thus akin to a brilliant student topping a national entrance exam, such as NEET.

Drug discovery, however, is not an exam; it is exploration. It is more akin to a cricket scout spotting a future Virat Kohli on a dusty ground or a political analyst predicting India's next prime minister. No fixed syllabus or reliable data exist. Each breakthrough in the past, such as penicillin, insulin, paracetamol, and metformin, was born from serendipity and human curiosity, not machine logic. AI can reproduce knowledge but not imagine it. AIs like AlphaFold solved a bounded puzzle; drug discovery remains unbounded, uncertain, and deeply human.

THE BIOLOGICAL MAGIC OF SHARED LAUGHTER

In a study conducted by the German paediatric surgeon Winfried Barthlen, clowns were asked to interact with hospitalised children awaiting surgery. Not surprisingly, these children showed less



anxiety after a happy session with a clown. An analysis of their saliva samples showed elevated levels of oxytocin (see *Frontiers in Pediatrics*, 12, 1324283, 2024).

Oxytocin is also called the bonding hormone because its levels are raised by social bonding and physical touch. Its presence increases the feeling of trust and signals that one is in a safe environment. Such neurochemical changes occur in moments of emotional well-being. For the anxious children, the clown was not just a distraction but the source of shared laughter; the clown's presence facilitated a genuine social connection.

Other studies have shown that adrenaline and cortisol levels go down in people in whom laughter is induced, particularly when they are in the company of others with whom they share social bonds. Hormone levels are also lower when the study participants are induced to laugh together with strangers.

Both adrenaline and cortisol are stress hormones but they differ in how they act. Adrenaline is a rapid-response hormone: its presence raises blood pressure, heart rate, and blood sugar levels. The mild social stress that arises when meeting with unfamiliar faces is quickly deactivated when adrenaline is lowered: you relax. Cortisol acts slowly and the stress it induces lasts longer. When cortisol levels are lowered, the feelings of anxiety are also reduced.

By scanning groups of friends watching comedy clips together using positron emission tomography (PET), researchers in Finland showed in 2017 that endogenous opioids are released in the thalamus and other parts of the brain (*Journal of Neuroscience*, 37, p. 6125). Endogenous opioids act as analgesics and inhibit the sensation of pain, thus keeping you calm. In the context of social bonding, having fun together reduces stress and pain. It also serves as a reward system, the feeling of exhilaration encouraging you to spend more time in rewarding company.

Chimpanzees and other great apes also use laughter as a social lubricant. Sounding like a heavy pant, a chimpanzee's laugh is evoked during play, such as when chasing or wrestling, or when they are tickled. Their social networks are nurtured by reciprocal grooming and play.

Chimpanzees invest a considerable amount of time, up to two hours out of 12 waking hours, in social grooming. A chimpanzee's "contact list" has about 80-100 acquaintances, with fewer than 20 being core allies.

People's contact lists (on mobile phones) usually have between 300 and 600 names. Humans can remember the names and recognise the faces of about 1,500 individuals, acquaintances accumulated over time. It is thus evident that the expansion of human social networks has outpaced the time available for sustained one-to-one social bonding. One theory, popularised by the Oxford-based anthropologist Robin Dunbar, proposes that social laughter evolved in humans to permit shared emotional experiences among all the interacting members.

As the use of social media proliferates, we increasingly devote time to solo pursuits. Sure, you laugh and feel good when you see those forwarded kitten videos. But you laugh alone. When laughter is shared in a social setting, however, it becomes louder and more frequent as the group's brain activity becomes synchronised. Interpersonal synchronicity lies at the heart of our social bonds. Maybe we should be spending more time in the company of our loved ones!



CATCH THE YAWN

Why is yawning contagious?

Yawning may spread because our brains are tuned to mirror others. When we see or hear a yawn, circuits involved in social mirroring and empathy may prime the throat and face muscles to mirror it. This may have helped groups of humans synchronise arousal and stay alert together.

Another idea is thermoregulation. Yawning may briefly boost blood- and air-flow through the sinuses, helping cool the brain. If one member shows signs of overheating or fatigue, others may copy the behaviour to stabilise attention. If social mirroring is key, people who pay less attention to others' faces or are intensely task-focused often yawn less, including very young children and some autistic individuals. The effect is more pronounced when a person's gaze shifts to others' faces. But if the act of cooling the brain matters more, people in cooler environments, those breathing through the nose or those keeping the jaw busy (by talking or chewing) may suppress the urge better.

Were you able to read this without yawning?

CAGED BIRDS SING

Q: Do animals have mental health problems?

A: Many scientists believe at least some animals can have problems that are similar to human mental health disorders. We can't ask them how they feel, so we look for changes in behaviour, body chemistry, and brain activity that match what we see in stressed or unwell humans.

Some companion animals make for clear examples. Some dogs develop separation anxiety: they panic when their humans leave them alone, bark continuously, destroy objects or harm themselves. Others have been known to display behaviour resembling depression after a bereavement, becoming withdrawn, inactive, and losing their appetite. Veterinarians sometimes use anti-anxiety or antidepressant drugs, along with training and changes in the home, to help them.

Wild and captive animals have also been known to show patterns of concern. Zoo primates kept in bare or crowded enclosures may pace in circles, rock back and forth, and/or bite themselves. Captive elephants often sway for hours. Parrots in small cages sometimes pluck out their feathers. These repetitive, seemingly purposeless actions are called stereotypies and are often linked to long-term stress and frustration.

Brain and hormone studies have also suggested continuity with humans. Stressed animals have raised levels of stress hormones such as cortisol and have changes in brain chemicals such as serotonin.

This said, scientists are careful not to simply copy human labels like "depression" or "schizophrenia" onto animals. Instead, the main idea is that animals can suffer mentally, especially in poor environments, and that the evidence supports better housing, social contact, and enrichment to protect their welfare.



THE SOUTH AT THE CENTRE

When President Lula da Silva announced in 2023 that Brazil would host COP30 in Belem — the capital of Para, better known for its rivers, forests and Amazonian air than for roads, hotels or meeting halls — many Brazilians were surprised. Most people doubted whether the city could host one of the largest gatherings in the world. Yet for the past 10 days, world leaders, scientists, activists, diplomats, and fossil fuel lobbyists have been flying into this city as delegates from about 200 countries to debate the climate crisis. For the first time, the UN Climate Conference is taking place on the doorstep of a region — the Amazon — that embodies both the scale of the problem and the solutions needed to save the planet.

The first week of COP30 ended with major deadlocks unresolved, as talks happened in the shadow of COP29 in Azerbaijan, where rich countries had pledged to provide \$300 billion annually to developing countries by 2035. Now, the rich world is dragging its feet, while the Global South is stepping in. Andre Correa do Lago, the Brazilian diplomat presiding over COP30, summarised the mood on the eve of the meeting's opening: "Somehow the reduction in enthusiasm of the Global North is showing that the Global South is moving. It is not just this year, it has been moving for years, but it did not have the exposure that it has now," Mr. Correa do Lago said last Monday.

Fractured front

However, COP30 is buzzing with debates and activities even as the rich world takes a back seat on emissions reduction and financing the climate action plan to the tune of \$1.3 trillion by 2035. This year, the U.S. — historically the world's biggest emitter — quit the Paris Agreement; and the White House has not sent a delegation to Belem. Europe is present but divided, with its 2040 targets stalled by political infighting and a rising far-right, forcing the EU governments to retreat from their commitments.

But the Global South — led by Brazil — is not playing the victim. It has responded with ambition. During the past week's deliberations, Brazil has placed people, knowledge, and culture at the centre of COP30. In a dialogue with civil society, Mr. Correa do Lago stressed that climate action "is built through cooperation among peoples" to ensure that the energy transition creates jobs and reduces inequalities. **The host country has launched several initiatives: the "Belem Health Action Plan" puts climate-resilient health systems at the core of adaptation, while a "Green Education" proposal highlights how teachers and students can prepare their societies for a world which is getting hotter. Brazil has also launched a "Commitment Letter", backed by 130 organisations, to combat climate misinformation globally.**

COP30 is shaping up to be the most ambitious climate conference yet, with far bigger goals. The best example is the **"Belem Declaration for Green Industrialisation"**, which calls on nations to accelerate energy transition while creating new green-economy opportunities, especially for developing countries. Its core message is clear: without strong and inclusive economic growth, true decarbonisation will not occur. Brazil's Vice President Geraldo Alckmin summed it up on Friday: "Climate goals must go hand in hand with real economic transformation... ensuring that all countries, especially those in the Global South, can lead and benefit from this new era of sustainable prosperity."

At the inauguration of COP30, President Lula had declared that Belem "will not be the same city" once the meeting ends. For Brazil, the new roads, transit corridors, and bigger airport are not just cosmetic changes; they have succeeded in placing the Amazon at the centre of global climate



discourse. With negotiations running until November 21, Brazil is now pushing for COP30 to give a clear blue-print for a better climate action plan.

Belem, a city once doubted for its capacity to host a global meeting, may end up adopting the declaration named after it — and deliver a solution the world needs desperately.

FOSSIL FUEL PHASE-OUT CAN'T BE UNIFORM FOR ALL COUNTRIES, SAYS INDIA AT COP30

India on Thursday made it clear that it was not in favour of a uniform roadmap for fossil fuel phase-out and said that countries should be allowed to decide on their own the pathway to transition away from fossil fuels.

— A roadmap for ending the use of fossil fuels is one of the key issues holding up agreement over the political package that is expected to be the main outcome from the COP30 meeting here.

— Over 80 countries, led mainly by the European Union and small island nations, have been pushing for inclusion of a language on the early phase out of fossil fuels in the political package that the host Brazil is hoping to be the showcase outcome from the annual climate summit.

— India said it was not opposed to the mention of a fossil fuel phase-out plan in the package but it must be ensured that countries are not called to adhere to a uniform pathway for it.

— "In every country, fossil fuel is used in a different way. In India, for example, the government allows subsidies in fossil fuel when it comes to public welfare schemes like the Ujjwala Scheme in which LPG is supplied to households at subsidised rate. Similarly, in African countries the government allows subsidies on kerosene because the fishing community uses it for running their boats," an official said.

— "Therefore, if you straightaway mandate a uniform phase out of fossil fuels, or a complete ban on subsidies, then it may hurt the public welfare schemes in many countries. Our position, therefore, is that countries must be allowed to choose their pathways in their national interest," the source said.

— According to the source, India does not provide fossil fuel subsidies on luxurious goods. In fact, it is among countries charging higher taxes on petroleum and diesel, but the world needs to understand that subsidies for programmes like Ujjwala are essential for India's development, public health and poverty alleviation.

— Lula urged the world to start looking to a future beyond fossil fuels. "If fossil fuel is something that is regarded as the main cause behind higher emission levels, then we will have to start thinking about a world where we can live without fossil fuels and I say this out of honest willingness, because I live in a country that extracts 5 million barrels of oil per day.

Do You Know:

— The political package is an attempt by Brazil to address four long-standing concerns of different sets of countries which could not be accommodated in the official agenda of COP30.

— It includes two important concerns of developing countries, including India — full implementation of a key finance provision in Paris Agreement, which these countries insist has been ignored till now, and unilateral trade measures like Carbon Border Adjustment Mechanism



(CBAM) of EU, which countries like India and China say is a discriminatory trade practice in the garb of climate action.

— COP30 President André Aranha Corrêa do Lago wrote a letter to all the parties Tuesday, asking them to continue with the process of Mutirao, which translates to a collective mobilisation of minds, hearts and hands, to reach an agreement by Wednesday.

COP BACKS PUSH AGAINST TRADE CURBS LINKED TO CLIMATE CHANGE, SILENT ON FOSSIL FUEL ROADMAP

In a clear indication of a shift in power balance in the absence of the United States, the COP30 climate meeting in Belem, Brazil adopted an agreement that accommodated the main concerns of developing countries like India and China, but left out any mention of a roadmap on fossil fuel phase-out which the European Union and some other countries had identified as a non-negotiable.

— The showpiece outcome from COP30, being referred to as a political package, has taken on board two big issues flagged by the developing countries — implementation of a key finance provision in Article 9.1 of Paris Agreement, and unilateral trade measures like EU's Carbon Border Adjustment Mechanism (CBAM) — though not in the same way as was being demanded.

— It has proposed to establish a two-year work programme to discuss all issues on climate finance, including Article 9.1 of Paris Agreement. Developing countries, led by India, have been insisting that this particular provision which says that developed countries "shall provide financial resources" has been ignored till now, including in the comprehensive finance agreement reached last year. These countries have argued that all decisions on climate finance till now, have addressed only Article 9.3 which only asks the developed world to "take the lead in mobilising climate finance".

— On the issue of unilateral trade measures, the agreement has acknowledged the concern of countries like China and India that response measures on climate change must not constitute a means of "arbitrary or unjustifiable discrimination or disguised restriction on international trade".

— This is almost the full recognition of the positions taken by China and India on CBAM which seeks to put additional tariff on imported goods whose production has a higher carbon footprint than what is allowed for European manufacturers of the same goods. India, China and some other countries have called such measures discriminatory and violative of international trade laws.

— In contrast, the agreement completely left out any mention of a fossil fuel exit roadmap, which the European Union, some Latin American countries and small island nations had been pushing hard for.

— On Friday, these countries said they would not support any outcome that omitted a roadmap on transitioning away from fossil fuels. But when the final draft which came out on Saturday, omitted the issue again, it was clear that the overall mood was not in their favour.

— The final outcome, thus, was reflective of the shift in power balance at these climate negotiations, with the bloc of large developing countries, particularly the BRICS grouping (Brazil, Russia, India, China and South Africa) decisively calling the shots. In the absence of the United States, which did not send an official delegation at these talks for the first time in the last 30 years



of negotiations, the European Union and countries like Australia seemed to lack adequate heft to force their agenda, which they had managed to do till now.

— The COP30 meeting adopted several other agreements, as happens at every such meeting, but none that will have any significant bearing on the effectiveness of global action to fight climate change. One of the main goals, identified by COP30 hosts and president Brazil, going into the conference, was to ensure that the trust in this negotiating process was not further eroded after a disappointing outcome last year and the withdrawal of the United States from the Paris Agreement earlier this year. On that count, Brazil can claim success as every country reposed their faith in this UN-mandated process.

— However, on the other objective of expediting climate action, there was little that Brazil, or COP30, could deliver.

Do You Know:

— In 1992, at the Rio Earth Summit, 154 countries signed a multilateral treaty called the United Nations Framework Convention on Climate Change (UNFCCC). It aimed to stabilise greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system."

— The treaty came into force two years later, and since then, countries which are part of the UNFCCC, meet every year at different venues. Today, there are 198 'parties' or signatories of the Convention.

ATTRIBUTION SCIENCE: THE TRICKY TASK OF LINKING DISASTERS TO EMITTERS

On November 12, Delhi's air became distinctly unbreathable. A thick blanket of smog enveloped the capital, which recorded an average Air Quality Index (AQI) of over 400, and the pollution was categorised as "severe." On November 9, Delhiites, aware of the possible respiratory ailments this relapsing crisis could lead to, protested at India Gate. Many were detained.

Meanwhile, in April, the India Meteorological Department (IMD) and the Indian Institute of Tropical Meteorology, Pune, released a three-decade long study that established that rainwater, in several parts of the country, was becoming increasingly "acidic."

In August, there was another environmental disaster, this time in the Himalayas: flash floods inundated Uttarkashi, washing away people and buildings, reportedly caused by a glacial lake burst. While it was small in scale, it was reminiscent of the 2013 Kedarnath tragedy, when over 6,000 people died after an avalanche ruptured the banks of the Chorabari Lake, causing it to burst and release 262 million litres of water within minutes. This was the worst environmental disaster in the country after the 2006 tsunami.

Real world v. models

But can we authoritatively attribute these environmental catastrophes to human-induced climate change? Put another way, while the irrefutable fact is the earth has warmed by more than 1^o C since pre-industrial times, thanks to human-generated greenhouse gases and there are local events that result in local environmental disasters as well, how sure we can we be that climate change made a cloudburst or a cyclone more likely?



This is where climate attribution science comes in. This field is concerned with estimating how the probability of events or their intensity, duration or frequency are altered by climate change.

“Models try to create a world where climate change didn’t happen and look at the real world where events happened,” earth system scientist Raghu Murtugudde explained. “Models are imperfect, and depending on which of these changes you try to estimate, you can get different answers. An event may have occurred naturally but attribution may say its intensity was made stronger or that its probability was increased, and so on,” he told The Hindu.

In general the attribution of heat waves is more accurate than the attribution of extreme rain events, J. Srinivasan, honorary professor at the Divecha Centre for Climate Change, said.

“When a major heat wave strikes Europe or Asia, scientists try to estimate the contribution of the increase in carbon dioxide to that particular heat wave. Their attribution will be accurate if the model is good at simulating the past heat waves in that region,” Prof. Srinivasan said.

For instance, acid rain in Visakhapatnam has been associated with fossil fuel emissions from a power plant and a shipping yard, among other activities in the vicinity. Delhi’s extreme pollution has been linked to the city’s many vehicles spewing carbon dioxide and, seasonally, to crop residue burning in neighbouring States (which release organic aerosols), the unchecked use of firecrackers during Diwali, and particular wind patterns.

Identifying point sources

Earlier this year, researchers at Utah State University reported studying the 2013 Kedarnath floods and finding through attribution analysis that northern India has received increasingly larger amounts of rain in June since the late 1980s due to more greenhouse gases and aerosols in the atmosphere. There are two forms of emission attribution, Amit Garg, professor at the Indian Institute of Management Ahmedabad, who specialises in energy, climate change, and sustainable development issues, told The Hindu.

“Point sources of emissions mean large sources at one location, such as power plants, steel plants and cement plants, while non-point are dispersed sources such as cars and rice fields.”

A 2007 study published in Environmental Monitoring and Assessment investigated the chemical composition of precipitation over Jharkhand’s Dhanbad, the “coal city of India.” The rain water samples were found to have an average pH of 5.37, “indicating acidic to alkaline nature of rainwater.” This is how researchers tracked down the “point source” of emissions responsible.

Coal mining in Jharia, Dhanbad, emits methane, carbon dioxide, sulphur dioxide, nitrogen oxides, and “dust particles in the atmosphere ... [that] act as centres for catalysing chemical reactions, leading to the formation of secondary pollutants such as smog and acid rain,” according to a 2025 paper in International Journal of Scientific Research in Science and Technology.

A nascent science

This said, climate attribution science is still firming up.

For instance, chemical transport modelling can now track plumes and satellites can monitor emissions, and “the increase in model resolution has improved the accuracy of attribution,” says Prof. Srinivasan. “If the number of heat waves or floods increases in the simulation with increasing



carbon dioxide, we can use statistics to estimate the probability that the increase in floods or heat waves was caused by an increase in carbon dioxide.”

Satellite observations are showing that cyclones are intensifying rapidly on account of high sea-surface temperatures, he added: “With global warming, the water vapour in the atmosphere increases. Weather forecasts from IMD have become more accurate and so deaths from cyclones have reduced dramatically.”

But when there isn’t enough data, “researchers run models for the planet’s climate without increasing greenhouse gas emissions and other anthropogenic forcings. Where there is sufficient data, they use trends in the data to compare conditions today with a period from the past in which human effects on the planet were relatively minimal,” Prof. Murtugudde wrote in The Hindu in May 2024.

One climate attribution model that needs to be better fine tuned is per-capita entitlements, according to Prof. Garg: “Climate change attribution would require per-capita entitlements for greenhouse-gas emissions and equivalent climate risk coverage across populations in all countries and generations for equity and justice.”

Attribution also could, in theory, translate into a way to fix responsibility, especially for rich and developed countries: as Prof. Garg said, “They should ideally commit to pay for the losses imposed on developing countries and the poor all over the world due to unbridled GHG emissions growth since 1850s.”

India’s contribution to the global increase in cumulative CO₂ emissions (since 1850) is less than 6%, Prof. Srinivasan said.

“So what we do in the next 10 years is not as relevant as what we plan to do during the next 50 years. India has made good progress in solar and wind power plants. In the case of batteries, the availability of materials may be a bottleneck.”

Going to court

One paper published in Nature in April 2025 went a step further and asked: “Will it ever be possible to sue anyone for damaging the climate?” Because, the paper said, “the scientific and legal implications of an ‘end-to-end’ attribution that links fossil fuel producers to specific damages from warming” are now available.

Using emissions data from major fossil fuel companies, and advances in empirical climate economics, the authors described “the trillions in economic losses attributable to the extreme heat caused by emissions from individual companies.” If extreme weather events such as floods, droughts and extreme heat that upend lives “could be linked to climate change, the logic goes, injured parties could seek monetary or injunctive relief through courts.”

THE MYTH OF THE ‘NORMAL’: WHAT DOES YOUR LAB REPORT REALLY MEAN?

When the U.S. wrestler and actor Dwayne “The Rock” Johnson was in his prime, his Body Mass Index (BMI) was around 33 kg/m², technically ‘obese’ by World Health Organization (WHO) standards. Yet no one watching him could call him unhealthy. This paradox is one glimpse of how numbers alone can’t be used to define good human health.



For many years, the WHO has used universal BMI cut-offs: over 25 kg/m² for 'overweight' and 30 kg/m² for 'obesity'. But research in Asian populations has revealed that even at lower BMI levels, people developed diabetes and heart disease more often. Recognising these ethnic differences in fat distribution, the WHO revised the 'normal' upper limit for many Asian countries to 23 kg/m². Thus, 'normal' health is not fixed or global but a shifting statistical boundary shaped by population data and biological diversity.

The reference range

Every lab report for continuous variables includes a reference range, which is often mistaken to be the normal range. Laboratories use the term 'reference' because the range is statistical, not absolute. This means it's derived from the test results of a large number of individuals. When these values are plotted on a graph, they form a bell-shaped curve, with most results clustering near the average and fewer at the extremes. The reference interval is the central 95% of this distribution, meaning 95 out of 100 healthy people fall within it, while 5% lie outside it. This is why falling outside the reference range doesn't always indicate disease — nor does falling within guarantee good health. It's only a guide, rather than a definitive boundary of normalcy.

Diagnosing disease would be simple if health and illness were cleanly separated, the way India and Sri Lanka are separated by the Park Strait. But biology resembles the Tamil Nadu-Kerala border: fluid and gradual, without a clear point where Tamil-speaking people end and Malayalam-speaking people begin. In the border villages, both languages mingle and one shades into the other. Similarly, no single value separates health from disease with precision.

Consider diabetes: when the fasting blood glucose levels of thousands of people are plotted on a graph, the healthy and the diabetic curves merge smoothly. The diagnostic cut-off of 126 mg/dl wasn't a mathematical discovery but a practical compromise; there's no fixed line beyond which a person suddenly becomes diabetic. Clinicians draw a line only for practical purposes, and assume that beyond that limit, the risk of complications such as diabetic retinopathy rise sharply.

Put another way, all such medical boundaries balance the two concepts of sensitivity and specificity. A lower threshold would detect all true cases but falsely label many healthy ones, increasing the number of false positives; vice versa for a higher threshold. No test in medicine is 100% sensitive and 100% specific at the same time. Since no test is perfectly accurate, the chosen cut-off reflects medical judgment shaped by a disease's severity, prevalence, and social consequences. For serious yet treatable conditions, clinicians prefer caution and accept more false positives; for mild or stigmatising ones, they raise the bar to avoid overdiagnosis. Every cut-off in medicine is thus a negotiation and, for that reason, they must be regularly revisited.

Mathematics of normalcy

Not all biological measures vary equally. Sodium and potassium can vary within very tight limits because even small deviations from this range can disrupt muscle or nerve function. On the other hand, cholesterol and liver enzymes can vary across a wider range of values: their smaller changes reflect only incidental changes, such as the person's water intake on that day. Hormones are even more dynamic, fluctuating with time of day, age, sex, stress, and nutrition. Interpreting the corresponding numbers on a lab report thus demands more than just numeracy. To do so, a health worker must understand when the sample was collected, how it was tested, and what the patient's clinical picture reveals (or has already revealed).



Every reference range is also determined using a particular mathematical process, and understanding this process can allow health workers to make more informed decisions. Among other things, the distribution of the values of a medical variable is assumed to follow the “68-95-99.7” rule. For instance, if health workers collect blood samples from a number of people and find that the average value is 70 and the standard deviation is 10, the rule says that about 68% of samples score 60-80, about 95% score 50-90, and about 99.7% score 40-100. In other words, the rule helps to visualise how ‘spread out’ the possible values are and how rare it is for a value to fall far from the mean.

The catch here is that not all biological data are symmetrical, that is, fall with equal probability on either side of the mean. For instance, most hormone-related readings are low while a few are extremely high. In such cases, labs select values from the third or the 97th percentiles. For this, they need at least 120 health samples, otherwise their tests won’t be reliable.

Local data matters

When we call something “normal,” we rarely ask, “normal for whom?”

Laboratory reference ranges are not universal truths but reflect the populations they study. Some parameters, like height, vary widely across gender and ethnicity. A Scandinavian and a South Indian may differ greatly yet both be healthy. People’s nutritional and metabolic needs change with age, gender, race, and even occupation. ‘Normal’ haemoglobin or lipid related values depend on genetics, diet, and the environment. Men have higher red blood cell counts; Africans have lower white cell counts; and Himalayan populations have more haemoglobin. On the other hand, physiological constants such as heart rate or kidney filtration vary little worldwide.

As a result, medical interpretation in India demands that we recognise these differences rather than borrow benchmarks wholesale from the West. Unfortunately, for many common laboratory parameters, including haemoglobin, no large, authoritative Indian reference studies exist. As a result, we risk both over diagnosing and underdiagnosing disease.

Clinical correlates

The reference ranges are not natural: they are statistical constructs that people put together by testing others in particular circumstances, with particular assumptions. At the bottom of every lab report is a line written keeping this fact in mind: “Please correlate with clinical findings.” To correlate clinically means to bring a number back into the world of people, that is, to listen to a patient’s story, examine them, and interpret the number in their full context.

For example, a high BMI may signal overweight or, on the positive side, increased muscle mass, which is often the case with athletes. Similarly a borderline thyroid reading may reflect an illness or it could be a normal physiological variation. Ultimately, health workers must go in with a measure of humility that focuses as much on the term “range” as on “reference”.