CURRENT AFFAIRS FOR UPSC

10th to 16th May 2026

DreamIAS

INTERNATIONAL

SUPERPOWER SUMMIT

As U.S. President Donald Trump left Beijing on Friday after two days of talks with Chinese President Xi Jinping, the world's two biggest powers appeared to have come to a temporary truce. How long it will last remains to be seen, given that the summit concluded without any apparent breakthroughs in the long list of differences, from trade to Taiwan, that have strained relations. Instead, both sides appear focused on injecting some stability into a relationship that has, of late, seen many ups-and-downs. Mr. Xi offered a new label for ties, calling for "a constructive relationship of strategic stability" for the remaining years of Mr. Trump's term and beyond. If both agree on the need for some stability, their priorities appear to differ. Mr. Xi told Mr. Trump that Taiwan was the most important issue in the relationship, which could descend into conflict if not properly managed. The U.S. stance on Taiwan remains unchanged, which includes substantial arms sales. How this détente will handle the Trump administration's next sale remains to be seen. For Mr. Trump, getting China to buy more American goods and relax controls on rare earths are key metrics of the health of ties. He said that Beijing had agreed to buy 200 Boeing aircraft, step up purchases of soyabean, and relax restrictions on U.S. beef exports – the "three Bs" he has emphasised. The U.S. has also allowed 10 Chinese firms to resume purchases of advanced Nvidia chips. Both sides have discussed setting up a Board of Trade to manage trade issues, including reducing tariffs on some Chinese goods, and a Board of Investment to green light Chinese investment in non-sensitive sectors.

These deals, if confirmed, may at most lead to a pause in a bruising trade war. However, the Beijing summit has also served as a reminder of the broader changing structural dynamics in relations between the world's two biggest powers. If the U.S. remains the pre-eminent military power today, it is the limits of its ability to command global influence that have come into question increasingly, all the more so after the Iran war. China, for its part, has made clear it is no longer interested in biding its time or hiding its global ambitions. As Mr. Xi put it to Mr. Trump, can China and the U.S. avoid the Thucydides Trap, of an inevitable conflict between the established power and the rising power, and create a new model of relations? This question holds significance for India and the rest of the world, which have to navigate this rivalry. Standing up to U.S. pressure, while managing difficult relations with an increasingly confident China, will be two key tests of India's diplomacy in the years to come. Reinforcing India's strategic autonomy and independence, rather than diluting it, will offer the best path forward.

ELUSIVE PEACE

On May 9, speaking to reporters after the Moscow Victory Day parade, Russia's President Vladimir Putin said the war with Ukraine was "coming to a close", and, for the first time since the war began in February 2022, indicated that he would be willing to meet Ukrainian President Volodymyr Zelenskyy if talks were aimed at finalising a long-term peace deal. His comments underscore the pressure that he faces, both domestically and on the battlefield, as the war, which he launched as a 'special military operation', drags into its fifth year. Mr. Putin had said in 2022, months after the invasion began, that Russia would do "our best to stop this as soon as possible". Yet, the war continued, with Russian troops making incremental advances in eastern and southern Ukraine. Those gains, however, have now largely stalled. While the frontline has barely shifted this year, both sides have carried out devastating drone and missile strikes. In the early years of the war, the Russian public was largely insulated from its consequences. That is no longer the case. Today,

Ukraine is capable of striking deep inside Russian territory. Tax increases, rising prices and a deepening gloom in the business sector have fuelled public frustration, affecting Mr. Putin's approval rating. At the same time, hardline nationalist sections are demanding a more forceful response to Ukraine's attacks, adding to the pressure on the Kremlin.

Russia has so far ruled out a lasting ceasefire. Instead, it seeks a comprehensive peace agreement — Ukraine must remain neutral, withdraw from the Donbas region, sanctions on Russia must be removed and a new security arrangement between Moscow and NATO. While Russia has genuine security concerns, amplified by NATO's unchecked eastward expansion, clinging to maximalist demands while fighting a seemingly endless war will not make Russia stronger. Mr. Putin launched the war expecting a swift victory. His forces have captured over 20% of Ukrainian territory, but at a tremendous cost. It is time that he shifted focus from continuing a war with no clear endpoint to finding a path to peace. Ukraine has demonstrated that it can withstand an invasion by a great power. But Kyiv, too, lacks a realistic pathway to victory. Russia, despite mounting challenges, retains the military capacity to inflict greater damage, and if the war drags on, Kyiv risks losing more territory. Europe must also realise that the Ukraine war has weakened the continent economically and politically, leaving it more dependent on the U.S. even as Washington is drifting away. The four-plus years have shown that there is no military solution to this conflict. What is needed instead is a serious push by all sides toward a negotiated settlement.

FEARING RETURN TO WAR, IRAN CONSERVATIONISTS SHORE UP DAMAGED HERITAGE SITES

As fears of renewed conflict hang over Iran, conservationists are shoring up battered historic sites and taking stock of the damage caused by the war with the United States and Israel, though experts warn some repairs could take years.

At Golestan Palace, a defining cultural landmark in central Tehran, shattered mirrors, broken doors and debris from ornate ceilings now lie scattered across parts of the site after shockwaves from strikes on the capital following the outbreak of conflict on February 28.

The former royal residence, known for its sprawling gardens, pools and royal halls, has been listed as a UNESCO World Heritage site since 2013.

The fragile truce in place since April 8 has allowed experts to begin gauging the scale of the damage, though the complex remains closed to the public.

The palace, known for blending 19th-century Persian arts and architecture with European styles and motifs, is among at least five UNESCO-listed sites damaged during the conflict. "Fifty to 60% of its doors and windows are broken," Jabbar Avaj, director of the Golestan Palace museums, told the official IRNA news agency.

The palace's famed Mirror Hall — known for shimmering mosaics covering its ceilings and walls — and the Marble Throne, a ceremonial platform supported by statues representing mythical and royal symbols, were "seriously damaged", he said.

'Shadow of war lingers'

Other affected UNESCO-listed sites include Chehel Sotoun Palace and the Masjed-e Jame mosque in Isfahan, as well as the prehistoric sites of the Khorramabad Valley.

Beyond the listed sites, the war affected at least 140 culturally and historically significant locations across Iran, according to Hassan Fartousi, head of Iran's National Commission for UNESCO.

Among them are Tehran's Marble Palace, the Teymourtash house and the sprawling Saadabad Palace complex in northern Tehran, a former royal residence set within a vast park and home to several museums.

Funding woes

Mr. Fartousi also worries that even after repairs, damaged heritage sites may never recover their original character, noting the entire idea of cultural heritage rests on "the concept of originality".

Funding remains a major challenge, with the Iranian government yet to announce a restoration budget as it struggles to offset the impact of the war and a US blockade that has severely disrupted exports.

"Unfortunately, UNESCO and other international organisations have limited budget," he said, adding that negotiations were ongoing to secure support.

IN QOM, INDIAN VOLUNTEERS SERVING SHARBAT AMID WAR FEARS AND PROTESTS

The air in Iran's holy city of Qom carries many scents these days — smoke from recent attacks, dust from restless streets, and the sharp bitterness of a nation living under the shadow of war. But amid the tension, another fragrance quietly drifts through the crowds gathering every evening: chilled Indian sharbat.

As thousands of Iranians pour onto the streets after sunset — some protesting, some mourning, some simply searching for solidarity — a small roadside stall has begun drawing unusual attention. Above it flutters the Indian tricolour. Behind it stand young Indian students, researchers, and businessmen, handing out glasses of pineapple sharbat to exhausted strangers under the blazing summer heat.

In a city shaken by political uncertainty and emotional exhaustion, this modest stall has become something larger than a refreshment counter. For many here, it is a symbol — that while governments may change positions and diplomacy may fluctuate, ordinary people can still choose compassion.

Qom is home to one of the largest Indian communities in Iran. Nearly 3,000 to 3,500 Indians live in the city, many of them students enrolled in religious seminaries and universities. Others are researchers, traders, or retirees who have spent years building lives here.

When tensions escalated and advisories urged Indian nationals to consider leaving, several members of the community decided to stay back. Some stayed because Qom had become home. Others believed leaving during a crisis would send the wrong message to the people among whom they had lived for years.

"India and Iran have centuries of cultural connection. Our country also fought colonial rule and understands the value of independence and resistance."

The Indian tricolour fluttering over a sharbat stall in Iran may not alter the course of geopolitics. But on the streets of Qom, where fear, grief, and uncertainty currently define daily life, it has managed to create something equally powerful: trust.

NATIONAL

DATA AND JUSTICE

In the latest step in a long-standing effort to digitise the judiciary, Chief Justice of India (CJI) Surya Kant announced two initiatives from the Bench, called 'One Case, One Data' (OCOD), a unified judicial data platform, and 'Su-Sahayak', an AI-powered chatbot on the Supreme Court of India website. OCOD promises a unified digital trail for a dispute as it moves through various courts, linkages between court records and litigant actions (such as appeals), easier access to various documents, lower need for manual verification, reciprocal access to High Courts and other courts, and more accurate judicial statistics. It is notable considering the wide variation in software practices and records quality across India's thousands of district and subordinate courts. If the programme succeeds, standardised data could also allow administrators to determine where cases are held up and ease procedural bottlenecks, and improve data-based decision-making overall. 'Su-Sahayak' has been integrated into the Court website's front-end to help users navigate case status, cause lists, orders and judgments, e-services, and frequently asked questions. As with any major state-backed technology rollout in India, questions about interoperability, integrity of legacy records, restricting access to private information, and staff skilling remain. By aspiring to a centralised digital fingerprint for each case, OCOD also bears the risk of misuse.

While the CJI said that these new tools will improve "access to justice", their introduction risks deepening the digital divide. OCOD may require lawyers to maintain digital scanners, cloud backup options, and updated software. Metropolitan corporate firms can easily absorb these costs but independent practitioners in the district and taluka levels will lack the capital. The system may also introduce digital middlemen to help litigants who cannot navigate the e-filing portal, potentially creating a new layer of unregulated costs. While the government has launched assistants with voice-first capabilities, such as Jan Sahayak, 'Su-Sahayak' is primarily text-based and could exclude people who are not comfortable typing or navigating complex website menus. The state and the judiciary must ensure that the AI model is not biased against marginalised communities who were historically disproportionately arrested or denied bail. India's courts have generally been more comfortable with AI for assistance than for substantive reasoning. 'Su-Sahayak' follows SUVAS, to translate judgments, and SUPACE, which processes facts and legal precedents. The line must continue to hold as the judiciary adopts more powerful tools that have already tempted practitioners in other domains to abuse them.

GOVERNOR'S ROLE IN GOVT. FORMATION

The story so far:

The Tamilaga Vettri Kazhagam (TVK) secured 108 seats, 10 short of a majority, in the recently concluded Tamil Nadu Assembly elections. After hectic parleys with smaller parties, letters of support from 120 members were provided to the Governor. The Governor then invited TVK chief C. Joseph Vijay to form the government, who was sworn in as Chief Minister.

What are constitutional provisions?

Article 164(1) of the Constitution provides that the Chief Minister of a State shall be appointed by the Governor, while other ministers shall be appointed by the Governor on the advice of the Chief Minister. When a single party secures a clear majority in the Assembly, the Governor invites the

leader of that legislative party to form the government. If no party secures a majority, the Governor exercises his/her discretion in appointing the Chief Minister.

The Constitution does not prescribe any criteria for selecting the Chief Minister in the event of a hung Assembly. The Sarkaria Commission (1987), followed by the Punchhi Commission (2010), recommended the manner in which the Chief Minister may be appointed in case no party enjoys a majority in the Assembly. The order of preference indicated by these commissions is as follows — first a pre-poll alliance that enjoys majority; next the single largest party staking a claim to form the government with the support of others; then a post-electoral coalition of parties, with all partners in the coalition joining the government; and finally, a post-electoral alliance with some parties joining the government and the remaining parties supporting the government from outside.

What are the issues?

The recommendations of the above commissions and conventions require Governors to act in a bipartisan manner while selecting the Chief Minister in a hung Assembly. However, Governors have, on numerous occasions, appointed Chief Ministers without following any particular order.

For instance, after the Assembly elections in Goa (2017) and Manipur (2017), the Governors invited BJP-led post-poll alliances to form the government, even though the Congress had emerged as the single largest party. These governments later proved their majority in the Assembly. On the contrary, in Karnataka (2018), the Governor invited the BJP, as the single largest party, to form the government over a claim by the post-poll alliance of Congress and Janata Dal (Secular). In 2019, the Governor of Maharashtra appointed a BJP-led coalition government when there was uncertainty as to whether it enjoyed a majority. On both occasions, the Chief Ministers had to resign as they were unable to muster the required majority.

Under the Constitution, the Governor is the nominal head of the State executive and possesses certain discretionary powers in specific situations. The discretion vested in the Governor to select a Chief Minister in a hung Assembly is to enable him/her to appoint a government that would be stable and enjoy the majority in the Assembly. However, the conduct of Governors in several such situations has raised concerns that they often function more as agents of the Union government than as impartial constitutional heads of the States.

What can be the way forward?

In the current situation in Tamil Nadu, TVK was the only party to stake a claim to form the government. The Governor's office indicated that, since the claim was a post-poll alliance, it was essential to validate whether the formation enjoyed the majority support of 118 members. However, the constitutional requirement for a government is to have the support of the majority of members present and voting in the Assembly. The majority of 118 in the Tamil Nadu Assembly is based on the full strength of the 234-member Tamil Nadu Assembly and does not account for possible abstentions during the vote.

The Supreme Court in the S. R. Bommai v. Union of India (1994) had categorically held that the 'floor of the House' is the constitutionally ordained forum for testing the majority support enjoyed by a government. This was reiterated in the Rameshwar Prasad case (2006).

The use of discretionary powers by the Governors has been subject to various court pronouncements. Nevertheless, judicial differences in interpretation resulted in inconsistent application of these principles.

The recent Justice Kurian Joseph Committee report on Union-State relations, constituted by the earlier Tamil Nadu government, recommended incorporating a new schedule into the Constitution to codify the rules governing the Governor's use of discretionary powers. This may be considered to provide a constitutional basis for the use of such discretionary powers. It is imperative that the Governors exercise their discretionary powers in a bona fide manner.

VANDE MATARAM AND THE CHALLENGE TO MULTICULTURAL NATIONALISM

The official oath-taking ceremony of C. Joseph Vijay, as the 13th Chief Minister of Tamil Nadu, on May 10 saw the playing of the national song Vande Mataram at the beginning and end of the event, before the national anthem and the Tamil anthem (Tamil Thai Vaazhthu — a song praising Mother Tamil). Written in 1871, the Tamil anthem has been sung at all Tamil Nadu government events since 1970, following an order issued by the then Chief Minister, Mr. Karunanidhi. It is a secular song that praises the language and culture of the land without invoking any specific religion.

In 2018, controversy erupted when the Kanchi Pontiff, Shri Vijayendra Saraswathi Swamigal, refused to stand during the Tamil anthem. A legal case was filed, and in 2021, Justice G.R. Swaminathan of the Madurai Bench of the Madras High Court said that the Tamil Anthem was only a prayer song and that there was no executive or statutory order requiring people to stand. Then, the Dravida Munnetra Kazhagam (DMK) government under M. K. Stalin declared Tamil Thai Vaazhthu the State song and mandated that everyone, except persons with disabilities, should rise while it is sung. It has been performed before the national anthem at all State government events.

Vande Mataram has long been controversial due to its glorification of one religion. In February 2026, the Government of India made it mandatory to play or sing the full song at all government events. According to the order, the song should be rendered during the arrival and departure of the Governor at formal State functions. Vande Mataram was sung at Mr. Vijay's oath-taking ceremony in this order. But why did the opposition parties, including Congress, oppose singing the full verses of Vande Mataram at government events? While the song is celebrated for its literary excellence and its role as a slogan during the freedom struggle, the song has a strong communal undertone, glorifying the Hindu religion, which is against the secular and multicultural values of the Indian state.

Historical origins

Bankim Chandra Chatterji's Bengali novel Anandamath, written in 1882, has the song Vande Mataram ("Hail to the Mother"). The novel was translated into English as Abbey of Bliss by Nares Chandra Sen-Gupta in 1906. The original novel's context was the Sannyasi rebellion against Muslim rule, where the author welcomed British rule and its positive potential for transforming India.

During the national independence movement, the novel was translated again by Basanta Koomar Roy in 1941. This version sanitised all its communal aspects to suit the Indian independence movement.

In the preface to the 1941 translation, William J. Jackson, Professor, Department of Religious Studies at Indiana University-Purdue University, mentioned that the original author would not

have approved of various omissions made in the new translation. The 1941 translation, which is widely available today, does not reveal the original context of the novel or the song Vande Mataram.

In the prefatory note to the original 1906 translation, Abbey of Bliss, Nares Chandra Sen-Gupta stated that anti-Muslim sentiment and Hindu nationalist feelings were significant aspects of the novel. He wrote: "Two very sinister consequences are seen to flow from this conception of a religious basis of nationality in the present work. The first is the attempt to rehabilitate the Hindu Pantheon with new-fangled patriotic gods and goddesses, and the second is the morbid dislike of Mussulmans that seems to be indicated in this work" (pages vii–x). He further observed that the heroes of the novel were hostile to Mussulmans, and this led him to think thrice before placing the work before a larger public through translation.

The novel not only glorifies the Hindu religion but also expresses anger that the caste system is not being protected under Muslim rulers. One passage states: "In every country, the bond that binds a sovereign to his subjects is the protection that he gives; but our Mussalman king — how does he protect us? Our religion is gone; so is our caste, our honour and the sacredness of our family, even! Our lives even are now to be sacrificed. Unless we drive these tipsy long beards away, a Hindu can no longer hope to save his religion."

It is not only the Muslim rulers who are opposed in the original novel; hatred against ordinary Muslims is widespread. In some sections, the villagers are urged to set fire to the Muslim homes and pillage them. The novel also mentions the Sannyasi rebellion as a means to make the British, the sovereigns of India, who are friendly and can instill knowledge of Hinduism. One passage reads: "The true Hinduism is based on knowledge and not on action. To revive it, therefore, you have first to disseminate objective knowledge. The English are great in objective sciences, and they are apt teachers. Therefore, the English shall be made our sovereign".

The present debate

During the pre-independence period, the leaders did not reject Vande Mataram completely but tried to restrict it to the first two stanzas, as the other stanzas glorified religion. Jawaharlal Nehru read the original English translation, Abbey of Bliss, to understand the song's background and agreed that it would irritate Muslims. In 1937, a Congress sub-committee resolved to sing the first two stanzas, which praised the beauty and abundance of the motherland. The other stanzas were excluded from the singing. During the Constituent Assembly debates, many Bengali members, including Syama Prasad Mookerjee, praised the song, but finally, Jana Gana Mana was adopted as the national anthem.

An idea or a text derives its meaning from the context in which it emerges; without that context, it becomes a mere ritual. Nationalism and patriotism are not mere rituals; they carry emotional and moral duties towards the political state. The revival of the song and its imposition at this period, when accusations against the ruling regime of its communal polarisation reeked more ideological than nationalistic. Indian nationalism can never be confined to a monocultural identity, and we need stronger voices from Opposition parties and civil society to protect the multi-cultural foundations of the Indian state.

SIR-DELETED CAN'T AVAIL GOVT SCHEMES: BENGAL; BIHAR TO CANCEL PASSBOOKS

Triggering fresh apprehension among those deleted from electoral rolls under the Special Intensive Revision (SIR) exercise, the BJP governments in West Bengal and Bihar have said that they will not be able to avail government schemes in their states.

Key Takeaways:

• However, those whose cases are under consideration before tribunals in West Bengal will continue to receive the same till their matter is decided, the newly elected government in the state said.

• The BJP government in West Bengal held its first Cabinet meeting Monday, where it announced that all social schemes of the previous governments in the state would continue, while Central programmes that the Trinamool Congress regime had blocked would now be available.

• Before the SIR process began, Bengal had 7.66 crore voters. After the SIR, there were 58.20 lakh deletions initially, which rose to around 91 lakh after adjudication of "logical discrepancy cases" (an exercise done only for Bengal). Bihar saw around 68 lakh deletions.

• After the EC set up 19 Appellate Tribunals in West Bengal on March 20 on orders of the court, over 34 lakh appeals against exclusions and inclusions were filed. The slow-moving process meant that before the state polls, only 1,607 names of those deleted after adjudication could be added back to the electoral roll, while 14 more names were deleted.

• Matters related to citizenship, including deprivation of citizenship, are governed by the Citizenship Act, 1955, and it is the Union Home Ministry that has the power to declare somebody a foreigner or revoke citizenship. During the Supreme Court hearings on the SIR, where the question of whether it is a test of citizenship has been debated, the Election Commission of India has been clear that though it does not have the power to determine citizenship, its right to "verify" citizenship status flows from Article 326 of the Constitution, which says Indian citizens above the age of 18 years can be registered as electors.

• In fact, in its counter-affidavit filed in the court in July last year, the ECI had underlined this point, while adding: "Under the SIR exercise, the citizenship of an individual will not terminate on account of the fact that he / she is held to be ineligible for registration in the electoral rolls."

Do You Know

• The term 'SIR' has been trending across India… and along with it a lot of questions and confusion. The exercise first began in Bihar ahead of the Assembly elections and has now expanded to 13 states and Union Territories in the country.

• SIR, or Special Intensive Revision, is a large-scale verification exercise that the ECI undertakes when it believes the routine annual "Summary Revision" is not enough to clean the voter rolls. It involves house-to-house enumeration, pre-filled forms, online submissions, and fresh verification of old voter data.

• Article 324 of the Indian Constitution grants ECI 'plenary powers' to supervise and update electoral rolls. Section 21 of the Representation of the People Act, 1950, also allows the Commission to order an intensive revision whenever it finds inaccuracies in the existing rolls.

• The Election Commission has reasoned that the usual yearly revisions can no longer fix what it calls "legacy data" issues — errors built up as India has not had a nationwide house-to-house revision since 2002-2004. In those two decades, voter rolls across states have accumulated:

—Dead or shifted voters who were never deleted

—Duplicate registrations of the same person in multiple locations

—Statistical distortions where elector numbers rise faster than projected population

AI-ENABLED OVERSIGHT LAYER FOR CONTINUOUS ELECTORAL ROLL MONITORING

Within 72 hours of the recently concluded Assembly elections, the Election Commission (EC) released detailed statistical reports and index cards showcasing the capabilities of ECINet, its digital electoral platform formally launched in its full-fledged professional version in January 2026. However, during the special intensive revision (SIR) for the same West Bengal elections, the EC neither disclosed the status of nearly 34 lakh appeals, including seven lakh deletion appeals, pending before the 19 Supreme Court-appointed tribunals, nor released comparable transparency reports, despite all relevant information being readily available within ECINet.

Reportedly, one tribunal headed by the former Chief Justice of the Calcutta High Court disposed of 1,777 appeals, allowing all 1,717 citizen appeals for inclusion and rejecting all 60 EC appeals for deletion. Similar large-scale corrections may have occurred before the other 18 tribunals. In contrast, the EC reportedly included only about 1,607 voters before polling. Such selective disclosure and inconsistent transparency raise serious questions about the EC's functioning, neutrality, and suppression of equally significant information that could potentially influence electoral outcomes.

The absence of comparable transparency and status disclosures for SIR, despite reports of large-scale discrepancies and disenfranchisement, raises serious questions about selective disclosure and institutional double standards within the EC. As a constitutional authority, the EC commands the highest institutional dignity and trust. Equally, it must remain accountable, transparent, and open to objective scrutiny, especially when allegations of arbitrariness, bias, and large-scale exclusion of genuine voters emerge.

Against this backdrop, an independent AI-enabled oversight layer integrated with ECINet could continuously assess electoral roll revision processes, including neutrality, consistency, and procedural arbitrariness. The proposed AI watchdog framework is straightforward to implement, with a foundational operational model achievable within a few months and capable of continuous enhancement thereafter.

Failures in SIR 2.0

SIR 2.0 exposed unprecedented chaos driven by ad hoc, ever-changing, and subjective SOPs (Standard Operating Procedures) that reportedly excluded millions of genuine voters from electoral rolls and, in several cases, denied candidature rights. What began as an exercise to improve electoral accuracy by removing ASDD (absentee, shifted, duplicate, dead) entries and adding new voters instead resulted in widespread uncertainty, repeated verifications, prolonged appeals, and allegations of arbitrariness, discrimination, and bias.

The exercise relied heavily on inaccurate, incomplete, and non-searchable legacy SIR 2002-04 databases. Instead of correcting defects at the source, the burden of proof was shifted onto voters, forcing genuine citizens to repeatedly establish their eligibility despite long voting histories and valid documents. The process was further marked by uneven application of the logical discrepancy criteria across regions and voter groups, resulting in non-uniform outcomes for similarly situated voters. Minor mismatches in names, ages, or family details often led to exclusions, while opaque decision-making and the absence of reasoned orders fuelled allegations of arbitrariness and algorithmic bias.

The consequences were most alarming in West Bengal, where only about 1,600 inclusion appeals and merely six deletion cases were reportedly disposed of before polling, out of nearly 3.4 million pending appeals, even though inclusion appeals reportedly had a success rate exceeding 99%. Those excluded reportedly included electoral officials and prospective candidates. Notably, one such excluded individual, later cleared for inclusion, went on to be elected as an MLA.

In an unprecedented situation, 49 Assembly constituencies reportedly recorded victory margins lower than the number of voters awaiting disposal of inclusion appeals. The apex court observed that relief for many may come only in future elections and that post-election scrutiny may be necessary in constituencies where victory margins fall below the scale of discrepancies and pending appeals, raising serious concerns over electoral integrity and the possibility of post-election chaos. The situation reflects not merely administrative failure, but a deeper crisis of credibility in the electoral roll revision process itself.

These developments exposed deeper structural weaknesses in electoral roll management. They stood in sharp contrast to the EC's repeated commitment to "ensuring free, fair, transparent, accessible and peaceful elections" and its assurance that "no genuine voter is disenfranchised."

More significantly, this occurred despite ECINet reportedly being capable of handling three crore hits per minute and maintaining detailed operational data for every voter and transaction. Yet neutrality, consistency, and accountability continued to depend largely on opaque manual processes, administrative discretion, and post-facto correction. The SIR 2.0 experience, therefore, underscored the urgent need for a continuous, technology-driven oversight mechanism capable of monitoring processes, detecting anomalies, assessing institutional neutrality, and identifying discriminatory patterns in real time.

AI oversight for ECINet

As AI increasingly powers governance and large-scale public systems, electoral management too requires intelligent, continuously auditable oversight. Embedding an AI-enabled watchdog within ECINet offers a practical pathway to build a neutrality-aware electoral roll management system capable of safeguarding democratic participation and public trust.

Integrated directly with ECINet, the proposed AI layer would function as a continuous oversight and analytics engine. It would monitor system usage, track decision patterns, analyse voter-official interactions, and generate real-time indicators of neutrality, consistency, efficiency, and citizen satisfaction at booth, constituency, district, and State levels. Unlike post-facto reviews, it could continuously audit electoral roll revision processes using transactional and procedural data already available within ECINet, enabling early detection of irregularities before they escalate into large-scale disenfranchisement or administrative crises.

The system could automatically flag anomalies and discriminatory patterns, including unusual spikes in deletions, inconsistent application of SOPs, repeated rejection trends linked to specific officials, excessive grievance delays, abrupt policy shifts, bias arising from logical discrepancy filters, disproportionate exclusions due to minor spelling or family-data mismatches, and concentrated deletions in specific regions, castes, or communities. It could also compare outcomes across regions to identify differential treatment of similarly placed voters and enforce consistency in institutional communication by tracking announcements, circulars, deadlines, SOP revisions, and field instructions.

Further, continuous analysis of bottlenecks, software glitches, verification failures, grievance trends, and operational inefficiencies could support evidence-based refinement of SOPs, replacing ad hoc administrative responses with measurable corrective action. A foundational operational version of such an AI watchdog could be implemented within a few months and continuously enhanced thereafter.

Way forward

An AI-enabled watchdog integrated with ECINet could continuously monitor electoral operations, assess institutional neutrality, detect anomalies and discriminatory patterns, and flag inconsistencies or shifting eligibility criteria.

It could also standardise announcements, deadlines, and procedural updates, reducing confusion and non-uniform implementation across regions.

With ECINet already fully operational, AI-driven oversight could make SIR processes more transparent, neutral, accountable, and citizen-centric. Importantly, such a system would strengthen — not replace — constitutional authority through transparent audit trails, fairness metrics, evidence-based oversight, and measurable accountability, while reducing arbitrariness, opacity, and public distrust.

Note:

The Election Commission of India (ECI) has announced a third phase of its controversial Special Intensive Revision (SIR) of electoral rolls, covering 16 States and three Union Territories with a combined electorate of 36.73 crore. Given what transpired in Phase 2 — a staggering net trim of 10.2% in the rolls — it would be prudent for the ECI to make structural changes in how it conducts this third phase, so that the disenfranchisement visible particularly in States such as West Bengal is not repeated. At least, the exercise will not be hurried through because of an impending election. The SIR has produced mass deletions of varying scale across States, with West Bengal's the most egregious.

DISPUTED BHOJSHALA COMPLEX A TEMPLE, SAYS M.P. HIGH COURT

The Madhya Pradesh High Court on Friday ruled that the disputed site of Bhojshala complex and Kamal Maula Mosque in Dhar district of Madhya Pradesh is a temple dedicated to goddess Vagdevi (Saraswati). The court allowed the Hindu community to worship at the site, while dismissing the Muslim community's claim.

In a 242-page order, a Division Bench of Justices Vinay Kumar Shukla and Alok Awasthi in Indore dismissed the petitions of the Muslim and Jain communities, filed recently, while saying that the

Muslim representatives can seek an alternate piece of land in Dhar district from the Madhya Pradesh government.

The court quashed a 2003 order of the Archaeology Survey of India (ASI) that allowed the Muslim community to offer Friday prayers at the site. The ASI order also permitted the Hindus to offer worship within the Bhojshala complex on Tuesday and Basant Panchami.

"The disputed area of Bhojshala and Kamal Maula Mosque is held to be a protected monument under the Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958, with effect from March 18, 1904. The religious character of disputed area is held to be a Bhojshala with a temple of goddess Vagdevi (Saraswati)," the court order said. The court took inspiration from the Ram Janmabhoomi-Babri Masjid verdict in 10 principles.

While the Hindu side termed it a "historic verdict", the representatives of the Muslim community said they would challenge it in the Supreme Court.

The High Court directed the Union government to make efforts to bring back an idol of goddess Saraswati from the London Museum as it had been taken to the United Kingdom in the late 1800s and re-establish in the 11th-Century monument.

The Bench rejected the Muslim side's argument that an August 1935 Ailaan (official proclamation) by the then princely State of Dhar declared the site as a mosque under provisions of the Government of India Act, 1935. The court noted that the Act was only enforced in April 1937, while rejecting the validity of the Ailaan.

"In order to secure the religious rights of the Muslim community and to ensure complete justice between the parties, in case if the respondent No.8 submits an application for allotment of a suitable land within the Dhar district for the construction of a Mosque or a place for prayer, the State Government may consider the said application in accordance with law…," it said.

It directed the Union government and the ASI to take a decision on the administration and management regarding the affairs of the Bhojshala temple and Sanskrit learning at the site, while granting the ASI management and administration control of the property.

"The ASI shall have full supervisory control over the preservation, conservation and regulation of religious access," it said.

During the hearings, the Muslim side had alleged that the ASI survey report was "biased" and prepared to back the Hindu side's claims. Claiming that the ASI ignored historical texts and its own records, the Muslim side said the survey findings "have no legal basis".

The court said the ASI had used scientific methods in its survey, including carbon dating and palaeography to determine the age and historical period of the structure, and XRF spot analysis and compositional testing to examine the construction material. "The findings scientifically supported the conclusions recorded in the report."

The order follows daily hearings that concluded on May 12, based on a report of a court-ordered scientific survey conducted by the ASI.

WE WILL NOT ALLOW NEW FAITH-BASED PRACTICES IN SCHOOLS: SIDDARAMAIAH

Karnataka Chief Minister Siddaramaiah has made it clear that the government will not allow the introduction of new practices along with uniforms in educational institutions in the State.

Responding to queries by presspersons in Mysuru on Thursday on the State government's decision to permit students to wear traditional and faith-based symbols, along with the prescribed uniform, in schools and colleges, Mr. Siddaramaiah said students from primary school classes to class 12 can wear janivara, Shiva dhara, rudraksha, and turban, besides hijab.

When his attention was drawn to the BJP's criticism for permitting hijab, and asked if the government will permit students to sport saffron shawls and turbans, Mr. Siddaramaiah said such shawls will not be allowed. Only those turbans, whose use is already in practice, will be allowed. "No new practices will be allowed," he said.

Mr. Siddaramaiah said the revised dress code has been implemented in schools and colleges across the State, in keeping with the constitutional principle of equal respect for all religions.

"This is not a dress code intended to please or hurt anyone, but a dress code that respects the practices and traditions of all castes and religions," he said.

"It is natural for those who are dividing the society on the basis of caste and religion to feel pain from this. Let them first look within themselves and do some introspection," the Chief Minister said, apparently referring to the opposition BJP.

The dress code implemented in the State's educational institutions is in line with the dress code followed in Kendriya Vidyalayas under the control of the Union government, he said. Those who oppose the dress code issued by the State government should also oppose the dress code of Kendriya Vidyalayas, "Why this hypocrisy?," he added.

FIRST NIKAH HALALA CASE FILED UNDER UCC IN UTTARAKHAND

For the first time since its implementation in Uttarakhand last year, police have invoked provisions of the Uniform Civil Code (UCC) in a nikah halala case alongside dowry and other criminal offences on a complaint filed by a woman against her husband and in-laws.

Nikah halala is a practice in some interpretations of Muslim personal law involving remarriage requirements after divorce. It has remained politically and legally contentious in India.

The case stems from an FIR registered at the Bhagwanpur police station in Haridwar on April 4 following which a chargesheet was submitted on Thursday. The accuser, Shabana, approached the police with a written complaint over allegations of dowry harassment, cruelty and 'offences' linked to Muslim marriage laws. The FIR was initially registered under Sections 3 and 4 of the Dowry Prohibition Act, Sections 3 and 4 of the Muslim Women (Protection of Rights on Marriage) Act, and Bharatiya Nyaya Sanhita Sections 115(2) and 85. Police also examined nikah halala charges, as alleged in the complaint. They said evidence emerged during probe supporting the addition of Sections 32(1)(ii) and 32(1)(iii) of the UCC. Police have named nine accused in the case.

1.75 LAKH, 1.77 LAKH OR 1.81 LAKH: WHAT WAS INDIA'S ACTUAL ROAD ACCIDENT DEATH TOLL IN 2024?

While India continues to be the top nation in terms of total fatalities from road accidents, these deaths often end up being just plain statistics that can be disputed.

The data on road accidents and fatalities are released every year by two central agencies- the Ministry of Road Transport and Highways (MoRTH) and the National Crime Records Bureau (NCRB). But there has been a persisting mismatch in these figures for many years, varying to the tune of thousands of deaths.

The MoRTH report for 2024 says that a total of 1.77 lakh people died in road accidents across the country. Whereas the NCRB's "Accidental deaths & suicide in India" report, released online on Wednesday (May 6), says that 1.75 lakh people died during the period. "Crime in India", another report by the NCRB, which records deaths due to negligence relating to road accidents, shows that 1.81 lakh people lost their lives in road crashes in 2024.

The mismatch is not unusual. An analysis of the last five years of data shows that, barring 2023, the number of road fatalities varied across reports. This trend has continued even when the road transport ministry rolled out its ambitious Electronic Detailed Accident Report (e-DAR)/Integrated Road Accident Database (iRAD) system in 2021-22, with the intent of collecting real-time data entered by the police.

What are the data sources for accident data?

In an accident, the policeman, who is typically the first responder, is regarded as the best source of primary data. One may also rely on data from hospitals and state transport departments.

The Transport Research Wing (TRW), a division of MoRTH, collects accident data from the state police departments in formats provided by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) under the Asia-Pacific Road Accident Data (APRAD) base project. It collects 21 types of data from the police, including accident identification, details of the road, the vehicle and its driver. This data is used in four of its important publications, including Road Accidents in India.

However, the report often gets delayed due to delays in data sharing by the states, with the 2023 report being the latest available report. Thus, the ministry has shifted to eDAR/iRAD data for its decisions.

The NCRB, on the other hand, collects the data from State Crime Record Bureaus (SCRBs). The SCRBs collect data from District Crime Record Bureaus (DCRBs), which in turn get the data from the police stations. The source of both departments' data is the same.

In case of death by negligence due to an accident, the police FIR would register the crime under section 304-A of the Indian Penal Code (IPC), now under section 106 of Bharatiya Nyay Sanhita (BNS).

According to the WHO's global status report, even internationally, around 50% of reporting countries relied on police data, 7% on the health departments and another 11% from transport departments.

What could explain the disparity in data?

A senior official of MoRTH explained the reason for the mismatch in numbers. "While the source of road accident data is the police, the difference is in the proactiveness in supplying the data. Since the police are under the Home Ministry, they have to give them (NCRB) the data in any case. We are a different authority; we have to reach them through multiple channels. Also, the data reported by the Police is often limited to the questions asked by TRW," said the official.

The official further said that to resolve these issues, the iRAD/eDAR system was created, but some states continue to not report properly. "In every system, there will be some discrepancy. The difference has gone down much, less than 5%. In eDAR, along with CCTNs, hospitals are also linked, but not all. Soon we will be able to match both the hospital and police data," said the official.

In the eDAR system, the police personnel enter details about the accident and geotag it with photos and videos in the app. However, there is a possibility of under-reporting of fatalities by police if the deaths take place after 30 days and may not get reported. Further, there is a risk that the police officer's biases and value judgments cloud the data they enter.

According to the World Road Statistics by the International Road Federation, India continues to be the top country in total people killed due to road accidents, followed by China and the United States. Iran has the highest rate of persons killed per lakh population. Several countries, such as Pakistan, Nigeria, Ethiopia and China, have lower rates of persons killed per one lakh population than India.

WHY NEET IS MORE PRONE TO PAPER LEAKS THAN JEE

Multiple people have been detained in Maharashtra and Rajasthan amid a widening probe into the NEET-UG paper leak, which led to the exam being cancelled.

Key Takeaways:

• The NEET-UG examination, which is the only way for students to get admission to a medical course, remains extremely competitive. Nearly 23 lakh students appear for around 1 lakh medical seats across the country. The competition is fierce, considering students strive to get into government colleges that account for around half the medical seats. These colleges have a much lower fee structure than private medical colleges, where the fee may run into crores.

• Another aspect, experts pointed out, was the coaching industry. With the coaching industry mushrooming across the country, there is an incentive for classes to pay to get question papers. "After all, the admissions for their next batch would depend on how many of their students get through the admission process," said an expert, on condition of anonymity.

• After the 2024 NEET-UG irregularities, admission of 14 students was cancelled, candidature of 215 was put on hold, 26 students already enrolled in medical courses who participated in the malpractice were suspended, and several were debarred from taking the test for two to three years.

Do You Know

• The National Eligibility cum Entrance Test (Undergraduate) is a pen-and-paper entrance exam for admission to undergraduate medical institutions. It is conducted by the National Testing

Agency (NTA) in 13 languages — English, Hindi, Assamese, Bengali, Gujarati, Kannada, Malayalam, Marathi, Odia, Punjabi, Tamil, Telugu and Urdu.

• The Joint Entrance Examination (Main), meanwhile, is for admission to Centrally Funded Technical Institutes. Students who clear JEE (Main) are then eligible to sit for JEE (Advanced), for admission to IITs.

• While JEE (Main) is conducted by the NTA, with some involvement of the IITs, JEE (Advanced) is handled completely by the IITs.

• The two main differences in how the exams are held is that more students take NEET than JEE, and JEE is a computer-based exam instead of pen and paper. An online test removes several vulnerabilities from the examination process, like the possibility of question paper leak during transport and distribution to the centres. It also reduces the involvement of outside agencies, such as a printing press or a transport company.

WHY DID NTA'S 'ZERO ERROR' POLICY FAIL?

It would be a crime to allow the NTA to continue with its inept conduct of common entrance exams, impacting the future of several lakhs of students. NEET was introduced as a measure to bring into play a single, standardised, and transparent entrance exam for medical admissions. But the transparency that it has so far shown is of an entirely different kind: leaks and breaches of confidentiality.

The story so far:

Nine days after nearly 22 lakh medical aspirants wrote the National Eligibility cum Entrance Test (NEET), which paves the way for admission to medical colleges, they were in for a rude shock. On May 12, the National Testing Agency (NTA) stated that the exam had been 'compromised,' and that there would be a re-test.

The decision has created a furore among students across the country, with the Federation of All India Medical Association (FAIMA) moving the Supreme Court with a plea to either replace NTA or conduct major restructuring reforms.

What controversies has NEET faced over the years?

The decision to conduct re-examination for nearly 22 lakh students is unprecedented in NEET's history, but concerns over paper leaks are not new. In 2024, the declaration of the NEET-UG results coincided with the announcement of national election results. For the first time, 67 out of the top 100 scorers received full marks. In comparison, only two students achieved full marks in 2023, while none did so in 2022. A high concentration of students achieving full marks led to massive rank inflation, with multiple aspirants who had scored high marks competing for a single seat in reputed medical colleges.

In 2024, 13 lakh students qualified and were competing for approximately 1.1 lakh MBBS seats across government and private medical colleges. Allegations of a paper leak later surfaced, with investigations revealing that 155 students had allegedly benefited from leaked question papers. Students had then demanded a re-examination, but their request fell on deaf ears.

Why has NTA's 'Zero Error' promise fallen short?

With repeated cases of paper leaks surfacing year after year, the NTA appears not to have learnt from its chequered past. The overhaul of NTA merely remained lip service. After the 2024 debacle, IAS officer Subodh Kumar Singh, then Director General of the NTA, was removed from the post and transferred to the Ministry of Steel as Additional Secretary. He is currently serving as Principal Secretary to the Chief Minister of Chhattisgarh.

Following his transfer, the NTA remained without a full-time chief for over a year, with retired 1985-batch IAS officer Pradeep Singh Kharola holding 'additional interim charge'. In March this year, former IndiaAI Mission CEO Abhishek Singh took charge of NTA and declared that there would be a 'Zero Error, Zero Tolerance' policy.

After the NEET-UG 2026 examination was conducted on May 3, the NTA underscored on social media the "smooth manner" in which the exam had been held across 5,432 centres, with 22.79 lakh candidates appearing. It stated that more than two lakh personnel were involved in conducting the examination.

The agency also claimed that there was end-to-end secure handling of confidential materials under sealed protocols, GPS-enabled vehicles with police escorts for the movement of examination material, CCTV surveillance at all examination centres (up to 1,50,000), with feeds linked to centralised control rooms, mandatory frisking through high-sensitivity metal detectors before entry, with strengthened manpower and equipment at every centre, Aadhaar-based biometric authentication to prevent impersonation and real-time monitoring through centralised control systems.

Mr. Abhishek Singh told The Hindu that the NTA had blocked 120 Telegram channels for circulating fake question papers and rumours, aimed at defrauding candidates.

Despite these measures, investigations by the Rajasthan Police revealed that a "guess paper" containing 120 out of 410 questions from the final examination had allegedly been circulating for nearly a month before the exam, a massive oversight by the NTA.

What did the Radhakrishnan panel recommend?

Following the NEET-UG 2024 controversy, the Ministry of Education formed a high-level committee headed by former ISRO chairman K. Radhakrishnan. However, the committee's recommendations were not followed in letter and spirit by either the NTA or the Ministry.

The report, submitted in October 2024, highlighted the pen-and-paper testing (PPT) model as 'a major security risk.' It recommended a transition to Computer-Based Testing (CBT) format, similar to the Joint Entrance Examination (JEE) Main, which is also conducted by NTA.

The committee also recommended Computer-assisted Secure PPT, where encrypted papers are delivered digitally to exam centres and printed locally just before the test. NTA has made no claim of implementing it. Instead, it relied on GPS vehicles and police escorts.

Mr. Abhishek Singh said that the NTA has the capacity to conduct CBT tests for only about 1.5 lakh students in a day. He added that shifting NEET to CBT mode is a 'high-level ministry call' involving both the Ministries of Health and Education.

In 2024, the NTA floated a tender to increase its capacity of computer labs, but the process could not be finalised. In 2026, the NTA has around 552 CBT centres, which are primarily used for JEE and CUET examinations. Since the Radhakrishnan Committee report came out in 2024, the NTA has not been able to augment its infrastructure to add more centres.

Multiple proposals to administer NEET-UG exams online were sent to the Ministry of Education, but in vain, officials at the NTA told The Hindu. "Talks for administering the NEET-UG in CBT mode have been ongoing for at least five years now. The recent paper leak fiasco should serve as an eye-opener to change the format of the exams," an official said.

MEDICAL EDUCATION IN INDIA NEEDS TO PIVOT TO QUALITY OVER QUANTITY

Medical education in India stands at a defining crossroads.

Over the past decade, the country has witnessed an unprecedented expansion in its capacity to train future doctors. The number of medical colleges has grown from around 596 in 2021–22 to over 818 in the academic year 2025–26. Correspondingly, MBBS seats have increased from approximately 83,000 to nearly 1.29 lakh, while postgraduate seats now approach 85,000 nationwide.

However, this rapid expansion brings into sharp focus a critical question: are we ensuring the quality of the doctors being produced? Are we adapting to ground realities of student preferences, faculty shortages, huge establishment costs, and the redundancy of the regulatory rigamarole? The cancellation of this year's NEET-UG, that has not only left over 22 lakh medical aspirants in the lurch, but has also triggered calls for a structural reform, has brought this sharply into focus.

Changing trends

Recent trends suggest a shifting paradigm. Reports indicate that thousands of undergraduate and postgraduate seats remain vacant, particularly in non-clinical specialities. This raises concerns about the alignment between capacity creation and student preferences, as well as the perceived value of different medical career pathways.

There is also a noticeable shift in the aspirations of younger generations. The traditional allure of the medical profession — the symbolic white coat and stethoscope — is gradually losing some of its sheen. The long duration of training, often extending well beyond a decade for specialisation, combined with increasing professional pressures, has led many students to consider alternative career paths that offer quicker stability and work–life balance.

Equally important is the evolving societal perception of doctors. Once regarded with near-unquestioned trust and reverence, often seen as 'demigods', doctors are now increasingly viewed as healthcare providers within a transactional system. While this reflects growing awareness and accountability in healthcare, it has also altered the nature of the doctor–patient relationship, potentially contributing to a perceived decline in the profession's prestige.

The National Eligibility cum Entrance Test (NEET) was introduced for the much-needed standardisation and transparency with regard to the selection of medical students. However, in recent times, it has attracted criticism over the numerous instances of paper leaks leading to cancellations and re-examinations, putting a lot of pressure on aspirants, and raising questions about the capability of our system. Despite this, the test does ensure a baseline level of competence and has largely stabilised the entry process.

It is important to recognise that NEET must evolve with time. Future reforms could focus on assessing higher-order cognitive and clinical reasoning skills, reducing excessive reliance on rote learning and enhancing examination conduct, reducing stress.

Faculty shortages

A major constraint across medical institutions, both government and private, is the shortage of qualified faculty. Current regulatory norms regarding faculty–student ratios, although designed to maintain standards, are often difficult to meet in practice, particularly in pre-clinical and para-clinical disciplines.

This challenge stems from:

Historically low intake in these specialities

Limited postgraduate output

Rapid expansion of medical colleges and seats

Addressing this issue requires innovative and flexible approaches:

A national faculty pool: A centralised pool of qualified faculty drawn from both public and private sectors can be created to deliver teaching across institutions, either physically or through digital platforms. Standardised, centrally-monitored teaching modules can ensure uniform quality while optimising faculty utilisation.

Professors of practice: Already in vogue with limited scope, this involves experienced clinicians and academicians being formally integrated into teaching roles, with their contributions recognised under the Competency-Based Medical Education (CBME) framework.

Such measures would not only mitigate faculty shortages but also enrich the learning experience by exposing students to highly experienced educators.

Assessments and research

Though thoughtfully-designed and periodically updated, there is a felt need for practicality in approach, replacing a checklist compliance with outcome-based assessments. Similarly in an era of digital technology and AI, in order for an Indian medical graduate to be relevant in the global scenario, all outdated and redundant infrastructure and teaching as well as learning and assessment requirements must be updated.

The current state of research, particularly doctoral (PhD) research in medical institutions, calls for serious introspection. Much of the output remains non-translational, of limited societal or clinical relevance and primarily driven by academic promotion requirements. This has led to a proliferation of research that adds little tangible value to healthcare delivery or scientific advancement.

Strategic reforms

Focus on translational research: Research must address real-world health challenges and contribute meaningfully to patient care and policy.

Early research integration: Undergraduate education should incorporate research training by reducing rote learning, encouraging inquiry-based learning and making research a component of assessment.

Technology and the imperative of AI integration: From diagnostics to treatment planning, AI is increasingly becoming an integral part of modern medical practice. India must proactively embrace this transformation.

Curriculum reform: AI and digital health should be introduced early in the undergraduate curriculum, beginning at the induction stage.

Infrastructure development: Teaching hospitals, including urban and rural health training centres, must be equipped with modern diagnostic and digital tools.

Augmentation, not replacement: AI should be viewed as a tool to enhance — not replace — clinical judgment. It can improve efficiency, accuracy, and patient outcomes.

The way forward

India has successfully addressed the challenge of capacity building in medical education. The next phase must focus on:

Ensuring high-quality teaching and faculty availability

Promoting meaningful, impactful research

Integrating modern technology into education and practice

Restoring trust and professionalism in healthcare

The transformation of medical education in India is both an opportunity and a responsibility. The system must now transition from a focus on numbers to a focus on outcomes. Producing competent, compassionate, and future-ready doctors should remain the central goal. Achieving this will require visionary policy-making, institutional commitment, and a willingness to embrace change.

At this critical juncture, the question is no longer how many doctors India can produce, but how well it can prepare them to handle the future health care requirements of the country.

WHAT IS INDIA'S FIRST ORBITAL DATA CENTRE SATELLITE?

The story so far:

On May 4, Pixxel, a Bengaluru-based imaging satellite company, said that it would partner with the AI firm Sarvam to launch what is being described as India's first 'orbital data centre' satellite, named Pathfinder. This is expected to be a 200 kg-class satellite scheduled for orbit by the fourth quarter of 2026. It will carry datacentre-class GPUs (graphics processing units) alongside Pixxel's hyperspectral imaging camera, the company's bread-and-butter business.

What is an orbital data centre?

It is a constellation of satellites carrying the same kind of GPUs found in terrestrial data centres. It can train and run AI models in orbit rather than only relaying data to ground stations. Such a

centre can do more demanding work than the low-power "edge" processors that conventional satellites use for tasks like signal compression. Edge computing on earth refers to the practice of running computation close to where data is generated rather than in a centralised cloud, and the same logic, applied in orbit, is what space-based compute promises to extend.

Pixxel's Pathfinder is being built as a single-satellite demonstrator, designed to test whether ground-grade hardware can be made to function reliably in the harsh, hot environment of low Earth orbit.

Why are global firms suddenly interested?

Three factors have converged in the past two years, prompting large tech companies to strive towards making such centres real. Data centres are being constrained by limits on energy availability, land, water, and local regulation, all of which have been amplified by the demands of AI. In the right orbit, solar power is effectively continuous and offers free electricity, which proponents regard as the strongest argument for moving computation to space.

Earth observation satellites also generate detailed, heavy image files that are expensive to downlink; processing the data in orbit and beaming down only the conclusions has long been seen as a way to ease that bottleneck.

The third factor is competitive positioning. SpaceX CEO, Elon Musk, said on X in 2025 that "simply scaling up Starlink V3 satellites, which have high-speed laser links, would work. SpaceX will be doing this." He also argued that "Starship (the company's most powerful rocket) could deliver 100GW/year to high Earth orbit within four to five years if we can solve the other parts of the equation." Amazon founder Jeff Bezos' Blue Origin, Microsoft's Azure Space, and Lonestar Data Holdings have already begun pilot deployments. None of these efforts has yet produced a commercial-scale orbital data centre.

What are the challenges?

The GPU chips powered by electricity from solar panels become hot. Now space may be cold, and common sense may suggest it a natural sink for the heat. However, space is also empty and its vacuum eliminates convection. This is the mechanism by which warm air on earth is normally carried away from terrestrial servers; in orbit, a hot GPU chip is effectively an oven unable to fan away its own waste energy, with no air to carry it off. The only solution to this is radiation, which requires that heat be pumped through ammonia-filled loops to deployable panels, where it can be radiated as infrared light into space. The history of crewed spaceflight is studded with reminders of how unforgiving this regime can be.

Radiation damage is the second problem, and one that has shaped the design of every long-duration mission flown to date. 'Bit flips' — where bits and bytes of computers randomly change — and long-term semiconductor degradation are caused by cosmic rays, and radiation-hardened chips, which govern most space hardware, typically lag commercial GPUs by years. Power requires storage for eclipse periods, and maintenance is effectively impossible without robotic servicing, so redundancy must be designed in from the start.

What does the Pixxel–Sarvam partnership actually involve?

The Pathfinder satellite will be designed, built, launched, and operated by Pixxel. Sarvam, an Indian AI firm will provide what it describes as the AI backbone, with full-stack language models being run on the satellite's GPU layer for both training and inference. Pixxel's hyperspectral

camera will be carried on the same platform, giving the mission an immediate use case: imagery captured in orbit can be analysed in orbit, with only the conclusions transmitted to Earth. The Pixxel team has several experts who have worked with the Indian Space Research Organisation and have experience in thermal management in space.

DRDO TESTS COMBUSTOR OF NEW HYPERSONIC CRUISE MISSILE

Marking a further breakthrough in hypersonic missile technology for India, the Defence Research and Development Organisation (DRDO) achieved a 1,200-second runtime of its actively cooled scramjet full-scale combustor on Saturday. The test was conducted at the Scramjet Connect Pipe Test (SCPT) facility in Hyderabad, building on the successful 700-plus second test carried out in January.

Key Takeaways:

• The hypersonic cruise missile is capable of exceeding five times the speed of sound, or over 6,100 km per hour, for extended periods. The speed is achieved through a cutting-edge air-breathing engine, which utilises supersonic combustion to sustain long-duration flight.

• The test was conducted at the SCPT facility at the Defence Research and Development Laboratory (DRDL), Hyderabad-based premier facility of the DRDO, which is responsible for the design and development of state-of-the-art Missile Systems and technologies.

• Scramjet combustor incorporates an innovative flame stabilisation technique that holds a continuous flame inside the combustor with an air speed of more than 1.5 km per second. DRDO scientists studied many novel and promising ignition and flame-holding techniques over multiple ground tests before arriving at the scramjet engine configuration.

• With regard to the specialised fuel for the system, the MoD said an indigenous endothermic scramjet fuel jointly developed for the first time by the DRDL and industry partners is central to the breakthrough. The fuel offers dual benefits of significant cooling improvement and ease of ignition.

• Another key achievement amid the development of hypersonic technologies is the development of Thermal Barrier Coating (TBC), designed to withstand extreme temperatures encountered during hypersonic flight. A new advanced ceramic TBC having high thermal resistance and capable of operating beyond the melting point of steel has been jointly developed by DRDL and Department of Science and Technology (DST) facilities.

• Hypersonic weapons have the potential to beat existing air defence systems available with major military powers across the world and deliver rapid and high-impact strikes. Several nations, including the US, Russia, India, and China, are actively pursuing hypersonic technology and have demonstrated various levels of development.

Do You Know

• A ramjet is a type of engine that uses the vehicle's high speed to compress incoming air, mix it with fuel, and generate thrust without moving parts like turbines. In artillery systems, ramjets allow shells to travel much farther after being fired, extending range without changing the gun itself. This gives armed forces greater reach and flexibility while keeping costs and complexity low.

• A cruise missile is an unmanned self-propelled guided missile that sustains flight through aerodynamic lift for most of its flight path. Cruise missiles are designed to deliver a large payload over long distances with high precision. Modern cruise missiles are capable of traveling at high subsonic, supersonic, or hypersonic speeds, are self-navigating, and are able to fly on a non-ballistic, extremely low-altitude trajectory.

• Subsonic refers to speeds slower than the speed of sound (approx. 343 m/s or 1,235 km/h in air at sea level). It is commonly used in aviation, ballistics, and audio to describe movement or frequencies that do not create a shockwave, such as subsonic aircraft, reduced-noise ammunition, or deep bass.

• Supersonic speed is the speed of an object that exceeds the speed of sound (Mach 1).

• Hypersonic speed refers to speeds much faster than the speed of sound, usually more than approximately Mach 5.

FROM GROUND TO THE SKIES: HOW DRONES ARE RESHAPING OPERATIONS ALONG BORDERS

In the early hours of June 26, 2021, two consecutive blasts rocked the highly fortified Indian Air Force station in Jammu. This was the first terror attack in which drones were used to airdrop bombs on a major security installation. Though the explosions caused no serious damage, the attack reflected a paradigm shift in the tactics of Pakistan-based terror groups: the threat had moved from the ground to the air, rendering traditional security measures permanently inadequate.

Key Takeaways:

— The introduction of drones has rendered established security measures obsolete and fundamentally changed how border security is conceived. According to a Ministry of Home Affairs report last year, two to three drones were sighted, and one drone incursion occurred daily, over the past five years. While the focus of incursions in Punjab and Rajasthan is primarily smuggling, the situation in J&K is especially challenging.

— In J&K, drones are being used to airdrop weapons, ammunition and narcotics, conduct tactical surveillance, guide infiltrating militants and carry out attacks. Soon after the beginning of Operation Sindoor last year, drones became the weapon of choice — the first such use of drone swarms in an Indo-Pak conflict, changing the nature of border warfare permanently.

— Between May 7 and 8 last year, Pakistan launched drone attacks using nearly 300-400 drones targeting around three dozen locations from Kashmir to Sir Creek in Gujarat. A large number targeted Jammu and Kashmir, and almost all were neutralised by Indian defence forces, an Army officer said.

— Indian armed forces deployed SkyStriker Kamikaze drones, HAROP and Nagastra-1 during their campaign. Counter-drone systems were activated, including Man-Portable Air Defence Systems (MANPADS), Direct Energy Weapons (DEWs) and the indigenous anti-drone D-4 system.

— A laser system called KAVACH has also been put into action in J&K to detect drone infiltration attempts and send early warnings. Forces have additionally deployed jammers to disrupt hostile drone flights and High-Altitude Long-Endurance (HALE) drones to monitor difficult terrain.

— The BSF, primarily responsible for border security, raised its first drone squadron last year to bolster its capabilities.

— While drones have transformed military operations over India's borders since Operation Sindoor, the shift is equally visible on the ground. A senior Army officer in the Northern Command told The Indian Express that the "advent of drone and anti-drone technologies changed the dynamics along the Indo-Pak border to a great extent."

— He described an array of advanced sensors — thermal imagers, underground sensors (UGS), fibre-optic sensors, radar and sonar — that form an invisible electronic barrier even where physical patrolling is impossible, providing round-the-clock real-time monitoring.

— A retired senior Army officer noted that drone introduction has brought a new type of soldier — one who is well-versed in technology and capable of responding to modern warfare. He cautioned that not every drone can be picked up by radar due to factors like coverage area and low-altitude flight, making 24×7 vigilance imperative.

— Within the Army, significant investment has gone into drone training. Drone competitions are now held between units, brigades and divisions, with battalions purchasing equipment from regimental funds to train on obstacles. As drones and high-tech equipment become integral to infantry units, expertise in operating them is a priority — though, the officer stressed, without compromising on basic physical fitness.

Do You Know:

— Swarm drones are autonomous or semi-autonomous UAVs that operate in coordinated groups, much like swarms of birds or fish. They communicate via wireless networks and adjust in real time to achieve shared objectives.

— Swarms are more resilient than traditional drones due to in-built redundancy — even if one drone is intercepted, others can continue on the mission. Drone swarms are thus used to saturate air defences (a few payloads may sneak through even robust defences), gathering intelligence, and attacking high-value targets.

MIRV TECHNOLOGY

Why it matters

The Ministry of Defence (MoD) announced on Friday (May 8) that India has conducted the successful flight-trial of *an advanced version of the nuclear-capable Agni missile with Multiple Independently Targeted Re-entry Vehicle (MIRV) system* from Dr APJ Abdul Kalam Island, Odisha, Thursday. The development of MIRV capability marks a significant upgrade for India's missile systems and expands its nuclear options. In this context, it becomes essential to know about the MIRV technology and its significance.

— MIRV technology is the capability that allows multiple warheads to be loaded on a single missile delivery system and programmed to hit different targets, thus greatly enhancing the missile's destructive potential.

— Traditional missiles carry a single warhead, or weapon, that goes and hits the intended target. MIRV-equipped missiles can accommodate multiple warheads, each of which can be programmed

to strike a separate target. They can all be made to hit the same location too, one after the other, thus ensuring complete annihilation of the target.

— Notably, it is a complicated technology. The warheads have to be miniaturised, be equipped with independent guidance and navigation controls, and released sequentially from the delivery system.

Key features of MIRV technology

— Inflicting serious damages: With simultaneous targeted strikes at a single or multiple locations, MIRV-equipped missiles are capable of inflicting catastrophic damages.

— Launch counterattack: The ability to launch a counterattack with the potential to do enormous damage is another significant strategic benefit. If the counterattack is too strong, the opposition can be discouraged from assaulting.

— Difficult to intercept: MIRV-equipped missiles can render the missile defence system useless. Multiple warheads, each with an independent trajectory, can make the job of tracking and intercepting extremely complicated.

— Ability to penetrate missile defence systems: It is possible to modify MIRV-equipped missiles to carry dummy warheads, which would trick the defence system. It is therefore quite likely that one or more warheads will breach the defence shield and cause significant damages.

— Use of high-precision sensor and avionics systems: The technology has made substantial advances such as using high-precision sensor packages and indigenously avionics systems to guarantee that the re-entry vehicles reach the target points with the required accuracy.

FYI: MIRV technology is not new.

It was developed in the 1960s and first deployed in the 1970s by the United States and the then Soviet Union. Over the years, France, the United Kingdom, and eventually China have developed this technology. *Pakistan too has claimed to have tested an MIRV-equipped missile called Ababeel, first in 2017 and then in 2023*.

MIRV vs MaRV (Maneuverable Re-entry Vehicle)

— The MaRV is a type of ballistic missile warhead capable of manoeuvring and changing its trajectory during the terminal phase of flight, unlike traditional ballistic missiles that follow a predictable, arc-like path.

— MaRV enables manoeuvring during atmospheric re-entry. It enhances missile survivability against anti-ballistic missile (ABM) systems.

HOW NEW DRDO SYSTEM HELPS AIR MISSILES FLY LONGER, STRIKE BETTER

The Defence Research and Development Organisation (DRDO) and the Indian Air Force (IAF) on Thursday (May 7) successfully carried out the first flight trial of a system that can transform an unguided missile into a guided one.

Key Takeaways:

• The homegrown *Tactical Advanced Range Augmentation (TARA)* system is essentially a kit that can be attached to a conventional missile. This kit helps the missile glide over long distances, and accurately strike a target. Here's a look at why this system is strategically important.

• The TARA glide weapon system is primarily a modular kit that can be attached to a conventional unguided warhead. DRDO scientists say the system can be fired from multiple fighter jets in the IAF's service.

• The TARA system was tested from an IAF fighter off the coast of Odisha. TARA has been designed and developed by the Hyderabad-based DRDO facility Research Centre Imarat (RCI) in collaboration with other DRDO laboratories and industry partners.

• The successful flight trial is a critical milestone in the weapon's development. This will pave the way for a series of developmental, validation and user trials before induction into the service. All these trials will evaluate the system's guidance accuracy, range, reliability, performance from different platforms, and effectiveness under varied operational conditions.

Do You Know

Once released from an aircraft at a certain altitude and speed, foldable wings and aerodynamic surfaces come into play, allowing the weapon to glide over long distances instead of falling directly onto the target. An on-board navigation and guidance system corrects the missile's flight path to improve its accuracy.

• Strategically, TARA is significant because it enhances the IAF's stand-off strike capability. This means an aircraft can hit targets from a distance that puts it out of the reach of air defence systems. In a battlespace, the capability to accurately strike a target from a distance can increase the chances of a fighter jet's survival and lend it greater flexibility.

• Unguided bombs, which are referred to as gravity bombs or dumb bombs, can thus be upgraded to smart bombs, or precision-guided munitions, with relatively low effort. This can reduce the need to develop entirely new missile systems. This approach can substantially reduce costs while allowing rapid scaling of precision strike inventory.

• The use of indigenous low-cost systems and its production by Indian industry partners will also reduce import dependence. It is learnt that three TARA versions, with different weight variants, are being produced. These are to be used with warheads of different weights ranging from 250 to 500 kg.

GOVT TARGETS HOMEGROWN AI SYSTEMS FOR DEFENCE SECTOR

As the Indian defence establishment evaluates the ongoing conflict in West Asia, a compelling need is being felt for the military to have access to domestically-made artificial intelligence (AI) systems, amid a concerted push to decouple from foreign-made technology in strategic sectors, The Indian Express has learnt.

Key Takeaways:

• The defence ministry is currently in conversations with Indian companies like SarvamAI and BharatGen — that have built domestic AI models — on how the technology can be integrated with India's existing defence capabilities, three senior government officials said.

• "The idea is to have an Indian version of Palantir as soon as possible," an official said. To invest in a foundational model of our own has a growing strategic imperative, even if we're behind the curve, another official involved in the broader deliberations said.

• The conflicts in Iran and Ukraine, where the defence forces are said to have used AI effectively to take operational decisions, have shown New Delhi that the technology can be a game changer, not just as a defensive resource, but as an offensive option as well. In the US, systems developed by the likes of Palantir were used in strikes carried out on Iran. The technology has also been used to carry out cyber-attacks on digital infrastructure.

• China, for instance, is rapidly integrating artificial intelligence into military operations as part of the push by the People's Liberation Army (PLA) towards what's being described as "intelligentised warfare".

• Chinese military planners are using AI for battlefield decision-making, autonomous drone swarms, surveillance, target recognition and command systems that can process combat data in seconds. Recent studies of PLA procurement documents show strong focus on AI-enabled command-and-control and reconnaissance systems, aimed at speeding up operations and countering US military advantages. China has also showcased AI-powered robotic "wolf pack" combat systems and autonomous drone platforms.

• The key question though is whether India should rely on existing AI solutions for warfare, with the government and the country's military establishment believing that domestic options might be the better alternative for strategic sectors such as defence.

Do You Know

• Intelligence fusion in the military refers to the process of aggregating, analysing and integrating data from multiple sources — such as signals, imagery and human intelligence — to create a unified, actionable and real-time picture of threats. This concept is evolving into Intelligence Fusion Systems, which utilise AI and machine learning to rapidly process data, reducing the time from data collection to decision-making.

• One of the reasons behind that is also the money involved in building AI models. General purpose large language models such as those built by companies like OpenAI and Anthropic take substantial investments, with computing alone costing close to $200 million, and data training and annotation costs can take that figure up to $500 million-$600 million.

• Smaller models which are tuned for specific purposes may be cheaper to build comparatively. Indian firms may also struggle in matching compute access that some of their Western counterparts have, although the government has tried to address that handicap by providing them GPUs at discounted usage rates under the IndiaAI Mission.

• What has also irked New Delhi are comments made by senior US administration officials earlier this year, where they insisted that the US expects that its allies, including India, should build their AI solutions on top of the so-called America AI stack.

WHAT HAS THE IMD ANNOUNCED AHEAD OF THIS YEAR'S MONSOON?

The story so far:

The India Meteorological Department on Tuesday unveiled a new forecast system that, for the first time, will generate block-level forecasts of the monsoon's arrival. The system covers 15 States and one Union Territory, taking in 3,196 blocks — roughly half of India's 7,200-odd blocks. Until now, monsoon onset estimates have been available at best at the State or district scale.

Why does this granularity matter?

The conventional district-scale forecast obscures a basic feature of the Indian monsoon: its patchiness. The arrival dates familiar to most people — around June 10 for Mumbai, June 29 for Delhi — describe the monsoon reaching a city or a district boundary. But within the same district, several blocks and villages can remain rainless even after the monsoon has officially "arrived." For a farmer deciding when to sow, knowing that the monsoon has reached the district headquarters is of limited use if her own block is still dry. Hyper-local forecasts have been a long-standing aim of the IMD precisely to close this gap and help farmers time their sowing.

How does the new system work?

At its core are two forecasting models whose outputs are "blended" to sharpen accuracy. From the date of the monsoon's onset over Kerala, the system draws on AI-based analysis, the IMD's trove of nearly a century of meteorological data, and global weather models to project the monsoon's itinerary at a much finer scale than before.

The blending framework was developed by the Indian Institute of Tropical Meteorology, a Pune-based research institute under the Ministry of Earth Sciences. It issues probabilistic forecasts for the next four weeks.

Why these particular 15 States?

The States covered are part of what meteorologists call the monsoon core zone. As M. Ravichandran, Secretary in the Ministry of Earth Sciences, put it at a press briefing, these are "the regions that are largely rainfed and are most sensitive to southwest monsoon dynamics." They are also the regions where forecast errors translate most directly into crop losses. The ambition is eventually to extend block-level forecasts across all of India, but Mr. Ravichandran said this would require a denser network of observational data than is currently available in many States.

How well will it work in its first season?

The system has cleared two trial runs, but this year will be a stiff test. The IMD and global models are expecting "below normal" rainfall from July onwards, in the light of a developing El Niño — a pattern in the Pacific Ocean that has frequently coincided with weak monsoon rains in India. Forecasting a weak, erratic monsoon at block resolution can be harder than forecasting a robust one.

What is the separate announcement about Uttar Pradesh?

The IMD also launched a 10-day monsoon forecast model specifically for Uttar Pradesh at a resolution of 1 km — meaning the model resolves weather features down to that scale. This was possible because of Uttar Pradesh's unusually extensive network of automatic weather stations,

whose observations allowed a weather model called Mithuna, which natively runs at 12.5 km, to be "downscaled" to 1 km. Mr. Ravichandran said other States were being encouraged to share their station data with the IMD so that similarly high-resolution forecasts could be produced for them.

What is the broader picture?

Two trends are converging. One is a push, driven by the agriculture ministry, to make forecasts agriculturally actionable rather than merely meteorologically accurate. The other is the IMD's increasing willingness to combine traditional physics-based models with AI and to lean on State-level observational networks where they exist. Block-level forecasting is the first concrete product of that combination — and the 2026 monsoon, El Niño and all, will be its proving ground.

WHAT MEASURES ARE NEEDED TO ADDRESS DELHI'S HEAT CRISIS?

The story so far:

Delhi and the NCR are facing longer and more intense heatwaves, with the city increasingly retaining heat even at night. Rapid urbanisation, concrete-heavy infrastructure, air conditioning, and shrinking green cover have turned the Urban Heat Island Effect into a deeper "heat re-trap".

Why is Delhi retaining heat?

This transformation is rooted in the city's material logic. Concrete, asphalt, steel, and glass dominate Delhi NCR's expansion. These materials absorb heat efficiently but release it slowly.

Roads, rooftops, and facades accumulate heat through the day and emit it at night, delaying cooling. Surface temperatures in dense areas reach 50-60°C on peak afternoons. These surfaces act as reservoirs, keeping the surrounding air warm well into the night. The city, in effect, stores the sun.

Glass-heavy architecture in areas such as Gurgaon and Noida worsens the problem by allowing solar radiation indoors, increasing reliance on air conditioning rather than reducing heat.

Vehicular activity adds constant thermal input. Corridors like NH-48 function as continuous heat sources, where engines and exhaust combine with heat-absorbing asphalt to create persistent hotspots. Over time, these form into thermal corridors that reshape the city's microclimate.

At the same time, Delhi struggles to release heat. High-density construction and narrow streets restrict airflow, while traditional cooling features — courtyards, shaded pathways, ventilation corridors — have largely disappeared. As a result, air stagnates and heat accumulates within the city's form.

How does cooling contribute to warming?

While interiors are cooled, heat is expelled outdoors. In dense neighbourhoods, this raises ambient temperatures by 1-2°C.

This produces a feedback loop: rising temperatures increase the demand for cooling, which in turn releases more heat outside. The city cools itself internally while warming externally.

The energy burden is also significant. Delhi's peak electricity demand has crossed 8,000 MW during the summer, with cooling accounting for a significant share. Nationally, cooling demand is

projected to grow nearly eightfold by 2050, increasing pressure on power systems and raising the risk of outages during extreme heat.

How is heat affecting the economy and ecology?

Factories and warehouses operate within specific temperature limits; excessive heat reduces efficiency and affects machinery. Productivity declines by 2-3% for every degree rise above optimal levels, leading to delays and higher costs.

Supply chains are also slowing as transport hours shrink and storage conditions deteriorate.

At a broader level, India loses over $100 billion annually due to the decline in heat-related productivity.

Ecologically, the city has lost natural cooling systems. Shrinking green cover, degraded wetlands, and the loss of the Yamuna floodplains have reduced evapotranspiration. Without vegetation and water bodies, Delhi's ability to regulate temperature has weakened.

What measures are needed to address the crisis?

Addressing this crisis requires structural change in how cities are built and managed. Materials must shift toward high-albedo surfaces, cool roofs, and reflective coatings. Buildings need insulation and passive design strategies like shading and cross-ventilation.

Urban planning must restore airflow through ventilation corridors and better street orientation. Green and blue infrastructure — including urban forests, parks, and water bodies — must expand as essential cooling systems.

Reducing heat generated by human activity is equally important. Sustainable transport, electric mobility, and improved public transit can lower vehicular emissions. Energy-efficient appliances and district cooling systems can reduce heat discharge.

Equally critical is social protection. Affordable housing upgrades, subsidised cooling, and community cooling centres are necessary to protect vulnerable populations during extreme heat.

COOLING DOCTRINE

Over the past decade, India's response to extreme heat has settled into a familiar choreography. Summer comes and the National Disaster Management Authority (NDMA) regurgitates its tally of rising preparedness. The 16th Finance Commission has gone further, recommending that heatwaves be notified as a national disaster — a designation that would unbolt the door to dedicated central funding. But the heat action plan, as currently conceived, has reached the limits of what it can do. Even the NDMA concedes that the quality of these plans is uneven — several are imitations of plans drafted elsewhere. Where implementation happens at all, it leans heavily on short-term palliatives such as water kiosks, public advisories, and shaded waiting areas at bus stops. While these measures save lives at the margins, they do not alter the underlying exposure of the tens of millions of Indians who work, commute and sleep in conditions that are becoming, in the most clinical sense of the word, biologically untenable.

What India needs is something larger and more ambitious — a national cooling doctrine; a scalable framework that treats sustained access to safe indoor temperatures as a public-health entitlement to be guaranteed. The doctrine must begin where the harm is most acute: mandatory

minimum cooling standards for indoor workplaces — factories, warehouses, commercial kitchens, call centres, delivery hubs — backed by an honest and fair inspection regime. Technology will have to do the heavy lifting by deploying passive cooling materials, reflective roofing deployed at scale, district cooling systems for dense urban zones, and cheaper, more efficient air conditioning calibrated for the peculiarities of Indian grids. But the problem cannot be solved by importing solutions designed for the temperate, wealthy economies of the global North. India's heat is wetter, longer and more humid than the dry European summers that produced much of the existing cooling literature. Most Indians cannot afford the energy bills that western-style mechanical cooling implicitly assumes, as the grid in India, even on its best days, can supply at most 60% of its installed capacity. There is no quick fix on offer but to keep printing heat action plans while indoor temperatures climb is no longer a serious answer — it is theatre.

A DECENTRALISED SOLUTION FOR WASTE CRISIS

India's waste crisis is no longer a localised urban nuisance but a national ecological emergency. Our cities are choking on waste; plastic-clogged drains worsen monsoon flooding; landfills have become mountains of methane, fire, and leachate; open burning of waste materials fouls the air; and rivers and coasts bear the burden of urban negligence. Rural India, too, is scarred by plastic, sanitary waste, pesticide containers, e-waste, and the debris of packaged consumption. A new waste-management framework was essential in this scenario.

The Solid Waste Management Rules, 2026, notified in supersession of the 2016 Rules and brought into effect from April 1, 2026, are animated by a legitimate and urgent environmental purpose. They seek to improve source segregation, regulate bulk waste generators, promote scientific processing, reduce dependence on landfills, remediate legacy dumpsites, promote a circular economy, and move towards digital monitoring. These are worthy aims. But sound environmental intent does not, by itself, ensure sound administrative design.

Treaty power and federal balance

The Environment (Protection) Act, 1986, under which these Rules are framed, was enacted principally under Article 253 of the Constitution, which empowers Parliament to implement international obligations — in this case, the 1972 Stockholm Declaration. This gives Parliament wide reach: even subjects touching State or local domains — land, water, public health, agriculture, sanitation or local government — may be legislated upon if linked to an international obligation. But a power meant to secure minimum national standards should not become a licence for the Centre to occupy the field, erode State competence, or centralise administration. A national floor must not become an operational blueprint for every State and local body.

Mature federations follow subsidiarity: governmental functions should be performed at the lowest level capable of discharging them effectively, and moved upward only when that level demonstrably lacks capacity. Local competence is presumed; higher-level intervention must be justified. Authority is most effective when closest to knowledge, consequences, and accountability.

India often reverses this logic. It presumes central competence, distrusts sub-national capacity, and reduces States and local bodies to implementing instruments. Nobel Laureate F.A. Hayek's "knowledge problem", explained in The Use of Knowledge in Society (1945), is apposite: effective decisions depend on dispersed and contextual knowledge of the "particular circumstances of time and place". Such knowledge cannot be transmitted upward without distortion or delay. No

authority in New Delhi, however well-intentioned, can tailor waste policy with equal fidelity to every region's ecology, settlement pattern, or administrative and fiscal capacity.

The Centralisation Reflex

Although the draft Rules were published on December 14, 2024, inviting objections and suggestions from the public, the deeper flaw lies in a familiar pathology of Indian governance: the belief that centralisation and over-regulation can cure administrative weakness, and that New Delhi must design and command while States merely execute. Its unstated premise is the incapacity argument — that States lack administrative or technical competence and therefore require Centre's supervision, if not substitution. To treat Indian States, several of which rival major nation-states in population, diversity, and complexity, as inherently incapable is incompatible with national self-respect and a calumny no patriot should tolerate.

As Nobel Laureate Kenneth Arrow pointed out in The Economic Implications of Learning by Doing (1962), capacity is not conferred from above; it is built through decision-making, experimentation, feedback, and correction. When States are reduced to mere implementing agencies for centrally-designed rules and schemes, their expertise atrophies, replaced by a culture of compliance and dependence on "instructions from New Delhi."

Local government is a State subject. Solid waste management lies at the intersection of environment, sanitation, public health, land use, and urban and rural local administration. It is among the most localised functions of governance, depending on household behaviour, street-level collection, informal waste workers, ward monitoring, land for composting, user charges, recycling markets, and citizen trust.

A system suited to a resource-rich metropolis like Mumbai cannot be mechanically applied to a Himalayan pilgrimage town with narrow roads and fragile slopes, an island settlement with scarce land, a coastal panchayat facing tidal flooding and marine litter, or a scattered tribal hamlet where low-density habitation makes collection and transport costly. Precisely for that reason, solid waste management requires a differentiated, federal design.

The extension of the Rules to rural local bodies is understandable; rural waste is now a real problem. But treating a gram panchayat as a miniature municipality is administrative fantasy. Most panchayats lack adequate staff let alone sanitation engineers, waste-collection vehicles, digital capacity for complex reporting, or the fiscal base to manage four-stream segregation. The Rules also bring rural areas within a Material Recovery Facility (MRF)-linked architecture. But expecting rural local bodies to sustain such a framework betrays a disconnect with ground realities.

A realistic rural regime should have emphasised gram sabha-based awareness, household and community composting, periodic collection of plastics and sanitary waste, simple quarterly reporting, and cluster-level dry-waste aggregation and processing with nearby urban local bodies. Megacities (such as Delhi, Mumbai, Kolkata, Bengaluru, and Chennai with population exceeding one crore) and metropolitan cities (population exceeding ten lakhs) require the opposite approach: not simplified compliance, but stronger institutions. They need Metropolitan Waste Management Authorities with elected local representation, State participation, technical expertise, and citizen oversight.

The rollout, too, should have been phased. Full compliance could have begun with megacities and metropolitan cities, where waste volumes and administrative capacity are greatest. Other

municipal corporations and large municipalities, including tourist and pilgrimage towns, could have followed; then medium and small towns; and finally rural areas through simplified models.

States as policy laboratories

In New State Ice Co. v. Liebmann (1932), Justice Louis Brandeis of the U.S. Supreme Court famously observed that a State may serve as a "laboratory" for novel social and economic experiments. That is the strength of federalism: experimentation is safer when localised, and learning is faster when multiple governments test different solutions. States can try policies at manageable scale, contain failures, and allow successful models to diffuse horizontally or be adopted nationally.

A better course therefore would have been to allow States to frame their own solid waste management rules for at least five years, subject to minimum national norms. One State might pioneer decentralised composting through women's self-help groups. Another might integrate informal waste workers into cooperatives. A third might build cluster-based facilities for small towns. A fourth might create metropolitan waste authorities. A fifth might regulate tourist waste through user fees. After five years, the Centre could review outcomes, identify and disseminate best practices, and revise baseline standards, if necessary, based on evidence rather than assumption. The 2026 Rules do require States to prepare policies and strategies for urban and rural solid waste management, but this is more for form's sake because policy within a centrally-prescribed rulebook is not the same as State-led regulatory design.

Other concerns

The centralised online portal raises a further federal concern. The Rules require reporting to the Central Pollution Control Board (CPCB), data audits, report uploads, and centralised formats and modules. States and local bodies risk becoming data suppliers rather than co-owners of the governance system. Too often, officials spend more time feeding dashboards than improving service delivery. Compliance becomes reporting upward rather than governing outward. A better design would treat the portal as a shared federal data platform, allowing States and local bodies to add indicators, customise dashboards, access raw data, and publish ward-level, local-language information for citizens. Data should build capacity, not merely discipline sub-national governments.

The Rules also need stronger democratic content. Waste management succeeds only when citizens participate. Rural India has, at least in principle, the gram sabha; urban India has no satisfactory equivalent. Periodic waste reports should be submitted to municipal councils and ward committees, not merely uploaded for bureaucratic review in New Delhi.

The 2026 Rules substantially expand the obligations of municipalities and panchayats. Unless backed by predictable, adequate, and formula-based finance, they risk becoming yet another set of underfunded mandates — producing selective compliance, inflated reporting, or quiet evasion rather than genuine waste-management reform.

Under the present model, the likely trajectory is predictable. Sooner or later, a public interest litigation may allege non-implementation by States and local bodies, ignoring the reality that they cannot implement underfunded, top-down mandates in whose design they had little role. The Supreme Court may then treat the matter as legal non-compliance and begin continuing mandamus, drawing all levels of government into prolonged litigation, affidavits, and directions. What began as environmental reform may end as judicialised administration.

Concluding remarks

The Solid Waste Management Rules, 2026, disregard federalism, local democracy, and subsidiarity. They embody a technocratic vision of environmental governance, insufficiently attentive to ground realities, institutional weaknesses, and local capacity. As framed, they risk producing blurred accountability, unproductive compliance work, and paper reporting rather than cleaner cities and villages.

To succeed, the Rules must be recast around five principles: minimum national standards, State flexibility, empowered local bodies, predictable finance, and citizen accountability. Otherwise, mountains of waste will continue to rise as monuments to centralised ambition and local neglect.

ADDRESSING INDIA'S ELECTRICAL FIRE RISKS

A pre-dawn fire in Vivek Vihar that killed nine, record electricity demand of 256 GW, and numerous air-conditioners switching on simultaneously; highlight a surge in power consumption and raise concerns over the growing risk of electrical fires in India.

The story so far:

Just after 3.48 a.m. on May 3, 2026, fire tore through a four-storey building in Vivek Vihar, East Delhi, killing nine. The suspected origin is an air-conditioner blast or short circuit. Delhi Fire Service data attributes over 80 per cent of fires in the capital to electrical faults; Mumbai Fire Brigade, analysing 26,855 incidents over five years, attributes nearly three in four to the same cause. These are reported attributions, not forensic findings; the gap matters. The National Crime Records Bureau (NCRB) recorded 7,566 fire accidents and 7,435 deaths in 2022, with electrical short circuit consistently among the largest single causes, but most incidents land in a catch-all 'other' category, meaning electrical causes are likely under-counted.

India's electricity demand hit 256.11 GW on April 25, 2026, against air temperatures of 47 degrees, roughly double the early-2010s peak. Cooling already pulls about 50 GW at peak; that could rise to 180 GW by 2035. Indians bought 15.4 million ACs in 2025; the IEA expects the installed base to climb from 93 million units in 2024 to 240 million by 2030. Each new unit is a non-linear load plugged into wiring sized, in older buildings, for fans and bulbs.

The vulnerablilty of older houses to electrical fires

The Forum for European Electrical Domestic Safety (FEEDS) estimates 132 million obsolete electrical installations across the EU, roughly half the residential stock: more than 30 years old and never renovated. The structural problem is the same in any electrifying economy: renovation rates lag behind the build rates of decades past.

India appears to lie in the same category of electrical-fire vulnerability as Europe, but its main issue lies less in the age of its housing stock and more in the combination of rapid load growth, low-voltage installation quality, and weak maintenance. A fan-and-bulb circuit installed in 1985 is now expected to carry a 1.5-tonne inverter AC, an induction hob, a geyser, an EV charger and a string of phone chargers. None of these existed when the wires were sized.

The risks posed by air-conditioners

Air-conditioners concentrate every risk mentioned above. They are the largest non-linear load most homes will ever own; start-up current can be six to eight times running current; and they are wired into circuits often shared with other heavy appliances.

There is a second, slower problem: harmonics. Every inverter-driven AC, like every UPS, LED driver, MRI and EV charger, draws current in jagged pulses that inject distortion at multiples of 50 Hz. In three-phase buildings, certain harmonic orders add up in the neutral conductor, a wire never sized to be load-bearing, and quietly heat it. Supporting studies found that high inverter density on Delhi and West Bengal low-voltage networks raised voltage and current harmonic distortion beyond IEEE 519-2014 limits, while a hospital study in Dharwad recorded unbalanced load, non-zero neutral current, and THD above IEEE-519 guidance. Add a loose joint and you have an ignition source against insulation.

The causes of an electrical fire

Electrical fire is a category, not a cause. A peer-reviewed 2025 review in Fire identifies six recurring failure modes: short circuits, overloads, loose or oxidised connections, series and parallel arc faults, ground faults, and equipment ageing. Behind each lies a small set of root causes: counterfeit wire and breakers, undersized circuits for new loads, missed maintenance, poor switchboard terminations, and harmonic distortion that overheats neutrals in three-phase building connections.

A loose connection at a socket or breaker terminal is the most common ignition point in U.S. residential electrical fires; it produces a hot spot that burns insulation over months before anything visible happens. India's SUM Hospital (2016) and AMRI Hospital (2011) fires, which together killed 117, both began with electrical short circuits.

Prevention and periodic inspections

Japan made periodic inspection of every domestic electrical installation, every four years, mandatory in the early 1960s; South Korea followed in the 1970s. Recorded fire counts in both countries fell by close to 90 per cent. The EU 2024 Energy Performance of Buildings Directive, in Recital 36, recognises heat pumps, solar photovoltaics, batteries and EV chargers as fire-safety risks.

Lessons for Indian electrical safety standards

The Bureau of Indian Standards publishes SP 30:2023 (National Electrical Code of India 2023), NBC 2016 Part 4 covers fire and life safety, and Indian electrical installations often require contractor completion and inspectorate approval before energisation; in most EU countries, the utilities typically require an inspection report even before meter connection.

Arc-fault circuit interrupters (AFCI) or arc-fault detection devices are designed to detect hazardous electrical arcs and prevent residential fires by interrupting power before the arcing circuit ignites. Though mandatory in U.S. dwellings since 1999, these devices are essentially absent from Indian residences.

While some specialised industrial or high-end retail channels may offer AFCI-related devices, they are not generally mandated for Indian residences by local building or electrical codes in the same

prescriptive manner as in North America. FEEDS notes lower-income tenants are systematically the most exposed, because rented apartment stock is more likely to be older.

Shortage of forensic analysis

The Fire and Security Association of India highlighting a 96% shortage of fire infrastructure points to a systemic capacity problem. Overall, India faces a severe shortage of fire-forensic engineers and a heavy reliance on provisional explanations rather than detailed root-cause analysis, even in major incidents.

Safeguards against electrical fires

In the U.S., the plug-in Ting sensor from Whisker Labs samples voltage 30 million times a second and alerts the homeowner when it detects micro-arcing, that can lead to electrical fires. It is in over a million U.S. homes, distributed free to policyholders by insurers including State Farm and Nationwide, who underwrite its claim of preventing four in five qualifying electrical fires.

The technology is not the bottleneck; the Indian retail and insurance ecosystem is. There is no consumer-priced equivalent on sale in India, and no certification regime telling a buyer in Chennai which IoT energy meter on Amazon India measures harmonics.

An educated consumer's honest options today: insist on ISI-marked wiring, breakers and stabilisers; never run an AC on a shared, undersized circuit; have a thermography scan of the main panel every two to three years; service ACs annually; and treat any flicker or burning smell as a service call.

Potential measures to address fire safety gaps

First, tie IEEE 519-style harmonic compliance and basic power-quality monitoring to building approvals for hospitals, commercial premises, data centres and EV-charging hubs.

Second, introduce a periodic inspection regime for existing installations, on the Japan/Korea/EU model, triggered by major load additions: rooftop solar, EV chargers, battery storage.

Third, build a published forensic chain after major electrical fires, on the MAIB/NTSB model. Fourth, fix the data: a harmonised dataset across DFS, MFB, NCRB and BIS.

As tens of millions of new ACs switch on to combat 47-degree summers, the gap shall be tested again. The hum is already there. The only choice is whether India listens to it before, or after, the spark.

A HUMBLE LEAF THAT WHISPERS HOME

Collard greens (haakh) is the soul of every dining table in Kashmir.

It is not just a vegetable but a cultural culinary experience that transcends social and economic boundaries.

Kashmiri haakh is distinct from other collard varieties found across the globe, characterised by its thinner, more tender leaves and a pungent, earthy aroma that defines the Kashmiri kitchen.

Haakh is a resilient crop, grown year-round across the Valley. However, the most prized produce comes from the fertile, loamy soils of the Dal Lake and the floating gardens (radh) as well as several fields in the interiors of downtown Srinagar.

Haakh is an indispensable part of every kitchen garden both in Srinagar and all other districts of the Valley.

The edible leaves thrive in Kashmir's cool climate, and "frost-bitten" haakh in winter is considered a delicacy, as the cold lends the leaves a subtle sweetness. The trade of haakh is a sunrise ritual. Farmers transport bundles in shikaras (traditional wooden boats) to the floating vegetable markets on Dal Lake at dawn. From there, it travels to local market hubs. It is almost always sold in tied bunches, often with the roots intact to maintain freshness.

The Kashmiri philosophy of cooking haakh emphasises simplicity to preserve the vegetable's chlorophyll and natural bite. Unlike heavy meat dishes, haakh is usually prepared as a light, soupy stew. The process involves sautéing the leaves in smoking-hot mustard oil, which is non-negotiable for the authentic pungent flavour.

While haakh is commonly cooked without any addition, it is also prepared with smoked fish (hogada), dried cheese (chaman), or mutton.

Served alongside steaming mounds of Basmati or local white rice, haakh is the ultimate comfort food in the rich tapestry of Wazwaan-dominated Kashmiri cuisine.

'IDENTICAL WORDS, COMMON SIGNATURES': GRAM SABHA RESOLUTIONS QUESTION

Three Gram Sabha resolutions cited by the Andaman and Nicobar islands administration as proof of tribal consent to divert 166.10 sq km of forests for Great Nicobar project had consent of settlers rather than Nicobarese and Shompen tribes, and signatures of at least 60 persons were found on at least two of the three resolutions.

Key Takeaways:

• These submissions were made before the Calcutta High Court's Port Blair bench by the petitioner, former union government secretary Meena Gupta, who has filed a PIL alleging illegalities in the islands administration's order claiming compliance of Forest Rights Act (FRA), 2006 for the mega project.

• In an order that was made public on Friday, the Calcutta High Court division bench headed by Chief Justice Sujoy Paul overruled the Centre's objections on the maintainability of this and two other petitions, and agreed to hear them.

Do You Know

• Great Nicobar Island covers 910 sq km and is home to India's southernmost location, Indira Point. The government's main goal on the island is to create an economic and defence hub. This goal rests on four pillars: An integrated township that will include defence facilities, a transhipment port, a civil and military airport, and a 450-MVA gas and solar power-based plant. Initially driven by NITI Aayog, the project's implementing agency is now the Andaman and Nicobar Island Integrated Development Corp Ltd (ANIIDCO).

• Of the cumulative area earmarked for the project, around 149 sq km will be used for the integrated township, 8.45 sq km for the new airport, 7.66 sq km for the port and .39 sq km for the power plant.

• The integrated township will include residential, commercial, tourist, logistics and defence facilities. The transshipment port will be located on the southern tip of Great Nicobar at Galathea Bay, an ecologically important area that is home to the nesting sites of Leatherback turtles, and where the Galathea River drains into the sea.

• The dual-use international airport is proposed to the east of the port. It will be the second one on the island after the Navy's airstrip at INS Baaz Naval Air Station. The airport will require the acquisition of 4.2 sq km of land and affect 379 families, largely those who have settled on the island from the mainland. Land reclamation has also been proposed for the port and the airport. An estimated 2.98 sq km of land will be reclaimed for the port and 1.94 sq km for the airport. It is also estimated that 33.35 million cubic metres of material will be required for this purpose. Cement, rocks, sand, steel will have to be shipped to the construction sites, according to the 2021 pre-feasibility report that was prepared by AECOM India Pvt Ltd for NITI Aayog.

• The Centre's push for the project appears to be driven by three key factors: geopolitics, maritime trade and geographic advantage.

—The Great Nicobar island is India's closest territory to the Malacca Strait, a narrow maritime choke point linking the Indian Ocean and the Pacific Ocean. This trade route sees 94,000 ships pass through it annually, according to the World Economic Forum. It accounts for an estimated 30% of all traded goods globally and a third of the world's maritime oil trade.

—Transshipment ports are equipped to transfer cargo containers from larger to smaller vessels before they head to their eventual destination. India has only one operational transshipment port at Vizhinjam in Kerala, on the west coast.

—The port at Galathea Bay will thus contest for a share of the maritime trade pie with Sri Lanka's Colombo and Hambantota ports, Malaysia's Port Klang, and the Port of Singapore.

The government has projected that the Nicobar port can handle approximately 14.2 TEU (twenty-foot equivalent unit) of cargo — this means it can handle 14 million 20-foot containers every year.

• A tri-services Andaman and Nicobar Command has been operational at Port Blair since 2001. The INS Baaz Naval Air Station is also located at Campbell Bay, north of the proposed township. The project plans show that defence-related infrastructure will be part of the first of three construction phases.

INDIA'S FIRST SATELLITE-TAGGED GANGES SOFT-SHELL TURTLE RELEASED IN KAZIRANGA NATIONAL PARK

India's first satellite-tagged Ganges soft-shell turtle, an endangered species, was released in the 1,302 sq. km Kaziranga National Park and Tiger Reserve in Assam on Friday.

The release of the freshwater reptile coincided with the observation of Endangered Species Day.

Himanta hails event

Assam Chief Minister Himanta Biswa Sarma termed the event a major step for wildlife conservation and a proud moment for the State, "as we continue to protect every species that calls our forests home".

Assam is one of the world's top priority areas in freshwater turtle conservation. Of the eight soft-shell turtles reported from India, five are known from the Kaziranga landscape.

The Ganges soft-shell turtle (Nilssonia gangetica), a Schedule I animal under the Wildlife Protection Act of 1972, can be differentiated from other riverine turtles by its distinct arrowhead-shaped markings on the top of the head. In India, the species inhabits large rivers, lakes, and reservoirs.

Recorded as endangered on the International Union for Conservation of Nature (IUCN) Red List, this large turtle is a major river predator and helps clean up the system by feeding on dead and decaying animal matter.

"Understanding seasonal movement patterns, home range, and identifying critical habits like nesting and breeding will help in active management of soft-shell in the Brahmaputra river basin," Abhijit Das, a senior scientist at the Wildlife Institute of India, said.

He led a team under the Ministry of Environment, Forest and Climate Change in the satellite-tagging exercise in collaboration with the Kaziranga National Park authorities and the Assam Forest Department. The National Geographic Society funded the project.

Forest officials said a healthy adult turtle was captured, fitted with the transmitter under veterinary supervision, and released back into its natural habitat along the northern bank of the Brahmaputra.

'DRAGONFLY, DAMSELFLY SPECIES MISSING IN THE WESTERN GHATS'

A recent study has revealed an "alarming gap" in biodiversity across the Western Ghats, with researchers able to document only about 65% of the dragonfly and damselfly species historically recorded in the region, pointing to a potential shortfall of nearly 35% of these ecologically critical insects.

The survey recorded 143 odonata species — 76 dragonflies and 67 damselflies — of which 40 were endemic to the Western Ghats. The study was carried out across 144 sites spanning five States, namely, Maharashtra, Kerala, Karnataka, Goa, and Gujarat between February 2021 and March 2023.

Three species — Elattoneura souteri, Protosticta sanguinostigma, and Cyclogomphus ypsilon — are currently classified as vulnerable, while most of the observed species fall under the "data deficient" and "not evaluated" categories on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, indicating significant gaps in scientific understanding.

Emphasising the urgency of expanding research, Pankaj Koparde, Assistant Professor, MIT-World Peace University Pune, said, "This study is a result of one of the most extensive Odonata surveys across the Ghats. Our surveys could recover only 65% of the known Odonata fauna of the Ghats, indicating plausible loss of species and habitats."

The Western Ghats is a 1,600-km mountain chain along India's west coast and a globally recognised biodiversity hotspot. The survey team, headed by Professor Koparde, suggests the Odonata species are highly sensitive to environmental changes as they depend on freshwater ecosystems for reproduction, and are widely regarded as "indicator taxa," meaning their presence, or absence, directly reflects the ecological health of water bodies. So, the missing species may be early indicators of deeper ecological stress.

The study claimed there are multiple threats across the Western Ghats, including linear infrastructure development, hydropower projects, severe pollution, large-scale land-use changes, unregulated tourism, recurring forest fires, and growing impact of climate change which is further fragmenting and degrading these ecosystems.

Key findings

According to the IUCN Red List, of the 143 recorded species, 100 species are classified as 'Least Concern,' 22 species as "data deficient" and 16 as "not evaluated". Two species fall in the "near threatened" category, while two others are listed under "vulnerable" category.

The presence of 22 species listed under "data deficient" category suggests the need for extensive surveys across the Western Ghats to uncover the status and distribution of many lesser known species.

The study also uncovers the richness of Odonata species in several localities across the five States, many of which were previously unexplored. The findings demonstrate that the diversity and degree of endemism are greater in the southern Western Ghats compared to the northern part of the region. This can largely be attributed to the availability of suitable microhabitats and perennial streams in the southern Western Ghats.

WHEN THE BRITISH 'BROUGHT BACK SOMNATH GATES' FROM AFGHANISTAN

Prime Minister Narendra Modi is in Gujarat today (May 11) to mark 75 years of the inauguration of the restored Somnath temple. Modi posted on social media, "…while the attackers have faded into the dust of history, the soul of Bharat endures. Somnath stands tall and eternal."

Key Takeaways:

• By most historical accounts, the temple faced several attacks from raiders, with the most damaging by Mahmud of Ghazni in 1026 CE. This history of Somnath has often been used to divide Hindus and Muslims. The British attempted this as far back as 1842, when a British official claimed to have "avenged the insult of Hindus" by bringing back the "sandalwood gates of Somnauth" from Afghanistan. The gates later turned out to be neither of Somnath nor of sandalwood. Here's a brief history.

• In 1842, the British Army suffered losses in its Afghanistan expedition. A retaliatory strike was carried out, and it is during this time that the "gates of Somnath" carried away by Mahmud of Ghazni surfaced in a big way. The British brought back a pair of wooden gates from Ghazni, claiming they were the original gates of Somnath taken by the invader. British Governor General Lord Ellenborough framed this exercise as the "avenging of an insult".

• On November 16, 1842, he issued a proclamation "to all the Princes and Chiefs, and people of India", which read: "Our victorious army bears the gates of the temple of Somnauth in triumph from Afghanistan…That insult of eight hundred years is at last avenged."

Do You Know

• Located in Prabhas Patan, Veraval, Somnath is an important Hindu pilgrimage site. According to the temple's website, it is "the holy place of the First Aadi Jyotirling Shree Somnath Mahadev and the sacred soil where Lord Shri Krishna took his last journey…"

• The site of Somnath has been a pilgrimage site from ancient times on account of being a Triveni Sangam (the confluence of three rivers: Kapila, Hiran and Saraswati.

• According to the Wikipedia, the name Someshvara begins to appear in records from the 9th century. The Gurjara-Pratihara king Nagabhata II (r. 805–833) recorded that he had visited various tirthas in Saurashtra, including Someshvara.

• According to the Wikipedia, the Chaulukya (Solanki) king Mularaja is believed to have built the first temple dedicated to Soma ("the moon god") at the site sometime before 997 CE, even though some historians believe that he may have renovated an earlier, smaller temple.

• According to the NCERT textbook, the current Somnath Temple in Gujarat, reconstructed in 1951, is a masterpiece of Chalukya style (Māru-Gurjara) architecture, designed by traditional Sompura masons. It is a seven-storied structure rising 155 feet, featuring a grand shikhara (spire), intricate carvings, and a garbhagriha (sanctum) housing the Jyotirlinga, all situated on the scenic Arabian Sea coast.

MINISTRY'S SPECIAL FUND IS FOR TOP ATHLETES, BUREAUCRATS DIP INTO IT TO UPGRADE THEIR OWN SPORTS FACILITIES

Official panel disbursed National Sports Development Fund money to build, refurbish sports facilities in showpiece New Delhi residential complex for bureaucrats. Funds also went to Civil Services Officers' Institute.

Key Takeaways:

• An investigation by The Indian Express has found that the money used to build, or refurbish, these world-class facilities meant for some of the country's top bureaucrats came from the National Sports Development Fund (NSDF) — a fund created to train athletes and build sporting infrastructure, and allotted by a committee of bureaucrats.

• The Indian Express investigated five years of official records and data obtained under the RTI Act, and interviewed current and former Government officials, to find that while a chunk of these funds was indeed allotted for sports facilities, a slice of the pie was also channelled into civil services institutions and the Delhi colony for bureaucrats.

• Among the well-known sports missions funded by NSDF: the flagship Target Olympic Podium Scheme (TOPS) for elite athletes. Among the not-so-well-known beneficiaries: facilities for senior bureaucrats, two RSS-linked institutions in Rajasthan and Chhattisgarh, and even some lesser-known cricket boards in Asia and the Caribbean.

• The NSDF fund is governed by a 12-member Council under the Union Sports Minister. But the body that clears grant proposals is a six-member committee of officials under the Sports Ministry — from the same system that benefits from the grants.

Do You Know

• The NSDF was established in 1998 under the Charitable Endowments Act, 1890. It is funded by donations from the public and private sectors, Non-Resident Indians (NRIs), and charities or non-profits, with contributions from the Government.

• The fund is governed by a Council headed by the Union Sports Minister — currently Mansukh Mandaviya. The Council also includes top

office-bearers from Public Sector Undertakings, which are the biggest donors to the NSDF, industry bodies like FICCI and CII, private-sector representatives and sports ministry officials.

• Its current members are: Sports Minister Mansukh Mandaviya (Chairperson); MoS Sports Raksha Khadse (Vice-Chairperson); Sports Secretary Hari Ranjan Rao, who is also Sports Authority of India (SAI) DG; Additional Secretary and financial advisor to sports ministry; representatives from Railway Sports Promotion Board and All India Police Sports Control Board; CMDs or MDs of The New India Assurance Co Ltd, Indian Oil Corporation Ltd, ONGC Foundation, REC Foundation and NTPC Foundation; and, a Sports Ministry joint secretary.

• Day-to-day operations and grant approvals are handled by a six-member executive committee chaired by the Sports Secretary. Its other members are SAI Director General, SAI Executive Director (Teams), Financial Advisor to Sports Ministry, a Sports Ministry Joint Secretary and a Sports Ministry Director.

UGLY BOUT

Double World championships bronze medalist Vinesh Phogat's comeback bid after a sabbatical following the Paris Olympics hit a roadblock when the Wrestling Federation of India (WFI) found her ineligible as per a United World Wrestling (UWW) rule, which requires retired athletes to inform the world body six months prior to their intended return to competition. With an eye on the 2028 Los Angeles Olympics, Phogat — a prominent face in the 2023 wrestlers' protest and one of the six women who brought allegations of sexual harassment and started a legal battle against former WFI president Brij Bhushan Sharan Singh — was aiming for a brave comeback in the Open Ranking tournament at the Nandini Nagar Mahavidyalaya; Brij Bhushan, also a Gonda strongman and former BJP Member of Parliament, owns it. The National Federation, which is headed by Brij Bhushan's close aide Sanjay Singh, also issued a show-cause notice to Phogat on three separate, prominent grounds. Firstly, that she did not adhere to the 50kg weight limit and was disqualified after reaching the final at the Paris Olympics. It resulted in her disqualification, a loss of medal and negative publicity. Second, as an athlete in the registered testing pool, who is required to give a time slot every day and be available for dope tests, she had multiple whereabouts failures, including on December 18, shortly after announcing her comeback. Third, Phogat violated a UWW rule by competing in two weight categories, 50kg and 53kg, at a selection trial in March 2024 for an Olympic qualifying event.

But the timing of the show-cause notice and the charges, which Phogat has rubbished, raises doubts about the intentions behind it. As for the Paris fiasco, it happened two years ago. Under World Anti-Doping Agency rules, three missed tests and/or filing failures within a 12-month

period constitute an anti-doping rule violation. It is, however, not applicable in Phogat's case. Moreover, the UWW and National Anti-Doping Agency are the authorities concerned to deal with doping issues. The trials, in which Phogat participated in two weights, were held by an ad hoc body as the WFI was not recognised by the government at the time. As a parent body, the WFI should have shown maturity in handling Phogat's comeback. Instead, it clubbed together different matters spanning two years to thwart the 31-year-old's return. Phogat, who is a Congress legislator from Haryana, has shown her strong temperament and is working with her legal team to respond to the show-cause notice within 14 days. Meanwhile, the UWW should step in to stop the ugly bout between a decorated wrestler and the WFI. India can do without further embarrassment on this score.

SHORT NEWS

BRICS FOREIGN MINISTERS' MEETING

— The BRICS Foreign Ministers' meeting was held in India from 14 to 15 May 2026. The meeting was chaired by Dr. S. Jaishankar, External Affairs Minister.

— BRICS Foreign Ministers and Heads of Delegation from Member and Partner Countries participated in the meeting.

— BRICS stands for Brazil, Russia, India, China, and South Africa, the original five members who were large, non-Western economies.

— In January 2025, Indonesia officially joined the BRICS as a full member taking total membership to 10. Egypt, Ethiopia, Iran, and the United Arab Emirates are also part of the bloc.

India's BRICS Presidency

India is hosting the 18th BRICS Summit. The theme for the BRICS is "Building for Resilience, Innovation, Cooperation and Sustainability". It draws inspiration from the Prime Minister's "Humanity First and People-centric" vision for BRICS. It is guided by four broad priorities: resilience, innovation, cooperation, and sustainability. The BRICS logo consisted of lotus in the colours of the BRICS nations. It blends tradition with modernity, with petals reflecting the vibrant colours of all BRICS members and symbolising collective strength and unity. At the centre, the "Namaste" gesture conveys warmth, respect, and harmonious collaboration.

INDIA-UAE DEEPEN TIES

— Prime Minister Narendra Modi visited the United Arab Emirates on 15 May 2026 and held discussions with UAE President Sheikh Mohamed bin Zayed Al Nahyan.

— Both the nations signed a slew of pacts including a framework for a strategic defence partnership, storage of 30 million barrels in Indian strategic petroleum reserves, supply of LPG and a ship repair cluster in Gujarat's Vadinar.

— Strategic Collaboration Agreement was signed between Indian Strategic Petroleum Reserves Limited and Abu Dhabi National Oil Company to enhance UAE's participation in India's Strategic Petroleum Reserves to 30 million barrels, and work together to set up strategic gas reserves in India.

— The UAE has been the first country to partner with India in strategic petroleum reserves. In 2018, the ISPRL and ADNOC entered into an agreement for the UAE to store over 5 million barrels of crude oil reserves at ISPRL's facility in Mangaluru.

Strategic Petroleum Reserves (SPRs)

According to the statement made by the Ministry of Petroleum and Natural Gas (MoPNG) in the Rajya Sabha on March 23, India is currently holding 3.37 million tonnes of oil, or just about two-thirds of their total storage capacity (5.33 million tonnes of crude oil). The SPRs — spread across three locations in Andhra Pradesh and Karnataka — are meant to act as a buffer for short-term supply shocks.

MOU SIGNED BETWEEN RBIH AND I4C

— In a push to curb cyber-enabled financial frauds, the Indian Cyber Crime Coordination Centre (I4C), under the Ministry of Home Affairs, and the Reserve Bank Innovation Hub (RBIH) have signed a Memorandum of Understanding (MoU).

— It aims to enhance fraud-risk intelligence sharing, analytical support, and operational coordination, with a particular focus on identifying and eliminating mule accounts — a key enabler of cyber fraud.

— Under the MoU, the I4C will share intelligence related to suspected mule accounts through its Suspect Registry, which will be integrated into AI-driven fraud detection systems such as MuleHunter.ai™ deployed across banks.

— The RBIH will use these datasets to train and enhance fraud-risk assessment models, enabling more proactive detection and prevention of suspicious transactions.

FYI

RBIH, a wholly owned subsidiary of the Reserve Bank of India, has been driving innovation in financial technologies, particularly in AI-based fraud detection systems.

SEHAT – SCIENCE EXCELLENCE FOR HEALTH THROUGH AGRICULTURAL TRANSFORMATION

— The Indian Council of Medical Research (ICMR) and the Indian Council of Agricultural Research (ICAR) jointly launched 'SEHAT'.

— It is a national mission-mode programme designed to translate agricultural advancements into tangible health outcomes for the people .

— The mission focuses on five priority areas:

I. Development and evaluation of biofortified and nutrient-dense crop varieties to address malnutrition and improve nutritional status;

II. Strengthening integrated farming systems to promote dietary diversification, enhance farm incomes, and build resilience

III. Addressing occupational health risks among agricultural workers through targeted, evidence-based interventions

IV. Advancing agriculture-enabled strategies for the prevention and management of non-communicable diseases

V. Strengthening One Health preparedness through integrated surveillance, diagnostics, and research at the human–animal–environment interface

KIMBERLEY PROCESS (KP) INTERSESSIONAL MEETING

— The Kimberley Process (KP) Intersessional Meeting 2026 was held in Mumbai from 11th May to 14th May. India is holding the chair of KP for this year.

— India's Kimberley Process 2026 Chairship is guided by the 3Cs: Credibility, Compliance, and Consumer Confidence in the natural diamond sector.

— The Kimberley Process Certification Scheme (KPCS) is a mechanism used by KP to prevent the trade of conflict diamonds. Launched in 2003, it is enforced individually by KP Participant countries to ensure that rough diamonds in the legitimate supply chain are KP-compliant.

— At present, the Kimberley Process has 60 participants representing 86 countries, with the European Union and its Member States participating as a single bloc.

— 'Conflict diamonds', also known as blood diamonds, are the rough diamonds mined and used by rebel movements or their allies to finance armed conflicts aimed at undermining legitimate governments.

About Diamonds

Diamond composition is pure carbon. In diamonds, each carbon atom is bonded to four other carbon atoms, forming a rigid three-dimensional structure. It is the hardest natural substance known and has a very high melting and boiling point.

METHANE

— Methane buildup in the cargo hold of a bulk carrier ship berthed at Kandla port, Kutch, is the likely reason for the death of three migrant workers from Uttar Pradesh on 13th May, 2026.

— Methane is a colourless, highly flammable gas which is the primary component of natural gas.

— Low level exposure of methane would not be expected to cause adverse health effects. However, exposure to high levels of methane can reduce the amount of oxygen breathed from the air. This can result in mood changes, slurred speech, vision problems, memory loss, nausea, vomiting, facial flushing and headache. This could also lead to death.

WITHHOLDING TAX

— In order to attract foreign investors' investment inflow, the government is considering slashing the 'withholding tax' rate on government bonds.

— At present, non-residents pay a withholding tax of about 20% on the interest they get on the government bonds they hold — one of the highest in the world — after a concessional rate of 5% ended in 2023.

— A high withholding tax is seen as a major deterrent for foreign capital inflows at a time when India is grappling with rising external pressures, including a sharp surge in crude oil prices.

— Withholding tax, or WHT, is a tax collected at the source of income. Instead of waiting for an investor or foreign company to pay taxes at the end of the financial year, the government requires the payer to deduct a portion of the income before it is remitted to the recipient.

— The deducted amount is then directly deposited with the government. In simple terms, whenever income is earned — whether through employment, investments, royalties or other sources — the government ensures tax collection in advance through withholding tax.

Government Bonds

Government bonds or government securities, are tradable instruments issued by the Central Government or the State Governments. It is used by the government to borrow money from the public.

SPECIAL ASSISTANCE TO STATES FOR CAPITAL INVESTMENT (SASCI) SCHEME

— To incentivise greater clean energy adoption, the government is set to link the adoption of renewable energy to the SASCI scheme.

— The 2026-27 Union Budget allocated Rs 2 lakh crore as 50-year, interest-free capex loans for states called Special Assistance to States for Capital Investment (SASCI).

— Under this programme, while Rs 75,000 crore is 'untied' – or provided without any conditions – the majority is tied to the reform performance of each state across a variety of spheres ranging from power, mining, agriculture, and public finance, among others.

— As such, the better a state performs on these reform criteria, the more they can avail from the 'tied' component of the programme.

— The loans availed under the SASCI programme count over and above each states' net borrowing ceiling, which is capped at 3% of their Gross State Domestic Product (GSDP), as per the Fiscal Responsibility and Budget Management (FRBM) Act.

SCHEME FOR PROMOTION OF SURFACE COAL/LIGNITE GASIFICATION PROJECTS

— The Union cabinet on 13th May has approved a new scheme to promote conversion of coal and lignite into synthesis gas (syngas) through the gasification process in a move to strengthen energy security.

— With an outlay of Rs 37,500 crore, the Scheme seeks to incentivise 25 projects for production of syngas and downstream products, targeting gasification of approximately 75 million tonne (mt) of coal/lignite.

— The new scheme is an addition to the existing viability gap funding scheme worth Rs 8,500 crore approved in 2024 for incentivising coal and lignite gasification projects.

— Coal gasification is a thermochemical process of converting coal into synthesis gas (syngas), which is a mixture of fuel-rich gases like carbon monoxide (CO), carbon dioxide (CO2), hydrogen (H2), and methane (CH4).

— The syngas can be used for producing Synthetic Natural Gas (SNG), electricity generation, energy fuel (methanol and ethanol), ammonia for fertilisers, and chemicals.

— The coal gasification process involves oxidation of coal at higher temperatures and pressures to produce syngas. There are two main types of gasification: Surface gasification and Underground coal gasification (UCG).

— In surface coal gasification, coal is first mined and then converted into gas in above-ground industrial reactors using oxygen, steam and high temperatures.

— In contrast, underground coal gasification converts coal into gas while it is still buried deep underground by injecting air or oxygen into coal seams through wells and extracting the resulting gas to the surface.

— The newly approved scheme primarily focuses on surface gasification projects

NITI AAYOG EDUCATION QUALITY REPORT 2026

— NITI Aayog has released a report titled, 'School Education System in India: Temporal Analysis and Policy Roadmap for Quality Enhancement.' The analysis provides for the decade from 2014-15 to 2024-25.

— Overall, school enrolment has dropped by about 8% over the past decade: from 26.95 crore in 2014-15 to 24.69 crore in 2024-25.

— Three reasons are cited for the drop:

I. demographic shifts, particularly falling fertility rates leading to a smaller school-age population

II. the effects of school consolidations or mergers

III. Challenges in retaining students at higher levels of education.

— The school enrolment in government schools dropped from 54.3% in 2014-15 to 49.25% in 2024-25. In contrast, enrolment in private schools jumped from 31.7% to 38.8%. The rest are in government-aided or other schools.

— NITI Aayog has marked secondary education as the "most fragile link" in the schooling cycle. The Gross Enrolment Ratio (GER) at the secondary level has only seen a marginal rise over the past decade — from 75.68% to 78.7%. The GER in the primary and upper primary levels is over 90%.

— Drop-out level: The dropout rate at the primary level has fallen to near zero: from around 4% in 2014-15 to 0.3% in 2024-25. At the upper primary stage, the figure was 3.5% in 2024-25, close to the 3.77% a decade ago.

— The secondary stage dropout rate has dropped from 17.86% to 11.5% over the decade, but the rate remains the highest at this stage of schooling.

FYI

GER is the total enrolment at a particular level of education, expressed as a percentage of the official age-group population for that level.

LORMALZI

— Pharmaceutical giant Eli Lilly has launched donanemab in the Indian market under the brand name Lormalzi.

— The once-a-month 350 mg infusion has been shown to slow the progression of the disease by dissolving the amyloid beta protein plaques in the brain — a classical sign of the neuro-degenerative disease.

— This drug is an important innovation. Dementia currently affects approximately 8.8 million people in India, with Alzheimer's disease accounting for the majority of cases. This number is projected to nearly double to 16.9 million by 2036.

— Donanemab is a monoclonal antibody that reduces amyloid beta protein plaques in the brain to slow down cognitive decline in patients with early Alzheimer's disease.

KAZIRANGA WILDLIFE

— An environmental activist has filed a complaint to the Supreme Court-mandated Central Empowered Committee (CEC) regarding alleged illegal construction within the Kaziranga Wildlife Corridor.

— The Kaziranga National Park, which has the world's largest population of the one-horned rhinoceros and is home to 37 species of mammals and nearly 500 species of birds, is located on the Brahmaputra floodplains in Central Assam's Nagaon and Eastern Assam's Golaghat districts.

ANAIMANGALAM CHOLA COPPER PLATES

— Amid Prime Minister Narendra Modi's visit, the Dutch government handed over the Anaimangalam Chola Copper Plates to India, a culmination of a 14-year effort to get them back.

— Known in the Netherlands as the Leiden Plates, they are among the most significant surviving records of the Chola dynasty and among the most important artefacts of Tamil heritage held anywhere outside India.

— The Anaimangalam copper plates comprise a set of 21 large plates and three smaller ones, weighing approximately 30 kg, are bound together by a bronze ring bearing the royal seal of the Chola dynasty.

— These were issued to commemorate grants made by the renowned Chola ruler Rajaraja I (985-1014 CE) to a Buddhist vihara (monastery) at the Chola port town of Nagappattinam in Tamil Nadu.

— The vihara had been constructed by Chulamanivarman, the Sailendra ruler of Southeast Asia.

— The inscriptions on the plates are written in both Sanskrit and Tamil. As per Leiden University, the Sanskrit section traces the genealogy of the Chola dynasty, beginning with the mythical lineage linked to the Hindu god Vishnu.

— The Tamil text highlights the accomplishments of Rajaraja I, father of Rajendra I, including his donation of an entire village's revenue to a Buddhist pagoda in the 21st year of his reign.

NATIONAL FLORENCE NIGHTINGALE AWARDS 2026

— The National Florence Nightingale Awards for the year 2026 was awarded to fifteen Nursing professionals by the President to the nursing personnel, on the occasion of International Nurses Day (May 12, 2026).

— The award was instituted in 1973 by the Ministry of Health and Family Welfare as a mark of recognition for the meritorious services rendered by nursing personnel to society.

— Each award includes a Certificate of Merit, a cash prize of one lakh rupees and a medal symbolising the nation's gratitude for the invaluable service rendered by these health warriors.

NATIONAL SPORTS DEVELOPMENT FUND(NSDF)

— Contributions to the NSDF have more than halved in three years — from Rs 85.26 crore in 2023-24 to Rs 37.02 crore in 2025-26, records obtained by The Indian Express under the Right To Information (RTI) Act show.

— The NSDF was established in 1998 under the Charitable Endowments Act, 1890.

— It is funded by donations from the public and private sectors, Non-Resident Indians (NRIs), and charities or non-profits, with contributions from the Government.

— The fund is governed by a Council headed by the Union Sports Minister — currently Mansukh Mandaviya.

— The Council also includes top office-bearers from Public Sector Undertakings, industry bodies like FICCI and CII, private-sector representatives and sports ministry officials.

— Day-to-day operations and grant approvals are handled by a six-member executive committee chaired by the Sports Secretary.

BUSINESS AND ECONOMY

CHINA'S ECONOMIC STRENGTHS NOW RIVAL THAT OF THE U.S.

U.S. President Donald Trump commenced his highly anticipated three-day visit to China on May 13, amid the ongoing Israel-U.S. war with Iran, and a year after Mr. Trump imposed steep import tariffs on several countries. China was one of the countries on which the U.S. imposed the highest tariffs.

Mr. Trump's previous visit to Beijing was in November 2017 during his first term as U.S. President. Interestingly, it was a few months after his 2017 visit that he started a trade war with China by levying high import tariffs on various products to fight the latter's "unfair trade practices" and address the huge trade imbalance between the two countries. China retaliated with its own tariffs.

Though Mr. Trump escalated this trade war between the two countries in his second term with a further increase in tariffs, he will be visiting China after having backed down following Beijing's retaliatory tariffs and steps taken by it to restrict vital rare earth exports to the U.S.

A look at multiple economic indicators over the years shows that China is catching up at a steady pace with the U.S., considered the world's lone superpower both economically and militarily since the collapse of the Soviet Union. Today, China's economic strength has grown dramatically to rival that of the U.S.

The Gross Domestic Product (GDP) of the U.S. in 1990 was about 15 times the size of China's economy. By 2025, according to the International Monetary Fund's data, the U.S. GDP was only 1.5 times larger than that of China.

Despite growing into an economy comparable in size to the U.S., China has managed to maintain a strong GDP growth rate of at least 5% even after it became a $10 trillion economy in 2014, barring the exceptions of 2020 and 2022. Since becoming a $10 trillion economy in 2000, the U.S. economy's growth rate last crossed the 3% mark in 2005. The only exception was 2021 because of the negative growth caused by the COVID-19 pandemic the year before.

The gap is even starker when it comes to labour productivity growth — that is, output per worker. Besides being far higher than the U.S.'s, China's growth rate of labour productivity is at a level that the U.S. has not come close to in the past 25 years.

In many key export sectors, China now occupies the place once held by the U.S. While China's share in global exports across sectors such as electronics and minerals has grown, the U.S.'s share has seen a gradual decline. China's share in global vehicle exports has grown from less than 1% in 1995 to over 13% in 2024.

China has also massively increased its spending on R&D, which assumes significance in the backdrop of the race between the two countries in AI. According to the World Intellectual Property Organization (WIPO), China overtook the U.S. in R&D expenditure for the first time in 2024. The U.S. spent $781.8 billion while China spent $785.9 billion, which is a 20-fold jump from the $41 billion spent in 2000. Between 2000 and 2024, Beijing's share in global R&D expenditure increased by 23 percentage points while that of the U.S. declined by 9.71 percentage points.

The Asian giant is using its economic growth to increase its diplomatic influence. According to AidData, China was the world's largest official creditor in 2023, having lent about $140 billion to

public and private sector borrowers. The U.S. is the largest recipient of China's official sector credit. Lowy Institute's Asia Power Index ranked Beijing's 'diplomatic influence' and 'economic relations' higher than those of the U.S. for 2025.

CAPITAL FLIGHT AND PRESSURE ON THE RUPEE

The recent announcement by Prime Minister Narendra Modi urging individuals to reduce their consumption of gold and petrol brought to the fore what many analysts have warned about: India's situation on the external front is far from rosy. The rupee has witnessed significant depreciation over the last few weeks, while the rise in LPG prices has caused hardships for the working classes and triggered a reverse migration of workers back to villages.

Let us focus on the question of capital flows. The outbreak of hostilities in the Persian Gulf and the closure of the Strait of Hormuz have led to an outflow of foreign capital and a weakening of the rupee relative to major currencies. These are to be expected given the profound uncertainty that has gripped global markets. What makes the situation doubly worrying for India is that these outflows and depreciation have occurred even though interest rates in the U.S. and the U.K. have not changed. If foreign central banks do raise interest rates, it might lead to even more pressure on India's external account in the future.

The taper tantrum

Emerging market economies such as India offer higher returns, but they are also exposed to currency and inflation risks. A rise in Indian inflation and/or a depreciation of the rupee can lower the net return to a foreign investor on holding Indian assets. The returns on Indian assets would have to be higher relative to those on foreign assets to compensate for these risks. In simple terms, the decision to hold Indian assets relative to foreign ones depends on the difference between Indian and foreign interest rates.

If Indian interest rates remain fixed, an increase in foreign interest rates can prompt foreign investors to reduce their holdings of Indian assets. This leads to depreciation of the rupee as it is exchanged for dollars. The only way — apart from capital controls — to arrest such a slide is to raise domestic interest rates, but that would negatively affect domestic investment. Monetary policy in emerging economies is tied to that of the U.S.; any increase in U.S. interest rates often forces smaller economies to consider raising their own rates to defend their currencies.

Given the ease with which capital can flow across borders, these outcomes can occur merely on the expectation that interest rates will rise, even before any actual rise. Such an outcome was seen in 2013. With interest rates hitting the zero lower bound in the wake of the 2008 Great Recession, the U.S. Federal Reserve announced a possible end to quantitative easing. The mere expectation of higher future interest rates caused a massive withdrawal of capital from emerging market economies. This was known as the 'taper tantrum'.

What is happening currently is somewhat similar, with capital flight occurring even though interest rates have not actually risen. What is worrying about the current scenario is that India's depreciation and capital flight have occurred even though foreign central banks have not made any definitive signal that they intend to raise interest rates in the future.

BELATED WARNING

Prime Minister Narendra Modi's seven-point call to action for the citizens of India lays bare the severity of the impact of the West Asia crisis. Further, apart from its implications, Mr. Modi's message is problematic for two other key reasons: its timing and content. A key part of his message was to urge people to work from home and reduce their fuel usage. A more effective approach might have been to lead by example. Yet, Mr. Modi's message comes days after he and his Cabinet colleagues flew all over the country and organised roadshows to campaign for the recent elections. Neither did any of his pre-election speeches mention these issues. His message also comes on the back of daily reassurances by his government's officials that there was nothing to worry. Clearly, there is. The Prime Minister's message also follows various Ministers' attempts to heap praise on him for not raising petrol and diesel prices. A decision not to further burden the common man is welcome, but the flip side is that it fails to impress upon them the need to curtail consumption. The government took that strategic call before the elections, and is now trying to dilute it. Perhaps a hike in fuel prices will follow soon. The Prime Minister's speech also coincided with a similar call to action for Indian corporates by the Confederation of Indian Industry. This kind of coordinated messaging points to a dire situation. Several of the Prime Minister's suggestions might also have other negative impacts that could be more serious than the problems they are trying to address. Some others might simply not be as effective as he hopes.

If farmers stop using chemical fertilizers, as he has urged, the immediate impact will be on crop output at a time when El Niño is already set to hurt it. High-frequency indicators are already revealing the economic damage of the West Asia crisis. This will only exacerbate the situation. The suggestion to stop foreign travel will conserve foreign exchange, but Reserve Bank of India (RBI) data up to February 2026 shows that Indians' foreign travel spending in 2025-26 was already down by 3%. March, the first month after the Iran war broke out, is likely to have seen an even sharper decline. The real pressure on the rupee and India's foreign exchange is because foreign institutional investors are pulling out while the RBI is using valuable dollars to shore up the falling currency. Urging Indians to buy local is another way of asking them to consume less, since purely domestic supply is not nearly enough to cater to the demand. Asking them to buy less gold is also likely to be futile. All this means that the economy is in for a hard time over the next few months — a warning the Prime Minister should have delivered much earlier, elections or no elections.

WHY PM MODI'S CALL TO SAVE FOREX COULD SLOW DOWN INDIA'S GROWTH

Prime Minister Narendra Modi has urged Indians to save foreign exchange (forex) by any means necessary. In a recent speech, he called on Indians to stop buying gold for a year. Imports of gold are a huge reason why Indians demand forex. In the same vein, he has also urged Indians to work from home in a bid to reduce the consumption of imported crude oil — another big drain on forex.

He also urged Indians to cut back the use of edible oil in their food by 10%; he said this will not only cut back on the import of edible oils and save forex but also improve the health of Indians.

He also urged the farmers to cut back on the use of chemical fertilisers by half if possible; he said that too much use of chemical fertilisers was ruining soil health, and instead advocated the farmers should shift to natural farming.

He also took this opportunity to underscore the need for buying "made in India" products and focusing on "swadeshi" products and being "vocal for local" instead of buying imported goods of

everyday use. He asked Indians to make a list of things they buy and wean out the imported products (say, "scissors or toothbrush") and substitute them with Indian ones.

What is the link between forex and the PM's demand?

This call comes in the wake of the war in Iran and the associated supply and price shocks of goods like fuel and fertiliser.

Indians typically import large quantities of the commodities Modi mentioned in his speech.

When Indians buy goods from outside the country — be it gold or a toothbrush or fertiliser or edible oil — India ends up running down its pile of forex held with the RBI, India's central bank. That's because the transaction of importing goods from outside the country involves Indians using their rupees to buy dollars and then using those dollars to import (buy) goods from outside the country.

Under normal circumstances, foreigners across the world also buy Indian goods, and thus they use dollars to buy Indian rupees, and this leads to dollars adding to Indian forex reserves with the RBI.

But the situation can go off-balance if Indians imports far outstrip Indian exports; in such a scenario India will keep spending dollars without getting as many in return.

If such a situation sustains for long, it has two effects: one, India runs down its pile of forex, and two, while this is happening, Indian rupee's exchange rate weakens against the dollar (or whatever other currency that India is using to trade).

There is another way in which forex come in and out of India: through foreign investments. Foreigners invest in India (either by creating new factories and offices — called foreign direct investment — or by buying shares in Indian companies listed in the stock market — called foreign portfolio investment) while Indians invest in other countries, again via the same two routes.

For most of India's history since the economic reforms in 1991, there has been a broad trend: Indians import more goods and services than they export — this is called running a "current account deficit" — while foreigners invest in India more than Indians invest outside India — and this is called a "capital account surplus". Typically, the capital account surplus is bigger than the current account deficit — implying more dollars are coming in than going out — and thus India adds to its forex reserves. This situation is technically called a "Balance of Payment (BoP) surplus".

What is the link between BoP and the rupee's exchange rate?

As long as the BoP is in surplus — that means, more dollars are coming into the country than going out — the RBI can either let the rupee's exchange rate strengthen or it can simply accumulate forex reserves.

Often the RBI accumulates forex reserves for a variety of reasons, one of them being that letting the rupee strengthen may not help Indian exports. Moreover, having a healthy level of reserves helps in times of crisis.

When the BoP goes into a deficit, either the rupee weakens or, if the RBI defends the rupee's exchange rate by selling dollars in the market, the forex reserves fall.

So, has the situation changed? And how bad is it?

For a while now — roughly since mid-2024 — India's BoP surplus has taken a hit. While the current account deficit hasn't worsened as much, the trouble has been the capital account surplus has shrunk — and in fact, often become a deficit itself.

As a result, both the ill-effects that a BoP deficit brings are happening.

The most troublesome bit is that the more the rupee weakens — thanks to India's heavy dependence on import of crude oil (which itself has become very costly since the start of the war in Iran) — the more the imports become costlier and the vicious cycle strengthens.

Will the PM's mantra help?

There are many ways to analyse Modi's call.

There are two ways for India to deal with the forex situation:

Either reduce the demand for dollars by cutting domestic consumption, or

Boosting India's ability to earn more forex by improving domestic production.

All of Modi's suggestions are focused on cutting consumption to spend less forex while none focus on boosting production to earn more forex. This choice has several implications.

On the face of it, if all Indians were to suddenly stop using gold in all ceremonies and substitute it with fresh flowers plucked from the nearby garden, and if all Indians stopped stepping out from home for any reason (or just cycled) then it is true that India's imports will fall since imports of gold and crude oil are the big reasons for our imports being higher than our exports. This, in turn, will reduce our demand for dollars by reducing or even eliminating the current account deficit.

But such a move will likely come at the cost of overall economic growth because all businesses that use crude oil or gold or edible oil will likely suffer lower sales, not to mention the inefficiency due to cutbacks.

Weaker consumption, especially in a country that is already struggling with weak consumption, will drag down growth in the immediate time period of the current year.

Further, weak consumption levels have been a key reason why businesses have not increased their investments into the Indian economy despite the government's best efforts. As such, a strict adherence of the PM's call could further disincentivise businesses.

Moreover, while the cut in consumption helps the current account, it may further worsen the capital account: After all, why would the foreign investors return to an economy that they are already shunning if that economy chooses to further roll back consumption.

Arguably, there can be another scenario in the medium term: That consumption doesn't get reduced but gets diverted to Indian firms, and Indian businesses invest because Indians only prefer "swadeshi" goods. As such, this call turns around the Indian economy by redirecting all demand towards Indian businesses.

By itself, the idea of becoming self-reliant — or atmanirbhar as the PM calls it — sounds intuitively appealing. To be sure, it goes back to the days of independent India's start when PM Jawaharlal Nehru adopted a strategy of substituting imports and cutting imports to save forex exchange. But many economists (including former PM Manmohan Singh) thought that was a sub-optimal idea, and that India should have opened up its economy and traded more aggressively with the rest of the world.

Here's why. While becoming self-reliant is an understandable goal, not every country can become self-reliant in everything.

For instance, while it is true that India is now self-reliant in terms of food production, food production, in turn, depends on imported fertilisers. Further, even if India intends to make all its fertilisers at home — and it does make many at home — there is still the reliance on imported feedstock (fuels such natural gas or naphtha, etc.) that actually account for more than 80% of the total domestic production cost of fertilisers.

So, arguably, if India cannot be self-reliant in fertilisers, it can't really consider itself to be self-reliant in terms of food production.

Similarly, India cannot replace imported crude oil with any domestic alternatives in a hurry; moreover any shift will cause the economy to slow down.

In other words, crashing India's overall imports doesn't necessarily make the economy stronger; if anything, a forced reduction in imports will slow down the economy.

Further, it is also incorrect to say that too much use of chemical fertilisers is hurting India's soil. What is hurting India's soil is not too much use of chemical fertilisers but imbalanced use of chemical fertilisers. There is an excessive use of nitrogenous fertilisers (urea) and too little use of phosphorus and potassium, apart from other micro-nutrients. The sole reason for this imbalance is the domestic subsidy regime which over-subsidises urea and thus nudging farmers to overuse it. Reducing use of chemical fertilisers and shifting to natural farming can help to the extent that the use is so excessively imbalanced.

What is required to deal with the forex issue?

Cutting consumption in such a stark manner — not buying gold or not going to office — cannot be a sustainable solution. The only way out of this situation is for India to boost both its domestic production and productivity. It is only when India becomes more efficient as a producer — regardless of what machines we import — that it will be able to grow its share in the global exports market.

Similarly, only when India reforms its ease of doing business will it attract fresh investments either from within the country or from outside. Higher levels of exports and/or improved attractiveness in terms of starting and running a business is the actual recipe for dealing with the forex issue in a sustainable manner.

Already, India's growth has been modest relative to what it needs to become a developed country. Further, the growth model is such that it fails to create enough good quality jobs. Domestic consumption has been so weak that over the past 2-3 years, all governments — both Union and state-level — have been giving tax relief as well as direct cash transfers running into trillions of rupees in a bid to prevent consumption from cratering further.

Should India be focusing on cutting consumption or boosting production?

GOVT CAPS DUTY-FREE GOLD IMPORTS

Coming close on the heels of Prime Minister Narendra Modi's call for the adoption of austerity measures, the government has hiked customs duty on gold and silver imports to 10% from 5%, and Agriculture Infrastructure and Development Cess (AIDC) to 5% from 1%, taking the total effective import duty to 15% with effect from May 13. The effective import duty on platinum has also been increased to 15.4% from 6.4%.

Key Takeaways:

• The government has also increased import duty on gold and silver findings — small components such as hooks, clasps, clamps, pins and screws used to hold the whole or a part of a piece of jewellery in place — to 5%. Platinum findings will attract a 5.4% import duty.

• The rupee hit an all-time low on Tuesday, falling to as much as 95.75 per dollar during the day before closing at 95.63 — the lowest it has ever ended a session. Since the war in West Asia began, the rupee has slumped by almost 5% against the US dollar and has been Asia's worst-performing currency so far in 2026 — a period in which it has fallen by 6%.

Over the last few years, India has seen significant foreign exchange outflows on account of higher gold imports and spending on overseas travel under the Liberalised Remittance Scheme (LRS). The pressure on India's external sector has been felt amid the ongoing West Asia war, with forex reserves plummeting by $38 billion in just two months since the onset of the conflict, and crude oil prices continuing to hover above $100 a barrel.

Do You Know

• Gold constitutes the second-largest item in India's import bill after crude oil imports. In FY26, the country's gold imports jumped by 24.1% to $71.97 billion compared to $58 billion in the previous financial year. This was largely due to the rise in gold prices, with gold imports falling to 721.04 tonnes in FY26 from 757.09 tonnes in the previous financial year, as per data from the Ministry of Commerce and Industry. Gold prices have surged over 40% in the last year, inflating the import bill.

• The current geopolitical situation has created significant volatility in global crude oil markets and international shipping routes, officials said, adding that as a large importer of crude oil, India remains vulnerable to elevated energy prices and supply-side disruptions, which can increase the import bill, exert pressure on inflation, and the CAD.

• A depreciating rupee is also adding to the country's import bill burden. Officials said precious metals, while culturally and financially significant, are "predominantly consumption and investment driven" in nature and that such imports involve "substantial outflow of foreign exchange".

3 REASONS WHY THE MODI GOVERNMENT BANNED SUGAR EXPORTS

here are two words that have spooked Indian policymakers of late with regard to agriculture: Iran and El Niño. These also explain the thinking behind the government's decision to ban exports of

sugar, notwithstanding the reasonably comfortable domestic availability of the sweetener for now.

The Directorate General of Foreign Trade (DGFT), on May 13, issued a notification placing exports of all raw, white and refined sugar in the "prohibited" category "with immediate effect till September 30, 2026".

In other words, no sugar – barring the 14,500-odd tonnes under preferential quotas at concessional duties to the European Union and United States – can go out of the country in the remaining part of the 2025-26 crushing year (October-September).

Supply situation

Indian mills are expected to produce 279 lakh tonnes (lt) of sugar in 2025-26. With opening stocks on October 1, 2025, at over 50 lt, the total supply of 329 lt would exceed the projected domestic consumption of 280 lt.

As far as exports go, the government initially, on November 14, had allowed 15 lt of shipments for the current sugar year. On February 13, it permitted an additional 5 lt of exports, taking the overall allocation for 2025-26 to 20 lt.

Out of the 20 lt, around 6 lt have already been shipped out of the country. Adding another 0.5 lt now in ports, and the loading of which on vessels had commenced before the DGFT notification's publication, would take the exports for the whole of 2025-26 to 6.5 lt. Deducting this, along with the 280-lt domestic consumption, from the total availability of 329 lt will take the closing stocks as on September 30 to 42.5 lt.

The above stocks would be the lowest since the 39.4 lt of the 2016-17 sugar year (see table). That, by itself, shouldn't be cause for concern, as it is equivalent to about 1.8 months of domestic consumption, which can comfortably cover the country's requirement through Diwali in early November. Mills would, moreover, start crushing for the next sugar year from November.

Taking no chances

It raises the question: Why has the Narendra Modi government banned sugar exports, moving it from the "restricted" (i.e. subject to quantitative caps) to the outright "prohibited" category?

There are three reasons.

The first has to do with El Niño – an abnormal warming of the waters of the central and eastern equatorial Pacific Ocean that leads to increased evaporation and cloud-formation activity around South America, while depriving India, Southeast Asia and Australia of convective currents. El Niño is generally associated with subnormal monsoon rainfall and higher-than-average temperatures in India.

Most global climate models are forecasting a "weak-to-moderate" El Niño to emerge towards July, which can affect rains in the second half of the four-month southwest monsoon season (June-September). The models also point to it persisting till at least the end of 2026, with significant probabilities of turning into a "strong-to-very strong" event.

"The impact of a poor monsoon won't be felt much in the coming sugar year. There's no dearth of water for the cane that is standing in the fields now and would be crushed in 2026-27. The

problem will be for the crop that is planted for the 2027-28 sugar year," said a Maharashtra-based miller.

Farmers in Uttar Pradesh plant sugarcane during February-April, which is ready for crushing in 11-12 months. In Maharashtra, roughly 75% of the cane is accounted for by a 15-month "pre-seasonal" crop planted during July-December. The balance 10% and 15% comprises an 18-month "adsali" (April-June planting) and a 12-month "suru" (January-February) cane, respectively.

It is the new cane that farmers have planted or will do so from July, for crushing only next year, which would bear the brunt of El Niño. This crop can also suffer from a shortage of fertilisers due to the ongoing West Asia supply crisis. And that links up with the second reason for the decision to ban exports; sugarcane requires high doses of fertilisers, in addition to water, for optimal growth and yields.

The third reason is stocks. Sugar mills are supposed to file 'P-II' forms before the 10th of every month, furnishing data on the stocks held by them at the start of the month. Based on this data filed online, the department of food and distribution then allots ("releases") the quota of sugar for each mill to sell in the whole of that month.

"The government is not sure if all mills are actually holding the quantity of stocks declared in their monthly P-II returns. Such mills may have monthly release quota, but not the corresponding physical sugar to sell," the earlier-quoted miller noted.

Either way, the government does not want to risk any prospective shortfall in sugar, adding to its worries over fuel, fertiliser and food inflation.

The export ban per se may not help, given that ex-factory prices of sugar are ruling at Rs 38-38.5 per kg in Maharashtra and Rs 40-40.5 in Uttar Pradesh. As against this, export prices of Indian white sugar loaded onto ships are about Rs 41/kg, while Rs 34 for raw sugar. With bagging, transportation and port handling charges at Rs 2.5/kg, the ex-factory realisations from exports would be lower from domestic sales.

The absence of price parity already limited the quantity of sugar that could be exported from India. The ban only shuts that window altogether.

HOW FARM EXPORTS HAVE GROWN DESPITE US TARIFFS

India's farm exports grew 2.3% year-on-year in 2025-26 (April-March), despite the steep tariffs imposed by the United States President Donald Trump's administration.

Farm produce shipments were valued at $53.1 billion during the last financial year, up from $52 billion in 2024-25 and marginally below the all-time-high of $53.2 billion for 2022-23.

The 2.3% agri exports growth was higher than the 0.9% increase in India's overall merchandise exports, from $437.7 billion in 2024-25 to $441.7 billion in 2025-26. The latter figure was also down from the $451.1 billion peak of 2022-23.

The Trump tariffs – 25% effective from August 7 and raised to 50% from August 27, before being cut to 18% on February 10 and 10% on February 24 – hurt key Indian exports to the US.

That included pharmaceuticals (from $9.7 billion in 2024-25 to $8.6 billion in 2025-26) readymade garments ($5.3 billion to $4.8 billion), gold and jewellery ($4.2 billion to $2.8 billion)

and leather products ($948.5 million to $887.7 million). Among agri items, the significant drops were of marine products (from $2.7 billion to $2.3 billion), spices ($654.7 million to $578.7 million), basmati rice ($337.1 million to $285.9 million) and processed fruits & vegetables ($274.3 million to $214 million).

Diversification dividends

The US tariff shocks notwithstanding, exports of some agricultural produce – marine products, buffalo meat, coffee and fresh fruits & vegetables – touched record levels in 2025-26.

The value of marine products exports grew by 13.9% to over $8.4 billion. Even as exports to the US fell, that to other countries rose: China ($1.2 billion in 2024-25 to $1.6 billion in 2025-26), Vietnam ($381.8 million to $648.6 million), Japan ($408.5 million to $451.1 million), Belgium ($225.3 million to $376.6 million), Thailand ($311.9 million to $362.2 million), Canada ($196.5 million to $232.2 million), Spain ($204.2 million to $230.3 million), Italy ($175.1 million to $206.5 million), Russia ($130.1 million to $171.5 million), Malaysia ($93 million to $127.7 million) and United Kingdom ($104.1 million to $127.6 million).

Simply put, Indian marine products exporters more than offset the impact of the Trump tariffs on their largest market – US, especially for frozen shrimps and prawns – by augmenting shipments to other destinations.

Having a diversified market also helped buffalo meat exports, whose value soared by 25.6% to $5.1 billion in 2025-26, surpassing the previous record of $4.8 billion in 2014-15.

The main countries to which India's buffalo meat exports went were Vietnam (from $740.8 million in 2024-25 to $933.9 million in 2025-26), Egypt ($656.1 million to $725 million), Malaysia ($617.5 million to $654.1 million), UAE ($300.4 million to $444.2 million), Saudi Arabia ($317.6 million to $359.3 million), Uzbekistan ($97.1 million to $307 million), Indonesia ($233.1 million to $301.3 million), Iraq ($360 million to $300.1 million), Philippines ($114.7 million to $176.6 million) and Jordan ($83.6 million to $105.5 million).

In quantity terms, India's buffalo meat shipments were 13.2% up, from 12.5 lakh tonnes (lt) in 2024-25 to 14.2 lt in 2025-26, according to the Department of Commerce data.

Coffee exports from India crossed the $2 billion mark for the first time in 2025-26, nearly trebling from the $720 million of 2020-21. The driver has been high global prices and stocks plunging to historically low levels.

The US Department of Agriculture has projected global ending stocks for 2025-26 at 20.1 million bags, marking a fifth consecutive year of decline. Brazil and Vietnam, the world's biggest producers of arabica and robusta varieties respectively, have had subpar crops. India mostly exports robusta beans and powder used in instant coffee and espresso blends, with Italy, Germany, Russia, UAE and Belgium being major markets.

India's fresh fruits & vegetables exports largely comprise grapes, pomegranates, mangoes, bananas, oranges, onion, tomato, potato, green chilli and mixed vegetables. The important markets are UAE, Iraq, Netherlands, Bangladesh and Malaysia.

Exports of other big-ticket items – rice (both basmati and non-basmati), spices, tobacco and processed fruits & vegetables – were down compared to their all-time-highs in 2024-25.

Import trends

India's agri imports, unlike exports, are confined to a few commodities.

The top item is vegetable oils, with imports at a record 169.4 lt in 2025-26, as against 164.1 lt the previous fiscal. In value terms, though, the $19.5 billion of vegetable oil imports were lower than the $20.8 billion high of 2022-23.

Pulses imports peaked both in quantity (72.6 lt) and value ($5.5 billion) terms during 2024-25, falling to 59.6 lt and $3.6 billion in the fiscal gone by. The high imports reflect India's lack of self-sufficiency, with domestic production meeting only about 40% of the country's consumption demand for vegetable oils and 80% in the case of pulses.

The No. 3 agri import item is fresh fruits. In 2025-26, India's fresh fruits imports were worth over $3.5 billion, against $3 billion the previous fiscal. The largest share was of the US: $1.1 billion in 2024-25 and $1.4 billion in 2025-26. India primarily imports almonds, pistachios, walnuts and other tree nuts (bulk of it from the US), in addition to apples, grapes/raisins, kiwis, figs, pears and dates.

Another commodity that has seen an import surge is raw cotton. India, not long ago, was a huge exporter of this natural fibre, with the shipment values topping $4.3 billion, $3.7 billion and $3.6 billion in 2011-12, 2012-13 and 2013-14, respectively.

But in 2024-25 and 2025-26, its imports of $1.2 billion and $1.9 billion exceeded exports at $809.7 million and $560.7 million, respectively. Thus, India has turned from a net exporter to an importer of raw cotton. That is, again, courtesy of domestic production shortfalls, with no new yield-enhancing technologies after Bt cotton.

In spices, India has become a substantial exporter of chilli, cumin, mint, turmeric, coriander, ginger, fennel, oleoresins and curry powder/paste, while also a net importer of traditional plantation spices such as pepper and cardamom.

Narrowing surplus

India's farm exports coming down after 2013-14 and remaining below those levels till 2020-21. There was a recovery thereafter, with exports at $50 billion-plus in most years from 2021-22.

On the other hand, imports have been registering a rising trend, barring for a brief period from 2018-19 to 2020-21. As a result, the surplus – exports minus imports – has dipped from $27.7 billion in 2013-14 to $12.7 billion in 2025-16.

In other words, India continues to be a surplus trader of agricultural produce, as opposed to running deficits in other merchandise goods. Even that surplus, however, has been narrowing over time.

BURSTING AT THE SEAMS

India's April retail inflation, at a 13-month high of 3.48%, is only marginally higher than its March print of 3.4%, and continues to remain deceptively benign. Wholesale inflation has more than doubled to 8.3% in April from 3.88% in March — a 42-month high — signalling that substantial upstream price pressures are still working their way through the economy. Unsurprisingly, the spike in the Wholesale Price Index (WPI) has been led by soaring fuel and power prices, which

rose 24.71%, while petroleum and natural gas prices surged 67.2%. This clearly indicates that the full impact of rising energy costs has not yet been passed on to end-consumers. However, such a pass-through now appears imminent. Union Petroleum Minister Hardeep Singh Puri recently indicated that the Centre may have little choice but to raise retail petrol and diesel prices, with public sector oil marketing companies reportedly absorbing "under-recoveries" of nearly ₹30,000 crore a month since the U.S.-Israeli war with Iran began. Any increase in retail fuel prices will have economy-wide implications.

April retail inflation has already been driven chiefly by food, with the Consumer Food Price Index rising to 4.2% from 3.87% in March. Predictably, restaurants and accommodation services witnessed among the sharper increases, reflecting the cascading effect of rising commercial LPG prices. The price of the widely used 19.2 kg commercial LPG cylinder has risen by roughly ₹850-₹1,000 over revisions since the conflict began, while the 5 kg canister has reportedly seen increases of over ₹200 in several markets. The canister is extensively used by migrant wage labour across the country, directly feeding into food basket costs and potentially dampening consumption demand. This comes even as Prime Minister Narendra Modi has appealed to people to refrain from "extravagant spending on weddings and travel abroad" and to cut back on buying precious metals for a year. Consequently, the Centre doubled import duties on gold and silver in an attempt to discourage safe-haven investments and ease pressure on the rupee, which has depreciated by nearly 8.5% against the U.S. dollar in the past two-and-a-half months since the conflict began. For context, the rupee had depreciated by roughly 2%-3% annually on average over the previous five fiscal years. The current slide is therefore exceptionally sharp. It is increasingly evident that retail inflation is bursting at the seams and will likely find fuller expression in the months ahead. The sharp divergence between the Consumer Price Index and WPI suggests that producers are still absorbing a significant share of rising costs, a situation that is unlikely to remain sustainable. This leaves the Reserve Bank of India with limited room but to eventually tighten monetary policy in order to keep inflation within its tolerance band of 2%-6%. What is unfolding is not merely transient inflation driven by commodity volatility, but also broader systemic inflationary pressure, with limited manoeuvring space for both the government and the central bank.

PREVALENCE OF FAKE CURRENCY STILL A REALITY POST-DEMONETISATION

On November 8, 2016, Prime Minister Narendra Modi announced the demonetisation of ₹1,000 and ₹500 notes with immediate effect, stating that the move would serve as a major assault on black money, counterfeit currencies, and corruption. The days that followed the announcement saw public panic with long queues at ATMs and widespread economic disruption, particularly in the micro, small and medium enterprises (MSME). While the jury is still out on the exercise's impact on eradicating black money and corruption, the latest 'Crime in India' report of the National Crime Records Bureau for 2024 shows that almost a decade later, the problem of fake currency still persists.

According to the data, over ₹54.61 crore worth of fake currencies were seized from various States in India. Currencies seized included about six lakh ₹500 notes and more than one lakh ₹2,000 notes — which the Reserve Bank of India decided to withdraw from circulation in May 2023 although it continues to remain a legal tender.

A total of ₹638 crore worth of fake currencies have been seized since 2017, the year after demonetisation. The value of counterfeit notes seized in 2024 was also the third highest since 2016. In the year 2020, when COVID-19 broke out, seizures of ₹92 crore were seen. In 2022, two

years after the COVID-19 pandemic broke out, counterfeit currencies valued at a whopping ₹382.6 crore were seized.

Data also points to an increase in counterfeit currencies of ₹500 notes and ₹2,000 notes. The number of ₹500 notes seized by authorities in 2024 was almost four times the notes seized in 2016. The number of counterfeit ₹2,000 notes, introduced after demonetisation, increased almost twice than what it was in 2017.

Besides the data recorded by the NCRB on seizures by law enforcement authorities, data from Parliament showed that more than 11 lakh counterfeit notes of varying denominations, valued at a total of ₹40.26 crore, were detected and reported after they entered the banking system in the five-year period between 2020-21 and 2024-25. That is, an average of roughly two lakh counterfeit notes have been detected each year by the banks.

A denomination-wise break up of these notes implies that new currencies like ₹200 and ₹500 which were reintroduced are also being counterfeited. More than four lakh ₹500 notes belonging to the new series printed after demonetisation made up about 37% of these notes. Close to three lakh ₹100 notes accounted for 26% of the counterfeits reported in banks.

A State-wise breakup of counterfeit notes seized shows that Gujarat accounted for the highest value of fake money seized between 2017 and 2024. The value of fake currency seized in the State valued at ₹355.72 crore, accounted for more than half of the value of all the seizures in the country during this period. Maharashtra and Karnataka followed Gujarat, accounting for seizures of counterfeit currencies worth ₹100 crore and ₹50 crore respectively.

Data from the RBI also showed that as of May this year, over 174 billion notes were in circulation valued at a total of more than ₹42.12 lakh crore, an increase of about 137% compared to November 2016, when currency in circulation was valued at ₹17.74 lakh crore.

This indicates that the demonetisation exercise's other objective of bringing down currency transactions has also not had the desired impact.

COST TO ACCESS

The Union Labour Ministry has announced that it will provide a free annual health check-up to workers aged 40 years or more, following an existing provision in the new Labour Codes. The programme will be implemented through the Employees' State Insurance Corporation (ESIC). For workers in hazardous conditions, such as handling toxic chemicals or operating heavy machinery, check-ups are mandatory; if illness is detected, ESIC hospitals and dispensaries will provide free treatment. India already has a few workers' health obligations on paper, including under the Factories Act 1948 (only within factories), the ESI Act 1948, and the Occupational Safety, Health and Working Conditions (OSH) Code 2020. The new programme will be financed through the well-endowed ESI fund, although the government is still shoring up the number of beds and doctors available via PMJAY-empanelled facilities. At this time, operational evidence suggests that insured workers will be the main beneficiaries.

Commendable though the initiative is, its success is not guaranteed. At present, only around 31 crore of 94 crore workers are on the e-Shram portal, whose integration with ESIC is still in its early stages in many States. Labour Minister Mansukh Mandaviya also failed to address how a woman working in a garment home unit or as a domestic worker could access the longer maternity leave if she has no 'employer'. Annual check-ups for women also warrant specific

medical staff needs whereas many ESIC camps are crowded and dominated by men. As with many of its predecessors, the programme does not address the opportunity costs of accessing health care, forcing workers to continue contending with lost wages. An ESIC facility may also refer a worker to another centre if it lacks the resources for specific tests, leading to repeat visits and added time and cost. The new programme focuses predominantly on non-communicable diseases such as diabetes and hypertension. Heat-related illnesses are not explicitly recognised as occupational diseases under the ESI Act whereas construction and agriculture workers are most at risk of them. Waste-pickers and sanitation workers on the other hand face greater risk of infectious diseases such as hepatitis and leptospirosis. The scheme offers screening but does not mandate proactive vaccination. The government must meet workers where they are, through mobile occupational health units and — as the OSH Code 2020 stipulates for organised workers — at their places of work, and provide tokens to compensate them for time spent on check-ups. Otherwise, any scheme of this nature will not improve upon the already deficient system.

RULES FOR ALL FOUR LABOUR CODES NOTIFIED, MINIMUM WAGE CRITERIA DROPPED

Giving effect to the new labour codes in full after having brought them in November 2025, the government has now notified final rules for all four codes after a four-month gap from draft rules.

Key Takeaways:

— A national floor wage by Centre in consultation with an advisory board along with states; a normal working day of eight hours with weekly cap of 48 working hours; mandatory wage slips; social security fund for unorganised sector and gig workers — these are some of the key provisions that will come into effect, with states to follow suit.

— However, in a critical omission from the draft rules published in January, the Centre has dropped the criteria for calculating minimum wage in the final Code on Wages (Central) Rules, 2025, stating that the criteria will be "separately specified by the central government by special or general order". This is likely to result in lower minimum wages and higher wage disparities for the same worker category across states, experts said.

— The removal of the formula for fixing the minimum wage from the final version of the rules for Code on Wages is likely to result in lower-than-potential wages for workers as wages play a key role in collective bargaining, said K R Shyam Sundar, labour economist and former professor at XLRI.

— Separately, the new wage rules state that a floor wage will be fixed by the central government taking into account "the minimum living standard clothing, housing and any other factor considered appropriate by the central government from time to time".

— The floor wage will act as a baseline wage below which states cannot fix their minimum wages, which is going to be closely eyed given the recent backdrop of a spate of workers' protests across several industrial hubs in the country.

— The government specified that the number of working hours in a normal working day for an employee whose wage period is on a daily basis will be eight hours. For those employed on other than the daily wage mode, the number of working hours will be fixed in a manner to not exceed the weekly cap of 48 hours. Interval for rest will be fixed separately under the Occupational Safety, Health and Working Conditions Code, 2020.

— Setting the weekly limit at 48 hours for those not on daily wage, will help many workplaces provide flexible working hours for employees, especially in sectors which follow a hybrid work model, allowing work-from-home.

— A National Social Security Board will also be formed for gig and platform workers, which will include members from Lok Sabha, Rajya Sabha, unorganised sector workers' and employers' associations, states, and representatives from scheduled castes, scheduled tribes, women and minorities, the rules stated.

— Under the Occupational Safety, Health and Working Conditions (Central) Rules, 2026, the government has allowed for electronic application for single licence for contractors working in more than one state or for the whole country. The approval or disapproval has to be granted within 45 days.

— For women workers, who have been allowed to work in the night shift under the OSH Code beyond 7 PM and before 6 AM, the consent of the female employee has to be taken by the employers in writing, the rules said. Also, adequate transportation facilities have to be provided for pick-up and drop for such women employees at her residence in addition to safe and well-lit workspace.

Do You Know:

— The newly implemented four labour codes – Code of Wages (2019), Industrial Relations Code (2020), Code on Social Security (2020) and Occupational Safety, Health and Working Conditions Code (2020) – replaced 29 fragmented laws with a unified, modern framework.

— Notably, 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.

— Also, as labour is a Concurrent List subject, and while most states have finalised rules aligned with the four codes, central-level implementation was pending. This delay resulted in uneven social security coverage for workers and compliance complexity for employers operating across multiple states. Thus, the new labour codes are introduced to try to fix all this.

VB–G RAM G TO REPLACE MGNREGA ON JULY 1

Viksit Bharat—Guarantee for Rozgar and Ajeevika Mission (Gramin), or VB—G RAM G, will increase workdays for rural households to 125 but shift 40% of the cost to the states.

Key Takeaways:

• The Viksit Bharat—Guarantee for Rozgar and Ajeevika Mission (Gramin): VB—G RAM G Act 2025, which aims to repeal the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005 and provides for a new rural job guarantee programme, will become effective on July 1, 2026.

• The Union Ministry of Rural Development issued a notification to this effect on Monday. The more than two-decade-old MGNREGA, enacted by the UPA government, will thus cease to exist from July 1.

• The Opposition has criticised several provisions of the VB-G RAM G Act such as the fund sharing pattern (section 22), normative allocation (sub-section 5 of section 4), and a pause in employment guarantee during the peak agriculture season (section 6). These provisions will also have a fiscal implication for states, which are already facing challenges.

Do You Know

• The government enacted the VB-G RAM G Act 2025 in December last year. VB G RAM G aims to provide a statutory guarantee of 125 days of wage employment in every financial year to every rural household whose adult members volunteer for unskilled manual work, with the "objective to promote empowerment, growth, convergence and saturation for a prosperous and resilient rural Bharat".

• Unlike the MGNREGS, where the Centre paid 100 per cent of the wage bill, VB G RAM G is a centrally sponsored scheme with a fund-sharing ratio of 60-40 between the Centre and states for all states, 90-10 for Northeast states, Himalayan states, and Union Territories with a legislature, and 100 per cent central share for UTs without a legislature.

• Departing from the MGNREGA, the VB-G RAM G Act proposes a higher share of states in funding the rural job programme. As per section 22(1) of the Act, the fund-sharing pattern between the central government and the state governments shall be 90:10 for the 11 states, while it will be 60:40 for all other states. Under the MGNREGA, the Centre paid the entire wage bill and shared 75 per cent of the material and administrative costs of the scheme.

INDIA'S WORKER POPULATION RATIO HAS CLIMBED SINCE 2022

The Periodic Labour Force Survey (PLFS) 2025, released by the Ministry of Statistics and Programme Implementation (MoS&PI) for January-December 2025, marks a significant methodological milestone. For the first time, the revamped PLFS covers both rural and urban India monthly — a departure from the earlier July-June urban-only quarterly cycle. It also offers the most granular all-India portrait of the labour market across urban and rural India in recent years.

India's overall Labour Force Participation Rate (LFPR) for all ages stands at 44.9%, which means that around four in 10 Indians are either working or actively seeking work. The figure remains broadly stable at 44.7% in 2024.

In rural areas, women participate at 34.6%, which is modest compared with men, yet reflective of their engagement in agriculture and household-related work. However, in urban areas, women's participation falls to just 22.2%. The challenge becomes even more acute among urban young women. In these urban centres, nearly two in 10 women are employed. Urban men, by contrast, participate at 59.7% — more than twice that rate. This gap points to persistent challenges within India's urban labour market.

The youth unemployment rate for people aged 15-29 is 9.9%, more than three times the national average of 3.1%. For urban young women specifically, the rate is 18.9%, nearly one in five. These are not women outside the labour force, but women actively seeking work and unable to find it.

The PLFS makes this clear — the unemployment rate measures only those within the labour force, suggesting constraints in employment opportunities despite labour-force participation. The challenge becomes even more acute among urban young women.

Educated and unemployed

Next, among persons aged 15 years and above with secondary schooling and more, the unemployment rate is 6.5% — more than double the national average. In urban areas, educated unemployment reaches 7.2%, whereas in rural areas it is 6%. This may indicate that rural educated workers are more likely to remain engaged in low-productivity subsistence activities rather than remain openly unemployed. Between 2022 and 2025, the overall unemployment rate has fallen from 3.6% to 3.1%, yet unemployment among the educated remains persistently elevated. The persistence of educated unemployment suggests that employment generation has not fully kept pace with the growth in the educated workforce.

In rural areas, 70.7% of the working women are self-employed — a category that often reflects subsistence activity rather than entrepreneurial choice. In urban areas, 40.4% of working women are self-employed, reflecting a mix of entrepreneurial activity and informal work. Regular wage or salaried employment — often considered a marker of formal work — covers just 9.3% of rural working women, while another 20% are engaged as casual labourers. Urban areas offer a relatively better distribution, with 50.9% of working women in regular wage employment.

The Worker Population Ratio for all persons has climbed from 39.7% in 2022 to 43.5% in 2025. More Indians are working, and more women are entering the labour force, particularly in rural areas where the female WPR rose from 26.9% to 33.8% over the same period.

UNCHANGED SINCE 2012, OLD AGE PENSION OF RS 200 ERODED DUE TO INFLATION: STUDY

A government-commissioned evaluation showed that the Centre's Rs 200–500 monthly pension has lost nearly half its purchasing power since 2012, recommending a new inflation-linked National Floor Pension.

Key Takeaways:

• With the Centre's contribution to monthly old age pensions unchanged at Rs 200–500 per beneficiary since 2012 under the National Social Assistance Programme (NSAP), the real value of these fixed cash transfers has "significantly eroded" due to inflation, an evaluation commissioned by the Union Ministry of Rural Development has found.

• According to the report, inflation has reduced the real value of these cash transfers by around 45 per cent and adjusted to the current Consumer Price Index (CPI), a pension of Rs 200 would now need to be about Rs 353 to retain its original purchasing power.

• The findings are part of a report titled "Impact Assessment and Evaluation of the National Social Assistance Program (NSAP)," which was submitted to the ministry recently. The evaluation study was conducted across Assam, Andhra Pradesh, Telangana, Uttar Pradesh, Bihar, Haryana, Gujarat, Jammu and Kashmir, Tamil Nadu, and Chhattisgarh.

• The study points out that the monthly pension amount was revised to Rs. 200 for old age people between 60 and 79 years of age, to Rs. 300 for widows (40-79 years) and persons with disability (18-79 years), and Rs. 500 for beneficiaries of 80 years of age and above in 2012.

• The study has recommended a National Floor Pension (NFP) on the lines of the National Floor Level Minimum Wage set by the Ministry of Labour and Employment.

"This would ensure a minimum level of financial assistance uniformly across all states. The NFP should be linked to the Consumer Price Index to automatically adjust with inflation, with annual revisions based on the cost of living. Additionally, states should be encouraged to provide top-ups to the central share in a uniform and transparent manner to reduce regional disparities in benefit levels," states the report.

Do You Know

• Launched in 1995, NSAP is a key social welfare scheme that provides pensions to vulnerable groups, including the elderly, widows, and persons with disabilities. Currently, NSAP covers five schemes, including Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), Indira Gandhi National Disability Pension Scheme (IGNDPS), National Family Benefit Scheme (NFBS), and the Annapurna Scheme.

• Under IGNOAPS, the Centre provides financial assistance of Rs 200 per month to individuals aged 60–79 years and Rs 500 per month to those aged 80 and above. Currently, more than 221 lakh beneficiaries are covered, the study noted.

• Under IGNWPS, the Centre provides Rs 300 per month to widows aged 40–79 years and Rs 500 to those 80 and above. According to the study, more than 67 lakh beneficiaries are currently covered.

• Financial assistance of Rs 300 per month is provided to individuals with severe or multiple disabilities aged 18–79, and Rs 500 to those aged 80 years and above. According to the study, more than 8.8 lakh beneficiaries are covered.

• The amount of one-time financial assistance under NFBS is fixed at Rs 20,000. This is provided to families after the death of a primary breadwinner aged 18 to 59. The report says that the assistance amount of Rs 20,000 under NFBS should have increased to Rs 38,200 (approximately Rs 40,000).

• Under the Annapurna Scheme, 10 kg of food grains per month, free of cost, are provided to those senior citizens who, though eligible, were not receiving old-age pension.

RE MEETS GLOBAL ELECTRICITY DEMAND FOR THE FIRST TIME

In 2025, global electricity generation increased by roughly 850 terawatt-hours (TWh), according to data from the Ember Energy Institute. This increase was supplied almost entirely by solar and wind energy, contributing 636 TWh and 204 TWh respectively. Other renewables added another 23 TWh. Coal generation and oil meanwhile fell by 67 TWh and 12 TWh respectively. This is the first year in which expanded electricity demand did not require an increase in fossil fuels.

Over the past decade, the cost of solar and wind energy has dropped steeply, and battery storage and grid integration capacities have improved drastically, supporting an uptick in reliance on renewable energy sources. In 2025, coal's share of global electricity production fell by just over 1% and solar energy increased by nearly 2%. The dependence on oil also went down.

Major superpowers are embracing the change. China, for instance, saw its fossil fuel generation fall for the first time since 2015. The country saw a strong 5% growth in electricity demand and a 15% growth in clean energy generation, met largely by solar and wind energy. Solar energy in China grew by 40% compared to 2024 and wind energy increased by 14%. Solar energy alone met

two-thirds of the increase in the country's electricity demand in 2025, according to a report by Ember Energy.

Fossil fuel demand fell in India as well. Together, the fall in demand in India and China has pushed global fossil fuel generation to stagnation, according to the report. Fossil fuel generation fell in both India (down 3.3%) and China (down 0.9%), driven by clean power usage and demand growth.

How is this different from the earlier years? For two decades, even as renewable electricity capacity grew at double-digit rates, fossil fuel generation remained relevant and kept climbing because absolute electricity demand was rising faster than what renewables could cover. The rising consumption relied on coal and gas-fuelled energy. Even as renewable energy gained market share, it could not displace fossil fuels in absolute terms. However, that pattern reversed in 2025.

Globally, coal's share in electricity production declined from 36% in 2015 to 33% in 2024. Coal generation fell in absolute terms for the first time last year, as renewables outpaced demand growth. Natural gas also saw a modest 45 TWh increase, entirely offset by renewable gains.

The effect of war

India's crude oil imports fell by 17% year-over-year in March 2026 to 18.9 million tonnes, compared with 22.8 million tonnes in March 2025. The decline comes amid the closure of the Strait of Hormuz starting March 1 due to the U.S.-Israel conflict with Iran. This narrow waterway handles a significant share of global oil and gas shipments. India imports 89% of its crude oil from mostly Qatar, the UAE and Saudi Arabia. The Indian basket crude (simplify) price averaged $113.49 per barrel in March 2026, compared with $72.47 in March 2025, a 56% increase year-over-year.

India's primary energy supply consists of coal, followed by oil, natural gas and then renewables.

India's natural gas consumption rose in March 2026 despite supply disruptions. Natural gas available for consumption went up by 7% from March 2025. This increase came despite a 4.9% decline in domestic production. The gap was filled by LNG imports, which jumped by 20.5% by March this year. India's LNG imports reached 27 million metric tonnes (mmt) in 2024-25, the highest on record and double the 13.5 mmt imported in 2011-12. India's LPG imports also surged with expanded household access. The Pradhan Mantri Ujjwala Yojana increased LPG connections from 62% of households in 2016 to nearly 100% by 2025, driving imports to 18 mmt in 2025-26 from 16.48 mmt in 2020-21.

Crude oil, LNG, and LPG are all imported heavily from West Asian suppliers. The closure of the Strait of Hormuz disrupted all three simultaneously. India's response included accelerating renewable approvals, maximising refinery output, and paying ₹30,000 crore to oil marketing companies in FY 2025-26 to cushion LPG losses. LPG prices rose by ₹60 per cylinder after the conflict began.

On the flip side, India's renewable capacity grew by over 210% in the past decade. In FY 2024-25, renewable energy accounted for 89% of India's new capacity additions. Yet absolute energy dependence on imports has also deepened. India imports 89% of crude oil, 47% of natural gas, and 26% of coal despite being the world's third-largest coal producer. The renewable buildout has not yet reduced India's reliance on imported fossil fuels.

Renewable capacity takes years to translate into reliable, usable power and geopolitical shocks affect energy supply in the instant short-term. When the Strait of Hormuz closed in early March, India could not wait for wind farms to reach completion or battery capacity to scale. It responded by maximising output from existing coal and gas infrastructure, instructing domestic suppliers to prioritise domestic users and accelerating imports of LNG and LPG from alternative suppliers.

The global energy transition advanced significantly in 2025. India's renewable capacity is growing at the fastest rate globally. However, import dependence on a conflict zone exists alongside clean energy progress in India.

CORPORATISATION TO USHER IN PORT EFFICIENCY

In India, nearly 95% of trade by volume and 70% by value moves through sea routes, making efficient port governance critical for logistics performance and economic growth. Traditionally, India's major (government-owned) ports have operated under the Major Port Trusts Act, 1963.

While this model ensured public accountability and stability, it has become less effective in a globalised and technology-driven environment.

The rise of efficient private ports has exposed structural limitations, including bureaucratic delays, limited financial autonomy, and slow infrastructure expansion.

To overcome the challenges, the government enacted the Major Port Authorities Act, 2021, introducing corporatised governance. Corporatisation does not imply privatisation; rather, it allows publicly owned ports to function with commercial autonomy, professional management, and financial flexibility.

Boost efficiency

The objective is to improve efficiency, enhance competitiveness, and attract investment. Kamarajar Port (Ennore), established in 2001 as a corporatised entity, demonstrated the effectiveness of this model via improved operations and investment mobilisation, influencing broader port-sector reforms.

Why corporatisation?

Global competitiveness: Ports have evolved into integrated logistics hubs, supported by advanced technology and multimodal connectivity. Without reform, Indian ports risk losing their position in global shipping networks.

Financial freedom Modern port infrastructure demands significant capital investment in deep-water berths, container terminals, and digital systems. Corporatised ports can access financial markets and partnerships more efficiently than traditional trust-based entities.

Faster decisions: In a competitive environment, delays can lead to lost opportunities. Corporatisation aids quicker decisions on investments, tariffs and operational strategies.

National strategy: Initiatives such as Sagarmala, the National Logistics Policy, and PM Gati Shakti require ports to function as integrated logistics hubs. Corporatised governance supports diversification into logistics services and improved connectivity.

Global lessons: Global experience highlights the benefits of corporatised port governance. The Port of Rotterdam operates as a corporatised public entity, balancing efficiency and public oversight. Singapore's PSA International demonstrates how government-linked corporations can achieve global leadership. While the U.K.'s privatised model shows efficiency gains, it may not fully align with India's strategic infrastructure needs.

Partners in growth: A crucial dimension of corporatisation is recognising employees as key stakeholders in organisational growth. Successful reform depends on addressing workforce concerns through transparent and inclusive policies that build trust and engagement. Employees must be equipped with the skills required to adapt to rapid technological changes, including automation and digital logistics systems, through continuous training and reskilling initiatives.

LIFE AND SCIENCES

HOMOGENEOUS ACCRETION

For years, scientists debated whether earth formed from the materials available in its neighbourhood or if its ingredients included a significant mix of 'pebbles' from the outer solar system. According to a new study in Nature Astronomy, earth fed almost exclusively on materials in the inner solar system.

The authors, from ETH Zürich, analysed 10 sets of chemical 'fingerprints' left by ancient stars on meteorites and rocky materials. Scientists have typically only looked at one or two of these systems at a time, leading to conflicting results.

Some studies have suggested earth was 6% outer solar system material while others claimed it was as high as 40%. To resolve this, the authors of the new study used a statistical method called Bayesian latent factor analysis to examine all 10 fingerprints together across various meteorite groups and planets.

The analysis revealed that earth's composition of isotopes lined up with that of non-carbonaceous bodies in the inner solar system. The alignment held across all 10 fingerprints, suggesting that earth's building blocks were consistent throughout its formation — a process called homogeneous accretion.

The study also predicted that the compositions of Mercury and Venus would follow the same chemical trend, but with more extreme values due to their distance from the sun. The finding could simplify scientists' understanding of how planets form while also suggesting the inner solar system was a distinct, well-mixed reservoir of planets' construction materials.

STUDY REVEALS HOW PSYCHEDELICS DISSOLVE THE BRAIN'S HIERARCHY

For decades, people using psychedelics have described a feeling where the line between 'me' and the world vanishes. While it is clear these drugs cause intense shifts in vision and thought, scientists have struggled to pin down exactly what the brain is doing.

A new multi-centric study published in Nature Medicine on April 6 has suggested the answer is not found in a single centre such as the thalamus or amygdala but that it arises from a total reorganisation of how different brain areas talk to one another.

To find a reliable pattern, researchers from Canada, the U.K., and the U.S. pooled 11 global datasets into a library of 500 fMRI scans — images that track changes in blood flow to show which parts of the brain are working. This included 267 people under the influence of LSD, psilocybin, DMT, mescaline or ayahuasca.

Previously, labs used software to clean data skewed by factors such as head moving during scanning, often producing contradictory results. To fix this, the team took the raw data and ran them through a single, common processing system to ensure they were comparing apples to apples for the first time.

Chain of command

The team had to figure out which brain changes were caused by the drugs and which were arbitrary differences between people or MRI machines. Instead of the usual statistical methods, the team used Bayesian modelling. It works like a fair judge who doesn't simply declare guilty or innocent: it says exactly how confident it is and automatically prefers results based on hundreds of volunteers than those based on a handful.

This let the researchers filter out the quirks and focus on the brain patterns that reliably appeared across every drug and lab.

University of Ottawa neuroscientist Sergio Perez-Rosal said "moving away from overconfident 'yes' or 'no' claims towards a more nuanced, uncertainty-aware conclusion represents a rare kind of epistemic humility" — meaning the scientific honesty to admit exactly what we don't know, especially in the fledgling field of consciousness studies.

To understand the findings, it helps to see the brain as a building with a strict chain of command. In our normal, everyday state, the brain has a hierarchy. At the bottom are frontline workers, the brain regions that handle raw sensory input. At the top are the high-level managers — the parts of the brain responsible for abstract thought, memory, and our internal sense of self. Usually, these two groups don't talk to each other directly. They are separated by layers of filters that keep our raw senses from overwhelming our complex thoughts.

'Change how information flows'

The analysis found that psychedelics essentially collapse this ladder, instead increasing cross-talk, i.e. the thinking regions and the sensory regions begin exchanging information directly. And this collapses the neural boundary that usually defines 'you' as distinct from the world.

"The usual hierarchy between 'high-level' thought and 'bottom-up' perception starts to dissolve. Inner and outer experience begin to blur."

While in a normal state, the brain operates like a city of segregated neighbourhoods, where signals stay in their own lanes and travel only along established routes, psychedelics dissolve these boundaries. Dr. Girn said this is best described as a city where new, direct highways suddenly open up.

"This connects neighbourhoods that usually you have to move through multiple smaller neighbourhoods to get to," he said. "Now, you can get from A to C without needing to go through B."

APPLE IS PAYING FOR ITS PROMISE OF AN AI OVERHAUL OF SIRI TO A SMARTER ASSISTANT

You see the ad, you feel the excitement, you spend the money, and then you wait. And wait. Eventually, quietly, you stop waiting as the thing you were promised simply never showed up.

That's precisely what happened with Apple's much-hyped AI overhaul of the voice assistant, Siri. And now Apple is paying a quarter of a billion dollars for misleading buyers.

A marketing blitz

Let me take you back to the September of 2024 when Apple made a marketing pitch its Siri was reinvented. That meant the voice assistant could understand context, take actions across apps, and integrate with ChatGPT. The company's ads were slick, the keynote moments were dramatic, and the message was clear: the iPhone 16 was an AI phone, and that Siri was, finally, the assistant it always should have been.

But there was just one problem. None of it was ready at that point. And as it turned out, not for a very long time.

What Apple marketed as imminent never materialised.

The company quietly confirmed the features were indefinitely delayed, pulled its own ads, and hoped the noise would die down. It did not.

A class action lawsuit followed, accusing Apple of having promoted AI capabilities that did not exist in its device at the time of launch, and until several months later. According to a Reuters report, even the U.S. advertising watchdog, Better Business Bureau's National Advertising Division, concluded that Apple had falsely suggested the new AI-powered Siri was "available now."

That was a damning finding as an enhanced Siri was the single most anticipated feature among potential iPhone buyers at the time. Apple knew people were buying phones because of what they were being told Siri could do. And it sold them anyway.

The settlement

On May 5, Apple agreed to pay $250 million to settle the lawsuit, without admitting any wrongdoing.

The settlement covers roughly 36 million eligible devices, specifically the iPhone 16, iPhone 15 Pro, and iPhone 15 Pro Max purchased in the United States between June 10, 2024, and March 29, 2025. If you bought one of those phones in that window, within the U.S., you are likely a class member.

Each eligible user might receive anywhere between $25 to $95 per device, depending on how many buyers make the claim. It is a paltry amount compared to the price of an iPhone, but at least it shows that a trillion-dollar company sold people a product on the basis of features that were not there. The settlement still requires final approval from Judge Noel Wise of the federal district court for the Northern District of California, with a hearing scheduled for June 17.

Apple, in a statement, said: "We resolved this matter to stay focused on what we do best: delivering the most innovative products and services to our users."

The fate of non-U.S. buyers

The U.S. settlement does not help iPhone buyers in other countries as class action is a American legal mechanism. Next to the U.S., the European Union has a strong consumer protection mechanism mandated by the its Directive on Representative Actions. It allows qualified consumer organisations to bring collective redress cases on behalf of large groups of affected consumers. If any consumer organisation in the EU finds Apple's advertising of Siri's AI capabilities inflated, they could bring a legal complaint against the American company.

Beyond that, the EU's existing consumer protection framework prohibits misleading advertising in clear terms. And the bloc is known for taking big tech companies to task for their unfair trade practices. The Digital Markets Act and Digital Services Act have also made regulators more assertive.

Any EU consumer who feels misled can file a complaint with their national consumer authority; in aggregate, those complaints can trigger formal investigations.

Moving away from the Atlantic, in India, the picture is more fragmented. The Consumer Protection Act of 2019 allows for complaints involving misleading advertisements. Individual consumers can also approach District Consumer Disputes Redressal Commissions. But in the Asian nation, the challenge is structural as cases must generally be filed individually or through consumer groups, and the process can be slow. That said, if Apple's Indian marketing made claims about Siri's AI capabilities similar to those made in the U.S. — and the global ad campaigns suggest it likely did — the legal and regulatory hooks exist.

The tech industry has spent the last two years drowning consumers in AI hype. Every product, and every update, has been dressed up in the language of transformation and intelligence. Apple's Siri settlement is a rare moment where that rhetoric met actual legal consequence. It will not be the last.

FLOODING WITH LIGHT

On hotter days, why does the sky seem more grey than blue?

The sky's blue is due to Rayleigh scattering — when molecules in the air scatter light of shorter wavelength (bluer) much more efficiently than that of longer ones. On hotter days, however, there can be other things in the air that can affect how light is scattered.

Warmer air can hold more moisture. So on a hotter day, the air can have a combination of higher humidity, in the form of water vapour and fine droplets, and more dust, aerosols, and other particulate matter that convective currents driven by the heat have lifted. These larger particles scatter all wavelengths of light more equally, not just blue, an effect called Mie scattering. Rayleigh scattering happens only when the object scattering the light is much smaller than the light's wavelength.

As a result of Mie scattering, the sky's colours are 'washed out' into a pale grey haze.

Human perception also plays a small role. On hot and bright days, the overall luminance of the sky increases, forcing our eyes to adjust.

SCIENTISTS TRIGGER 'CONTROLLED' EARTHQUAKES

Scientists at the BedrettoLab in southern Switzerland have successfully induced around 8,000 small seismic events deep beneath the Alps, in what researchers are calling a major milestone in earthquake science.

The Setup

The laboratory is carved into the middle of a 5.2-km ventilation tunnel, with 1.5 km of mountain overhead — making it ideal for studying how faults behave under realistic deep-earth conditions.

Unlike conventional earthquake research (which involves placing sensors near known faults and simply waiting), the BedrettoLab team actively instrumented a pre-selected fault and then triggered movement themselves.

The Experiment

Over four days in late April, dozens of scientists from across Europe injected 750 cubic metres of water into boreholes drilled into the tunnel walls, aiming to provoke a magnitude-1 earthquake. All operations were managed remotely from ETH Zurich for safety.

The induced events ranged in local magnitude from -5 to -0.14 — just below the target of 1.0. Notably, seismic activity also spread to faults running perpendicular to the main target fault, which itself was a significant finding.

Why It Matters

- The experiment is described as unprecedented in scale and depth
- Results will inform better injection angles for the next attempt in June
- The added seismic risk was only about 1% of natural background risk
- Lead researcher Prof. Domenico Giardini summed up the core logic well: "If we master how to produce quakes of a certain size, then we know how not to produce them"

Key Takeaway

The research has direct implications for induced seismicity risk management — particularly relevant to geothermal energy projects and deep drilling operations globally, where human activity has previously triggered unintended and damaging earthquakes.

FOLLOW THE NOSE

Q: Why are some people mosquito magnets?

A: Scientists are now making progress in deciphering the complex chemical cocktail that makes particular people more enticing to these disease-spreading bloodsuckers.

A range of sensory cues can cause mosquitoes to pick one human over another — mainly the smell and heat our bodies give off, and the carbon dioxide we exhale. Female mosquitoes — which are the only ones that bite — detect these signals with finely-tuned receptors, then choose their target accordingly.

The idea that mosquitoes prefer particular blood types “has no scientific basis,” Frederic Simard of France’s Institute of Research for Development said. Odour, however, matters greatly: “A soup of molecules produced by our microbiota is more ... appealing to mosquitoes”.

Humans release between 300 and 1,000 different odorous compounds, research has shown, but scientists are only just beginning to understand which ones attract mosquitoes.

In a recent study, researchers released Aedes aegypti mosquitoes on 42 women in a lab. The mosquitoes detected 27 odorous compounds. The women the mosquitoes most liked to bite produced a compound made by the breakdown of a skin oil called sebum.

Drinking beer has also been linked to attracting mosquitoes because it raises body temperature, increases the amount of exhaled CO2 and changes skin odour, according to several studies.

For a 2023 study in the Netherlands, 465 volunteers put their arms in cages filled with female Anopheles mosquitoes, which can spread malaria. The volunteers who had drunk beer in the previous 24 hours were 1.35-times more attractive to the mosquitoes.

WHY IS HANTAVIRUS DRAWING GLOBAL ATTENTION?

The story so far:

Following a hantavirus outbreak on the MV Hondius expedition cruise ship in early May, in which three deaths were reported and at least five others were infected, global attention has once again turned to the group of viruses. Hantavirus had made headlines last year following the passing of Betsy Hackman, wife of renowned American actor Gene Hackman.

What happened on the ship?

The Dutch expedition cruise ship was travelling from Ushuaia in Argentina across parts of the South Atlantic towards Cape Verde and the Canary Islands when cases were identified among both the passengers and the crew.

The World Health Organization (WHO) said 147 passengers and crew were onboard, and 34 passengers and crew had previously disembarked. It said that as of May 8, there were eight cases (six confirmed and two probable cases) reported. Three of them died (two confirmed and one probable) after contracting the Andes strain of hantavirus. Several others were hospitalised with symptoms including fever and breathing difficulties.

After confirmed and suspected cases had been identified among passengers after they left the ship and travelled to different countries, health authorities in Singapore, Switzerland, South Africa, Spain, and the U.S. began tracking and monitoring passengers.

What is hantavirus?

Hantaviruses are a group of viruses mainly carried by rodents such as rats and mice. Human beings can get infected after coming into contact with infected rodent urine, saliva, or droppings, especially while cleaning or disturbing contaminated areas, which can release virus particles into the air.

Hantavirus infections can affect either the lungs or the kidneys. Some strains can cause hantavirus pulmonary syndrome, a severe respiratory illness, while others can lead to haemorrhagic fever with renal syndrome, affecting the kidneys and blood vessels. WHO states that even though most hantaviruses do not spread from one human to another, the Andes virus strain found in parts of South America has shown some human-to-human transmission, usually among close contacts.

Why are health agencies concerned now?

The outbreak linked to the MV Hondius cruise ship drew attention because passengers travelled across several countries before the infection was identified. WHO reported that cases were characterised by fever, gastrointestinal symptoms, pneumonia, respiratory distress, and shock. Reacting to fears of another pandemic, officials from WHO and the Disease Control and Prevention

have stressed that hantavirus spreads very differently from viruses such as COVID-19 and is far less transmissible.

What are the symptoms?

WHO states that symptoms usually appear between one and eight weeks after exposure. Early symptoms are often flu-like and can include fever, muscle aches, fatigue, headache, chills, nausea, vomiting, abdominal pain, and dizziness.

In severe cases, the infection can affect the lungs, causing coughing, chest tightness, breathing difficulty, and fluid build-up in the lungs. Some forms of the disease can also affect the kidneys and blood vessels, leading to kidney complications or bleeding problems. Since the symptoms can resemble illnesses such as influenza, COVID-19, dengue, or pneumonia, diagnosis may sometimes be delayed. Even though infections remain rare overall, severe respiratory forms of hantavirus infection can be dangerous, particularly without early medical care.

Who is at risk?

People living or working in rodent-prone environments face the highest risk. Farmers, forestry workers, campers, construction workers, and people cleaning poorly ventilated or abandoned buildings are vulnerable. Health agencies also advise caution while handling pet rodents or entering rodent-infested spaces.

Is there a treatment or cure?

WHO notes that early diagnosis and timely medical attention can significantly improve outcomes. Prevention is important, particularly through rodent control, proper sanitation, and safe cleaning practices in potentially contaminated environments.

Currently, there is no specific antiviral cure or approved vaccine for hantavirus infection. Treatment mainly focuses on supportive medical care, including oxygen therapy, fluid management, and intensive care support during severe illness. Some patients may require mechanical ventilation.

Could this become another pandemic?

Public health agencies say current evidence does not suggest a COVID-19-like global pandemic scenario. WHO has repeatedly stated that the overall risk to the wider public remains low and that hantavirus does not spread easily between humans like airborne viruses such as influenza or SARS-CoV-2.

The outbreak has also drawn attention to zoonotic diseases — infections that spread from animals to humans — and highlighted the importance of staying prepared as global travel and human-animal interactions increase. At the same time, WHO and other health agencies have stressed that stronger surveillance, quicker reporting, testing systems, and coordination between countries are helping health authorities respond effectively.

REVVING UP IMMUNE CELLS MIGHT HELP FIGHT HIV: STUDY

Scientists are tweaking a powerful cancer therapy in hopes it could fight HIV instead, by supercharging patients' own immune cells.

On Tuesday, researchers said a single dose of those revved-up cells strongly suppressed HIV in two people — one for nearly a year and the other for nearly two years — without requiring their usual medicines.

Larger and longer studies are needed to prove if what's called CAR-T cell therapy might really offer long-lasting help for HIV, cautioned Dr Steven Deeks of the University of California, San Francisco, who led the research.

There are nearly 40 million people living with HIV around the world. Today's medicines have turned the virus that causes AIDS from a fast killer into a manageable chronic disease, often keeping the virus at undetectable levels, but only if people can afford the drugs and stick with them. The virus hides out in reservoirs in the body and rebounds fast if people stop treatment.

Researchers have long hunted an elusive cure, pursuing such clues as a rare gene mutation that makes some people naturally resistant to HIV or how a handful of HIV patients who also had certain cancers were declared cured or in long-term remission after receiving a stem cell transplant, something too risky for most people.

CAR-T therapy involves taking immune soldiers called T cells out of a person's blood, genetically engineering them into "living drugs" and infusing them back into the patient. They're widely used to cure certain types of cancer and are being studied for other diseases.

For HIV, scientists at the nonprofit drug developer Caring Cross created CAR-T cells with dual features. They're programmed to better find and kill HIV-infected cells — and engineered with protection against infection by the very virus they're supposed to fight.

With that added armor, they should be able to reproduce enough to keep HIV in check, said Caring Cross executive director Boro Dropulic.

Deeks' early-stage experiment tested different dosing strategies in people who stopped their HIV medicine the day they received their CAR-T cells. There were no serious side effects. The first three recipients showed no response and resumed their usual medicines.

Six others received a small amount of chemotherapy to make space for the new T cells. Those two strong responders saw their HIV drop to undetectable levels, inching up only occasionally when the CAR-T cells presumably got to work again. A third patient had a temporary response and resumed regular HIV treatment.

Those three patients all had started their original HIV treatment soon after they'd been infected, Deeks said. That makes sense because people treated early tend to have less HIV hiding in the body and a healthier immune system.

HOPE FOR PANCREATIC CANCER AS NEW DRUG SHOWS PROMISE

In 1988, a landmark paper in Cell said that in around 95% of pancreatic cancers, a gene called KRAS carried mutations at a particular location. It was one of the first demonstrations of a mutation with near-universal frequency identified in a cancer.

Cancer is uncontrolled cell division. In a healthy individual, cells grow and divide in a tightly controlled cycle, with specific signals telling the cell when to divide or not. If something goes amiss in this process, cells can repair themselves or undergo programmed cell death. In cancer, this

balance is disturbed, causing unregulated cell division. As a result, mistakes tend to accumulate in the DNA, leading to tumours that can invade surrounding tissues and spread to other organs.

The 1988 Cell paper showed the KRAS gene acts as a switch, regulating whether a cell divides. The KRAS protein — the product of the gene — exists in either an 'off' state, which suppresses cell division or an 'on' state that promotes it. The mutations reported in the study locked KRAS in its 'on' state, driving uncontrolled cell division, leading to pancreatic, colorectal, and lung cancers.

Pancreatic cancer is particularly deadly because it is usually detected late, when the disease has already spread to neighbouring tissues.

There are very few surgical options; even after surgery, recurrence is common. Standard chemotherapy is also not very effective.

For decades, the medical fraternity considered KRAS to be an attractive drug target. However, it proved exceptionally difficult to inhibit because most small-molecule drugs work by fitting into well-defined pockets or grooves on a protein's surface, blocking its activity, whereas KRAS has a relatively smooth, compact surface with few binding sites.

Despite this difficulty, several research groups attempted to target the KRAS gene, but nearly all efforts fared poorly in clinical trials. As a result, KRAS was long labelled "undruggable".

In June 2024, a California-based company called Revolution Medicines reported a molecule later called daraxonrasib. It works by targeting a range of the RAS family of proteins, including KRAS, when they are in their 'on' state and signalling the cell to divide. Daraxonrasib first binds to another protein called cyclophilin-A, then locking it with KRAS into a nonfunctional state.

Since daraxonrasib inhibits multiple RAS variants, it could be useful to treat a variety of cancers.

In a phase 1/2 clinical trial, researchers evaluated daraxonrasib for safety and its ability to shrink tumours in patients with advanced cancers driven by RAS mutations. Results from these tests were encouraging enough for the drug to move forward into a phase 3 trial, where investigators tested daraxonrasib's actual effectiveness.

These results were presented at a meeting of the American Association for Cancer Research in April. The findings suggested daraxonrasib may be more effective than previous treatments for pancreatic cancer. In 51% of patients, it reduced the size of tumours, and in 97% it caused their cancers to either shrink or not grow further.

However, daraxonrasib also had many side effects. Nearly all patients experienced mild to moderate effects, including skin rash, diarrhoea, mouth sores, nausea, and fatigue. However, importantly, no life-threatening side-effects were reported in any patients.

While the peer-reviewed data are still awaited, the early results have generated considerable excitement in the cancer research community. Many researchers are already calling daraxonrasib a potential "game changer", particularly for cancers like pancreatic cancer, where treatment options are limited.

The strong clinical results have also led the U.S. Food and Drug Administration (FDA) to include daraxonrasib among eight other therapies in the first-ever group of drugs to receive "National Priority Voucher" status. The FDA created this designation for highly promising drug candidates that address urgent national health needs.

The voucher also allows the FDA to shorten what would typically be a year-long review process to just one or two months. The results of the FDA review are awaited as well, and there is growing optimism that it will be positive. Meanwhile, the FDA has also given Revolution Medicines 'expanded access' to use daraxonrasib with patients who lack other treatment options.

For many decades, pancreatic cancer has stood as one of medicine's most unforgiving challenges, often offering little time, few options, and even less hope. Today, that narrative may finally be beginning to change. For a scientist, daraxonrasib is not a cure in the real sense of the word, at least not yet — but for patients and their families around the world, it is a long-awaited ray of hope.

WHAT IS PCOS AND WHY DOES RENAMING IT TO PMOS MATTER

For years, the term Polycystic Ovary Syndrome (PCOS) has been widely used to describe one of the most common hormonal conditions affecting women of reproductive age.

Key Takeaways:

• In this condition, the ovaries produce excess androgens (hormones that regulate masculine characteristics), leading to irregular periods, ovarian cysts, acne, weight gain and fertility difficulties.

• But many experts have long argued that the name was incomplete, even misleading. By focusing only on the ovaries, it failed to capture the full spectrum of metabolic, hormonal, reproductive and psychological challenges associated with the condition

• That understanding has now prompted a major global shift in medical terminology. After a landmark global effort led by Monash University, PCOS will now be called Polyendocrine Metabolic Ovarian Syndrome (PMOS), which better reflects the condition's complex, multisystem nature.

• According to Dr Garima Kachchawa, professor, obstetrics and gynaecology, All India Institute of Medical Sciences (AIIMS) Delhi, "the shift also underlines the need for women and clinicians to look beyond reproductive symptoms and recognise the broader health risks linked to the disorder".

• In what was traditionally called PCOS, that maturation process gets disrupted. Instead of one follicle fully developing, many follicles stall midway. They remain small and immature rather than progressing to ovulation. These are called arrested follicles.

Do You Know

• The renaming of PCOS to PMOS reflects the understanding that the condition is a multisystem disorder, involving endocrine, metabolic, reproductive, psychological and dermatological features. The term "PCOS" focused mainly on the ovaries and did not adequately represent the broader nature of the condition. The new name will gradually be introduced globally over the next three years.

PHYSICAL ACTIVITY HAS STALLED FOR 20 YEARS, HURTING HEALTH AND CLIMATE

Global levels of physical activity remained unchanged despite policy recommendations and adoption over the last two decades, with large differences across gender and socio-economic groups, three new research reports have shown.

Current efforts to promote participation in physical activity are both insufficient and have made no dent, the reports say. Worldwide, more than five million deaths per year are attributed to physical inactivity. About one in three adults and eight in ten adolescents do not meet the World Health Organization's recommended activity guidelines, which is 150 minutes of moderately intense weekly physical activity for adults and 60 minutes daily for children.

Deborah Salvo, associate professor and Research Center Director at the University of Texas at Austin, and her colleagues analysed physical activity data from 68 countries worldwide and found persistent inequalities in the ways in which people across the world are active.

The findings have been reported in Nature Medicine.

Active leisure gap

Dr. Salvo said that within countries, the team observed a large gap in terms of who gets to be active through leisure or free time — and "it is mostly wealthy men that do".

The most striking finding was the opportunity gap (of 40% points) worldwide for active leisure when contrasting wealthy men in wealthy countries with socio-economically disadvantaged women in poor countries.

The team's paper summarised decades of evidence to show that physical activity should not merely be part of obesity and cardiometabolic disease prevention and control agendas, as it also helps prevent and treat multiple cancers as well as depression, and boosts immunity.

During the COVID-19 pandemic, evidence emerged showing lower rates of infection, severe COVID-19, hospitalisation, and mortality due to COVID-19 among active individuals, she said.

While physical activity is certainly very important to prevent and manage these conditions, it is so much more, and sometimes even health professionals do not harness or promote the totality of its benefits, she adds.