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INTERNATIONAL

NEW BEGINNING

Until six months ago, Abu Mohammad al-Jolani was a specially designated global terrorist, with a \$10 million bounty fixed on his head by the U.S. government. A native of Syria's Golan Heights and a former member of al-Qaeda in Iraq, one of the group's most brutal branches, Jolani founded Jabhat al-Nusra, the al-Qaeda's Syria affiliate, in 2012, during the early stages of the civil war. Thirteen years later, on May 14, Jolani — now known as Ahmed al-Sharaa — met with U.S. President Donald Trump in Riyadh. Mr. Trump, who earlier in the week lifted America's decades-long sanctions on Syria, praised Mr. Sharaa, saying he was "a tough guy. Strong past... Fighter". The meeting was a diplomatic victory for Mr. Sharaa, whose Islamist Hayat Tahrir al-Sham (HTS) captured Damascus in December 2024 by toppling the secular dictatorship of President Bashar al-Assad. Mr. Sharaa met Qatar's Emir in Doha in April, seeking support for his fledgling Islamist regime. He enjoys the strong backing of Türkiye. He was welcomed by French President Emmanuel Macron earlier this month at the Élysée Palace in Paris. And in Riyadh, Saudi Crown Prince Mohammed bin Salman played a key role in facilitating his meeting with Mr. Trump. With regional and international recognition, Ahmed al-Sharaa appears poised to shape Syria's present and future.

The lifting of American sanctions opens the door for Syria to join the global economic mainstream and attract foreign investments. Mr. Sharaa has already invited American companies to invest in Syria's oil and gas. Money could flow from wealthy Arab monarchies to war-torn Syria for reconstruction and other business opportunities. But one question remains: what kind of Syria are Mr. Sharaa and his fellow Islamists planning to build? Mr. Sharaa has promised to uphold the rule of law, respect women's rights and protect religious and ethnic minorities. Yet, ever since the HTS captured power, Syria has seen instances of targeted violence against minority communities. In March, hundreds of Alawites, the sect to which ousted President Assad belongs, were killed by Islamist gunmen in the coastal Latakia region. Sectarian tensions remain high in central Syria, where targeted killings and abductions are frequently reported. In recent weeks, Syria's Druze minority has come under sustained attacks, with community leaders describing the violence as a "genocidal campaign". The Kurds in the northeast have called for a decentralised, democratic Syria, firmly opposing the HTS's centralised style of governance. The removal of sanctions and international recognition present a historic opportunity for Mr. Sharaa to steer Syria toward recovery and prosperity. But to that end, he must first stabilise the country internally, dismantle extremist armed groups and adopt an inclusive constitution that guarantees the rights of all citizens. If not, Syria risks following the path of Libya or Afghanistan.

WHY DOES SAUDI ARABIA WANT A CIVIL NUCLEAR DEAL WITH THE US?

Saudi Arabia and the United States are discussing a deal to cooperate on the kingdom's ambitions to develop a civil nuclear industry, talks that have long been complicated by regional politics and concerns over weapons proliferation.

- As the world's largest oil exporter Saudi Arabia may not seem an obvious candidate for nuclear power, but it aims to reduce carbon emissions and free up crude for export under Crown Prince Mohammed bin Salman's Vision 2030 economic plan.



- The U.S. Energy Information Administration said last year that 68% of Saudi electricity was generated by burning gas and 32% by burning oil, with 1.4 million barrels a day of crude being used for power generation during the peak month of June.
- Atomic power could displace some of that, including for energy-intensive water desalination and air conditioning, allowing the kingdom to make more money from oil sales.
- However, Saudi Arabia has also said that if old foe Iran develops a nuclear weapon it would have to follow suit – a declaration apparently aimed at ramping up pressure on Tehran, but which has also fuelled concern about its own ambitions.
- In January it said it would enrich uranium – a process that can also be used as part of a military programme – to create ‘yellowcake’ fuel for nuclear power generation that it could sell. Any deal with Washington would likely address safeguards to assuage worries about military ambitions, on top of Saudi Arabia’s existing commitment not to pursue a bomb under the nuclear Non-Proliferation Treaty (NPT).

Do You Know:

- Under Section 123 of the US Atomic Energy Act of 1954, the United States may negotiate agreements to engage in significant civil nuclear cooperation with other nations.
- It specifies nine non-proliferation criteria those states must meet to keep them from using the technology to develop nuclear arms or transfer sensitive materials to others.
- As the world’s largest oil exporter, Saudi Arabia at first glance is not an obvious candidate for a nuclear pact typically aimed at building power plants to generate electricity.
- There are two reasons Riyadh may wish to do so.

—The first is that under Crown Prince Mohammed bin Salman’s ambitious Vision 2030 reform plan, the kingdom aims to generate substantial renewable energy and reduce emissions. At least some of this is expected to come from nuclear energy.

—Critics cite a second potential reason: that Riyadh might wish to develop nuclear expertise in case it someday wishes to acquire nuclear weapons despite the safeguards enshrined in any deal with Washington to prevent this. The Saudi crown prince has long said that if Iran developed a nuclear weapon, Saudi Arabia would follow suit, a stance that has fueled deep concern among arms control advocates and some U.S. lawmakers over a possible US-Saudi civil nuclear deal. The Sunni Muslim kingdom and Shi’ite revolutionary Iran have been at odds for decades.

- The United States hopes to find a way to give Saudi Arabia several things it wants – a civil nuclear pact, security guarantees and a pathway toward a Palestinian state – in return for Riyadh agreeing to normalize relations with Israel. Earlier this month, seven people familiar with the matter told Reuters the Biden administration and Saudi Arabia were finalizing an agreement for U.S. security guarantees and civilian nuclear assistance to Riyadh.

KURDISH MILITANT GROUP DISBANDS, ENDING TURKEY’S 40-YR INSURGENCY

- “The PKK 12th Congress decided to dissolve the PKK’s organisational structure and end the armed struggle,” the group said in a statement reported by Firat News Agency, which is close to the PKK. A senior PKK official confirmed to the Reuters that fighting would stop “immediately.”



However, they added that handing over weapons would depend on how the Turkish government handles issues like Kurdish rights and the future of PKK members.

- The Kurdistan Workers' Party (PKK) is a Kurdish group that began an armed conflict with the Turkish government in 1984. It first aimed to form a separate Kurdish state, but later started asking for more rights and autonomy for Kurds in Turkey. The group is based in northern Iraq and is considered a terrorist group by Turkey, the United States, and the European Union.
- The group's jailed leader, Abdullah Ocalan, will guide the process, according to the statement. Ocalan has been in prison since 1999. He had called for the group to dissolve earlier this year.
- It is unclear whether Turkey accepts Ocalan's continued role in the peace process. The government has not shared details on how disarmament will take place.
- Kurds make up around 20% of Turkey's 86 million people. Much of the conflict has taken place in the country's southeast, where the economy has also been affected by the fighting.

Do You Know:

- The Kurds are a major ethnic group who live in the mountainous geo-cultural region known as Kurdistan, which extends from south-eastern Turkey in the west to north-western Iran in the east, and from northern Iraq and northern Syria in the south to Armenia in the north. Sizable populations of Kurds live in the highlands of southern and eastern Turkey, northern Iraq, north-eastern Syria, north-western Iran, and in parts of south Armenia. But the Kurdish people are a minority in the populations of each of these countries taken as a whole. Small communities of Kurds live in Georgia, Kazakhstan, Lebanon, and eastern Iran as well.
- While the Kurds are an ancient people — Kurdish nationalists claim a history that goes back 2,500 years — they became identifiable as a distinct community in the 7th century, when most tribes in the area adopted Islam. The majority today are Sunni Muslim, with a minority following Sufism and other mystical practices.
- The Kurds speak a language that is related to Persian and Pashto, although local dialects differ. Kurmanji, which most Kurds in Turkey speak, uses the Latin script; the other widely spoken Kurdish dialect, Sorani, is written in the Arabic script.

SRI LANKA SLAMS 'TAMIL GENOCIDE MONUMENT' OPENED IN CANADA

Sri Lanka has conveyed its "strong objections" to the opening of a "Tamil genocide monument" in Brampton in Ontario, Canada, saying such actions "complicate and undermine" the government's efforts towards reconciliation and national unity.

Sri Lankan Foreign Minister Vijitha Herath on Wednesday summoned the Canadian High Commissioner in Colombo and conveyed the government's position on the "unfounded genocide allegations" and the construction of such a memorial in Canada, which is home to a sizeable population of Sri Lankan Tamils who fled the island nation's long civil war.

The monument, unveiled on May 10, is dedicated to the memory of Tamils killed in the war. On May 18, Tamils in Sri Lanka and elsewhere will commemorate 16 years since the civil war's end, when tens of thousands of civilian lives were lost, including in areas declared "no fire zones" by the Sri Lankan authorities. Families of survivors have resolutely demanded justice for the killing of civilians — 40,000 according to UN estimates — in the final battle of Mullivaikkal, in Sri Lanka's

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



northern Mullaitivu district, and the enforced disappearance of thousands of people, including those who surrendered to the army. Successive governments in Colombo have denied it was a “genocide”, but are yet to convincingly probe the grave rights abuses committed allegedly by the military, whose members are hailed as “war heroes” in the island’s Sinhala-majority south. In 2023, President Ranil Wickremesinghe’s government “condemned and rejected outright” the remarks of then Canadian Prime Minister Justin Trudeau, marking the civil war anniversary as ‘Tamil Genocide Remembrance Day’.

International probe

Responding to Minister Herath’s post on X, Gajendrakumar Ponnambalam, Jaffna MP and Leader of the Tamil National People’s Front (TNPF), challenged the government, and asked: “If you truly believe that the allegations of Genocide against the Tamils by the Sri Lankan State are unfounded, then why do you demonstrate such fear at facing an international independent criminal investigation and proving the State’s innocence? Why not sign up to the Rome Statute and allow the ICC to investigate?”

“The fact is, Minister, the State fears the truth! Truth is the only way to reconciliation, and your government, like the previous ones, will keep denying it,” Mr. Ponnambalam said.

Amid their enduring demands for accountability, the release of military-held lands of the people, and meaningful revival of a much-neglected local economy, Tamils of the north and east gave President Anura Kumara Dissanayake’s National People’s Power (NPP) a huge mandate in the November 2024 general elections.

While Mr. Dissanayake has initiated the release of some land and repeatedly stated that his government will never resort to racism, many in the Tamil community are waiting to see swift and concrete action on the pledges made to them during his campaign.

Weighing in on the recently held local government elections, in which Tamil parties outdid the NPP in the north and east, Tamil commentators blamed the government’s inadequate action for its electoral losses in the area. They also hope that Tamils are allowed to remember their loved ones without fear or military surveillance.

According to Human rights activist Ruki Fernando, “A good test will be to see whether the NPP is willing to mourn and grieve with Tamils on May 18, or will it triumphantly celebrate it as a military victory”.

AWAMI LEAGUE BAN: BACKSLIDING IN DHAKA

In its best version, the Awami League (AL), Bangladesh’s oldest political party, embodied the principles that underpinned the founding of the country. Going against the political grain of the time, Sheikh Mujibur Rahman attempted to separate religion from government and national identity. That changed under General H M Ershad, who declared Islam the state religion in 1988. While the AL, under Sheikh Hasina’s leadership, retained Islam’s status as the state religion, it also guaranteed equal rights for Hindus and other religious communities. Bengali linguistic nationalism and secularism, therefore, have had an uneasy coexistence with orthodox Islam. Following Hasina’s overthrow in August last year, however, religious conservatism has increasingly taken centre stage. It is reflected in a series of troubling developments: Attacks on the Hindu minority, the vandalism of Mujibur Rahman’s home. Another disquieting move is the



Muhammad Yunus-led interim government's decision to invoke an anti-terrorism law to suspend all activities of the AL, effectively barring it from participating in the upcoming general elections.

The sweeping ban is expected to remain in effect until the International Crimes Tribunal concludes its investigation into the party. Freezing all political activities and denying the AL a chance to contest the election is a serious blow to democracy. The people of Bangladesh may well choose to punish the AL for its heavy-handedness during the student movement last year. But this must be the prerogative of the voters. By clamping down on political rivals and opponents, the current regime may end up scoring the same kind of self-goal that Hasina did. Ensuring legitimacy and stability should be the top priority for all stakeholders in a country in which politics is still in flux. The vision of a new republic cannot be realised without free and fair elections.

With the AL unlikely to return to power in the foreseeable future, New Delhi must recalibrate its approach by initiating outreach to the Bangladesh Nationalist Party and the newly formed National Citizen Party. India should also reinforce its border security and continue to collaborate with Bangladesh on critical areas such as trade, regional connectivity, and counter-terrorism. Amid a fast-evolving geopolitical dynamic, it is essential that Delhi maintains an open and active diplomatic channel with Dhaka. And the interim government in Bangladesh must take concrete steps to protect the country's minorities.



DreamIAS



NATION

NEW NORTH-EAST LINK TO KOLKATA WILL BE VIA SEA, GIVING BANGLADESH A MISS

The proposed highway from Shillong in Meghalaya to Silchar in Assam will become an extension of a key multi-modal transport project in Myanmar, leading to an alternative link via sea between the North-East states and Kolkata, a senior official from National Highways & Infrastructure Development Corporation Limited (NHIDCL) told The Indian Express.

— The 166.8-km four-lane highway along NH-6 from Mawlyngkhung near Shillong to Panchgram near Silchar is the first high-speed corridor project in the North-East. It is being implemented by NHIDCL for the Ministry of Road Transport and Highways (MoRTH), and is expected to be completed by 2030.

— At the other end, the Kaladan Multi Modal Transit Transport Project in Myanmar is being funded by the Ministry of External Affairs — and connects the Kolkata seaport to the Sittwe port on the Kaladan river in Rakhine state. Further, the Sittwe port connects to Paletwa in Myanmar through an inland waterway and to Zorinpui in Mizoram through a road section.

— Shillong-Silchar is significant as Silchar is the entry point for connecting Mizoram, Tripura and Manipur as well as the Barak Valley region of Assam. Thus, it will become a major connectivity link for the entire North-East and an important milestone for developing the region as a gateway for India's Act East Policy.

— "With the help of the Kaladan project, cargo will reach from Vizag and Kolkata to the North-East, without being dependent on Bangladesh. The high speed-corridor will ensure transportation of goods via road after that, which will spur economic activity in the region," the official said.

— Currently, the only access to the seven North-East states is through the Siliguri Corridor, also called the 'Chicken's Neck', for the rest of India. The other two points of entry are through Bangladesh and Myanmar. Bangladesh has, however, curtailed access via Bay of Bengal while maintaining its stronghold on movement through water in the region.

— Hence, the Kaladan project was jointly identified by India and Myanmar as an alternative — the link is expected to be fully operational by the time the Shillong-Silchar highway is completed.

Do You Know:

— On April 30, the Union Cabinet approved the project at a cost of Rs 22,864 crore. Of the total length of the project, 144.8 km lies in Meghalaya and 22 km in Assam. Once operational, the new alignment will reduce journey time from 8.30 hours to just 5 hours

— "While the project is of strategic importance, it is also going to be one of the most challenging ones as the terrain is very difficult and the existing condition of the road is not good," he said.

— "Light Detection and Ranging (LiDAR) scanning has been used for topographical surveys. Based on the data collected from surveys, three solutions have been proposed — strengthening by rock anchors, high strength wire mesh panels and protection walls," the official said.

— "Piezometer, Rain Gauge, Settlement Gauge, Inclinator, Geophones, etc., are key equipment which will be installed for the monitoring," the official said.



— Geophones are used for vibration monitoring in seismic and geotechnical projects. Inclinometers are used in hill slope monitoring to detect and measure ground deformation, indicating potential slope instability or landslide movement. Rain gauge helps in measuring rainfall, settlement gauges are used to monitor vertical movement or settlements within hill slopes, and piezometers are used for monitoring pore water pressure in hill slopes.

— The Shillong-Silchar project will be implemented in Hybrid Annuity Mode (HAM), one of the forms of Public-Private Partnerships (PPP).

— NHs projects are executed on mainly three modes, i.e., (i) Build Operate and Transfer (BOT), (ii) Hybrid Annuity Model (HAM) and (iii) Engineering Procurement and Construction (EPC).

— Concession period for projects including maintenance on Build Operate and Transfer (BOT) is 15 to 20 years and on Hybrid Annuity Model (HAM) is generally 15 years. Concessionaire is responsible for maintenance of the respective NHs stretches within the concession period of the project. Only in case of EPC projects, Defect Liability period (DLP) is 5 years for the bituminous pavement works and 10 years for concrete pavement works.

ALL ABOUT IMF LOAN TO PAK, WHY LATEST TRANCHE WAS PASSED

The Executive Board of the International Monetary Fund (IMF) on Friday (May 9) decided to allow for “an immediate disbursement” of \$1 billion (around Rs 8,500 crore) to Pakistan. This disbursal was done as part of IMF’s Extended Fund Facility (EFF) to Pakistan.

- The IMF Executive Board also approved Pakistan’s request “for an arrangement under the Resilience and Sustainability Facility (RSF), with access of about US\$1.4 billion”.

- In the light of Pakistan’s military escalation against India, New Delhi conveyed its “strong dissent” to IMF’s decision. For its part, India abstained from voting in the meeting — there is no option with member countries to vote against such a decision — and highlighted Pakistan’s poor track record using IMF’s funds, pointing to the possibility of “misuse of debt financing funds for state-sponsored cross-border terrorism”.

- According to the IMF, the Extended Fund Facility (EFF) “provides financial assistance to countries facing serious medium-term balance of payments problems because of structural weaknesses that require time to address”.

- Put simply, the IMF provides assistance under the EFF to countries that do not have enough money to pay their bills to the rest of the world for the goods and services they import.

- Moreover, the reason for this inability to pay has to do with “structural weaknesses” in its economy, that is, fundamental problems in an economy that hold back growth and development. These include economies with inadequate physical infrastructure or a lack of an educated workforce, where the government borrows in excess of its ability to pay back. Or where the financial and banking system is not well developed and as such fails to provide the capital required for businesses to grow.

- It is important to note that the assistance under the EFF is in the form of a loan that has to be paid back, and not in the form of a grant or aid. The term “extended” means that these countries need more time than usual to pay back the money because they need to bring about “structural” changes.



- Even as Pakistan has strived to become a military power, since the 1980s, Pakistan's economy has been becoming weaker by each passing decade. The country has been on the brink of bankruptcy for a while now.

- It is important to note that the IMF's decision has been taken after a formal "review" of the policy and administrative reforms undertaken by the Pakistan government.

Do You Know:

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

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

AFTER FLAGGING ISTANBUL HELP TO PAK, DELHI DEFERS ITS ENVOY'S ACCEPTANCE

CITING "scheduling" issues, the Ministry of External Affairs postponed indefinitely the Thursday event at Rashtrapati Bhavan where Turkish Ambassador-designate Ali Murat Ersoy was to present his Letter of Credence to the President of India.

- The Ambassador-designate of Thailand and High Commissioner-designate of Bangladesh were also scheduled to present their credentials at the event. A Letter of Credence is a formal document appointing a diplomat as Ambassador or High Commissioner to another sovereign state.

- The postponement comes the day the Bureau of Civil Aviation Security (BCAS), India's aviation security regulator, revoked the security clearance of an Indian arm, Çelebi Airport Services India, of Turkey-headquartered airport ground handling major Çelebi Aviation Holding in the interest of "national security" with immediate effect.

- On May 12, the government said it had taken note of Turkey's support to Pakistan before and during Operation Sindoor, including its diplomatic and defence assistance.

- Turkish Ambassador-designate Ersoy was appointed this March. When contacted, officials at the Embassy of Turkey said personnel dealing with the matter were not immediately available to comment.

- An official of the Thai embassy in New Delhi said that they received a communication from the MEA conveying the postponement. "The event was to take place at 4 this afternoon, but has been deferred. The communication did not give any reason. We are waiting for more clarity and a new schedule," he said.

- An official of the Bangladesh High Commission also confirmed receiving a communique from the MEA. "We don't know why the event was cancelled at the last meeting and why no fresh date has been assigned," he said.

- Bangladesh appointed Riaz Hamidullah as High Commissioner to India in February, but he arrived in New Delhi only in April.



- Most recently, President Droupadi Murmu accepted diplomatic credentials on February 27 when the Ambassadors and High Commissioners of Panama, Guyana, Sudan, Denmark and Palestine presented their Letter of Credence during a ceremony at Rashtrapati Bhavan.

Do You Know:

- Turkey was the only Pakistani ally in West Asia to explicitly condemn Operation Sindoor. Other Gulf countries have not only refrained from backing Pakistan, but have also shown greater sensitivity to India's position on Kashmir.
- Their shared Islamic identity has long provided the underpinnings for a strong partnership between Turkey and Pakistan.
- During the Cold War, Turkey and Pakistan were together in groupings such as the Central Treaty Organization (CENTO) and the Regional Cooperation Development (RCD). The two countries have almost always supported each other during times of crisis.
- For instance, Pakistan has consistently backed Turkey's claims against Greece in Cyprus. Pakistani leaders committed to militarily assisting Ankara in the Cyprus crises of both 1964 and 1971. In 1983, Pakistan's military dictator General Zia-ul-Haq famously declared that his country would be the first to recognise Turkish Cyprus if it declared independence.
- Since 2003, when he became Prime Minister, Erdogan has visited Pakistan at least 10 times. His most recent visit came in February this year when Erdogan, now the President, co-chaired the 7th Session of the Pakistan-Türkiye High-Level Strategic Cooperation Council.
- Geopolitically, Turkey (with Qatar) is locked in competition with its Gulf Arab rivals, led by Saudi Arabia and the UAE. To curb Saudi-Emirati influence, Ankara has looked for alternative architectures of cooperation with non-Gulf Muslim states such as Pakistan and Malaysia.

EXPRESS VIEW: TALKING TO TALIBAN

When the Taliban took over Afghanistan in August 2021, India responded with caution. A few days into the takeover, New Delhi withdrew its ambassador and diplomatic staff from Kabul and suspended direct engagement. Realising that a stringent no-talk policy was impractical, India started to gradually open channels of communication. The reopening of the Indian embassy in June 2024 was followed by a public meeting in January this year between Foreign Secretary Vikram Misri and Afghanistan's acting Foreign Minister, Amir Khan Muttaqi, in Dubai. Amidst these developments, since August 2021, India has been regularly delivering wheat, pesticides, medical supplies and other forms of aid. Even in the Union Budget for 2024-25, there was an allocation of Rs 100 crore for assistance to Afghanistan. The first-ever ministerial-level conversation between External Affairs Minister S Jaishankar and Muttaqi on Thursday should be seen as the next logical step in the incremental outreach by both countries. The phone call took place days after the India-Pakistan ceasefire following the Pahalgam terror attack, which was unequivocally condemned by the Taliban regime.

Traditionally, Delhi and Kabul have had warm ties, barring the years of Taliban 1.0 (1996-2001), when India saw it as a proxy for Pakistan's strategic interests. But relations between the Taliban and Pakistan have been deteriorating rapidly, primarily driven by issues over the Tehrik-i-Taliban Pakistan, operating along the Afghan-Pakistan border. Realising that it does not have a hold on the Taliban any more, Rawalpindi has been trying to drive a wedge between India and Afghanistan.



In a post on X, Jaishankar welcomed Muttaqi's "firm rejection" of Pakistan's "recent attempts to create distrust between India and Afghanistan through false and baseless reports" — a reference to reports in Pakistan that Indian missiles had hit Afghanistan during Operation Sindoor. Amid a widening rift between Taliban 2.0 and Pakistan, India needs to keep communication lines open and prevent Afghanistan from becoming a sanctuary for anti-India terror groups.

There is no denying that the Taliban continues to be an autocratic regime with little regard for human rights, especially the rights of women. That is why India is yet to recognise the Islamic Emirate of Afghanistan. Indeed, increased engagement risks undermining India's moral stand. But to not engage at all carries risks, too. China has signed significant investment and security agreements with the Taliban, including a \$540-million oil extraction deal. Within the power politics of South Asia, given the China-Pakistan-Bangladesh axis, a Kabul-Beijing entente would be a matter of concern. India does not have the power to alter Afghan politics and society, but it has to deal with whoever sits in Kabul.

WHAT'S THE SELF-DEFENCE CLAUSE IN GLOBAL LAW?

The story so far:

On May 10, India and Pakistan agreed to halt "all firing and military action" following days of escalating tensions between the two nuclear-armed neighbours. The announcement came after the Indian armed forces conducted 24 precision strikes on May 7, targeting terrorist infrastructure in Pakistan and Pakistan-Occupied Kashmir, in response to the Pahalgam massacre that left 26 dead. While India's Foreign Secretary Vikram Misri described the strikes as "measured and non-escalatory," Pakistan denounced them as a "blatant act of war" and alleged civilian casualties.

What does the right to self-defence entail?

Article 51 of the United Nations (UN) Charter carves out an exception to the prohibition on the use of force outlined in Article 2(4), which bars member states from threatening or using force against the territorial integrity or political independence of any state. It allows the use of force solely in the exercise of self-defence following an armed attack. Although the Foreign Secretary's statement did not explicitly invoke Article 51, his description of the missile strikes as a "response" to the Pahalgam terror attack appears to be reliant on this principle.

However, this right is not unfettered. Article 51 imposes a procedural obligation on member states to "immediately" report to the UN Security Council (UNSC) any military measures taken in self-defence. The UNSC then assumes the authority to undertake action to "maintain or restore international peace and security".

Can it be exercised against non-state actors?

The UN Charter governs only the conduct of states and, by extension, state-sponsored uses of force. Following the 9/11 attacks, the growing role of non-state actors (NSAs) in armed conflict prompted some states, most notably the U.S., to argue that the right of self-defence under Article 51 extends to military action against NSAs like al-Qaeda and the Islamic State (IS). However, the International Court of Justice (ICJ) has adopted a more restrictive interpretation. In cases such as Nicaragua versus U.S. (1986) and the Democratic Republic of the Congo versus Uganda (2005), it has been held that an armed attack under Article 51 includes acts by NSAs only if they are carried out "by or on behalf of a state." Accordingly, attribution to a state remains a necessary condition



for invoking the right of self-defence under international law. "It is evident from the Foreign Secretary's statement that India has not contextualised the missile strikes within the international law framework. However, by asserting that 'Pakistan-trained terrorists' were responsible for the Pahalgam attack and describing it as part of 'Pakistan's long-standing record of cross-border terrorism,' India seems to have directly attributed the attack to Pakistan," Prabhash Ranjan, professor at Jindal Global Law School, told The Hindu.

What is the 'unwilling or unable' doctrine?

An emerging doctrine in international law permits the use of force in self-defence against NSAs operating from the territory of another state, when that state is "unwilling or unable" to neutralise the threat. The U.S. has been a leading proponent of this doctrine, invoking it to justify the 2011 military operation that killed al-Qaeda leader Osama bin Laden in Pakistan and the 2014 airstrikes against the IS in Syria. However, states such as China, Mexico, and Russia have condemned such military operations for undermining the sovereignty and territorial integrity of the host state.

Dr. Ranjan noted that the Foreign Secretary's remarks that Pakistan had taken "no demonstrable step" to act against terrorist infrastructure in the fortnight following the Pahalgam attack and that the country has long served as a "haven for terrorists" indicate a reliance on the "unwilling or unable" doctrine. "This doctrine does not require state attribution for attacks by NSAs, thereby lowering the threshold for invoking self-defence," he explained. "However, this principle is contested and lacks the consistent state practice and opinio juris necessary to crystallise into a rule of customary international law."

Is proportionality essential?

Military operations under Article 51 must comply with the principles of necessity and proportionality. It is generally accepted that a host state's unwillingness or inability to neutralise NSAs may fulfil the necessity requirement. However, the Leiden Policy Recommendations on Counter-Terrorism and International Law (2010) emphasise that military operations against the host state's armed forces or facilities are permissible only in "exceptional circumstances", such as when the state actively supports the terrorists. On proportionality, there are two competing views: a narrow interpretation limits force to what is necessary to stop an ongoing attack, while a broader view permits action to repel and prevent future attacks reasonably anticipated under the circumstances. "Since the military strikes on May 7, were directed solely at terrorist infrastructure, without targeting Pakistani military assets or civilian settlements, they would satisfy the requirements of necessity and proportionality", Dr. Ranjan said.

What lies ahead?

If the ceasefire agreement between India and Pakistan fails to hold, the UNSC could adopt a resolution calling for an immediate cessation of hostilities. It may also vote on a subsequent resolution to address any further violations, including the imposition of sanctions or the deployment of its own peacekeeping or military forces. However, the successful passage of such resolutions is likely to be shaped by the geopolitical interests of the Council's permanent members, each of whom holds veto power.

**IAEA: NO RADIATION LEAK OR RELEASE FROM ANY NUCLEAR FACILITY IN PAK**

The global nuclear watchdog, International Atomic Energy Agency (IAEA), has said that there has been “no radiation leak” from any nuclear facility in Pakistan after the escalated military engagement with India.

- The Vienna-based global nuclear watchdog’s reply, to a query from The Indian Express, ties in with the earlier response by the Indian Air Force that India has not hit any target in Pakistan’s Kirana Hills, which is reported to house some nuclear installations.

- “We are aware of the reports you are referring to. Based on information available to the IAEA, there has been no radiation leak or release from any nuclear facility in Pakistan,” an IAEA spokesperson told The Indian Express on Tuesday in response to a query on whether any nuclear incident or spill has been brought to the notice of the IAEA’s Incident and Emergency Centre.

- Incidentally, at a US State Department press briefing in Washington DC on May 13, Principal Deputy Spokesperson Thomas Pigott, too, was asked a specific question on this subject.

- “Has (the) US sent a team to Islamabad or Pakistan following reports that there have been leaks of nuclear radiation in some of the secure Pakistani sites?” To this question at the briefing, Pigott said: “I have nothing to preview on that at this time.”

- On Monday, Air Marshal A K Bharti, DG Air Operations, had said that India has not hit any target in Pakistan’s Kirana Hills.

- In response to a specific question at a press briefing, Air Marshal Bharti said, “Thank you for telling us that Kirana Hills houses some nuclear installations. We did not know about it. We have not hit Kirana Hills. I did not brief in my briefing yesterday.”

- The Mushaf air base in Sargodha was targeted by India during Operation Sindoor. Sargodha, one of Pakistan’s biggest air bases, is near Kirana Hills. The Sargodha air base is also said to be strategically important given that it is used by F-16 fighter jets.

- Director-General of Pakistan’s Inter-Services Public Relations (ISPR) Lt-Gen Ahmed Sharif Chaudhry had told a media briefing in Rawalpindi on May 10 that India had carried out airstrikes on three Pakistan Air Force (PAF) bases: Nur Khan, Murid, and Shorkot.

Do You Know:

- Established in 2005, the IAEA’s Incident and Emergency Centre is the focal point for coordination of international assistance in emergency preparedness and response to radiation incidents and emergencies — regardless of their cause or severity.

- As is customary, on January 1, 2025, too, India and Pakistan had exchanged, through diplomatic channels, the list of “nuclear installations and facilities”, covered under the Agreement on the Prohibition of Attack against Nuclear Installation and Facilities between the two countries.

- This Agreement, which was signed on December 31, 1988, and entered into force on January 27, 1991, provides that India and Pakistan inform each other of the nuclear installations and facilities to be covered under this Agreement on January 1 of every calendar year. This was the 34th consecutive exchange of such lists between the two countries, the first one having taken place on January 1, 1992.



- Misinformation is false or inaccurate information getting the facts wrong. Disinformation is false information which is deliberately intended to mislead intentionally misstating the facts.

INDIA'S AIR DEFENCE SHIELD

At the media briefing on Operation Sindoor on Monday, military officers displayed a picture of the Integrated Air Command and Control System (IACCS) node of the Indian Air Force (IAF).

- The picture showed more than two dozen IAF personnel gathered before a large screen that displayed a consolidated real-time feed produced by India's air defence assets that were deployed towards creating an impenetrable shield against incoming aerial threats from Pakistan during the military conflict of the past week.
- Capable air defence systems that protect against enemy air strikes are vital to a nation's defensive infrastructure. Air defence systems use a complex system of radar, control centres, defensive fighter jets, and ground-based air defence missile, artillery, and electronic warfare systems to neutralise a range of threats from the sky, including enemy aircraft, drones, and missiles.
- The Indian Army has a similar air defence control and reporting system called Akashteer, which connects the units of its air defence.

Akashteer too has been developed by BEL, with which the Ministry of Defence signed a Rs 1,982 crore contract in March 2023, according to an official release issued at the time. Akashteer would enable the monitoring of low-level airspace over battle areas, and effectively control ground based air defence weapon systems, the release said.

- The air defence assets of the Indian military are deployed in a multi-layered system. Point defence comprises low-level air defence guns and shoulder-fired weapons, while area defence comprises fighter aircraft and long-range missiles.

Do You Know:

- Developed by the public sector aerospace and defence electronics company Bharat Electronics Limited (BEL), IACCS is an automated command and control system that integrates data from all air defence assets, including ground-based radar, airborne sensors, civilian radar, communication nodes, and the various command and control centres of the IAF.
- The availability of the consolidated dataset, along with real-time updates, provides military commanders at multiple levels with a comprehensive picture and overall situational awareness during air operations, so that they can respond to a wide range of aerial threats.
- The total battlefield picture enables central control and decentralised execution at various levels. By reducing reaction time, it allows military commanders to make early decisions on identification and assessment of threats, and to direct air defence assets to carry out kills.
- The overlapping radar and radio data coverage of the IACCS helps in effective airspace management and reduces redundancy.
- A range of surveillance radar forms part of the air defence grid. The modern radars of the IAF — both ground radar and the air-based AWACS (Airborne Warning and Control System) and AEW&C



(Airborne Early Warning & Control) System — are networked into the IACCS. These radars play a key role in the detection, identification, interception and destruction of hostile intruders.

INDIAN TECH IN OPERATION SINDOOR

Besides achieving its immediate military objectives, Operation Sindoor gave a convincing demonstration of the superiority of India's defence capabilities over Pakistan.

- While the spectacular success of India's multi-layered air defence system, which neutralised almost every incoming missile and drone, has been the most-talked about, an array of other systems and technologies, many of them home-grown, have performed admirably to provide a decisive edge to the Indian military.
- Thus far, India has not disclosed the details of the platforms, weapons, sensors, and radars used during Op Sindoor. The Indian Express spoke to a few serving and retired officials and scientists to identify some technological elements that stood out during the four-day operation.
- These experts, most of whom spoke on the condition of anonymity, attributed the success of Op Sindoor to years of investment and research in space technologies, aeronautics, avionics, missile development, and weaponry.
- A remarkable feature of Op Sindoor was the precision with which India hit its targets, many of which lay deep inside Pakistan. Not only was this crucial to achieve the military objective of destroying terrorist bases, it also established to the world that India was behaving responsibly, with every effort made to minimise collateral damage.
- "The impeccable guidance and navigation technologies were one of the key highlights (of Op Sindoor) The level of precision that was achieved is the best that anyone elsewhere can get," said a retired director of a Defence Research and Development Organisation (DRDO) facility who has worked extensively on missile technologies.

He added: "This kind of capability is the result of years of indigenous research in the DRDO, ISRO (Indian Space Research Organisation), and other institutions. We have had our share of failures and setbacks during this time".

For instance, the Brahmos supersonic cruise missiles that were likely used, "have state of the art guidance systems that have been developed over the years," the retired official said.

Do You Know:

- India's indigenous navigation and guidance system depends on the NavIC (Navigation with Indian Constellation) system of satellites, which is complemented by an array of very high-resolution earth observation satellites.
- The Cartosat, RISAT, and EOS series of satellites keep a round-the-clock watch on the subcontinent, and provide vital information and imagery that are useful to the military. Some of these satellites can identify or differentiate between objects as small as 25 to 30 cm in size. NavIC is said to achieve positional accuracy of 10 to 20 cm.
- As a result, these assets make it possible for Indian weapons to achieve a sub-metre targeting precision, which was seemingly achieved during Op Sindoor. And Indian scientists are constantly working to further improve these capabilities. "Guidance and navigation" was one of the 75



technology priority areas identified after DRDO's Anusandhan Chintan Shivir (research deliberation conclave) in June 2023.

- The Russian S-400 system has come in for a lot of praise in recent days. Prime Minister Narendra Modi himself acknowledged its importance by posing next to an
- Indian air defence system included newly-inducted SAMAR (Surface to Air Missile for Assured Retaliation) systems that can intercept a range of low-flying aerial targets up to a range of 12 km, and the Akash short-to-medium range surface-to-air missile systems.
- This was the first India-Pakistan conflict in which drones and other unmanned systems played such an important role.

FIRST TIME, INDIA NAMES CHINA AS SUPPLIER OF MISSILES USED BY PAK, SHOWS REMNANTS

For the first time since it commenced Operation Sindoor and thwarted most of Pakistan's aerial attacks, India Monday named China-supplied weapons in the Pakistani arsenal used against the Indian Armed Forces. Briefing the media, Air Marshal A K Bharti, Director General Air Operations, presented visual evidence of missile remnants. "You can see the pieces of it on the screen," he said, showcasing debris of the PL-15 long range missile that fell inside Indian territory, including a relatively intact rear section recovered from Hoshiarpur, Punjab.

- The Armed Forces intercepted and neutralised a range of high-tech foreign weapons used by Pakistan, including Chinese-origin PL-15 air-to-air missiles and Turkish Byker YIHA III Kamikaze drones.
- The naming of China is a first in this round of India-Pakistan hostilities — all these years, New Delhi has closely tracked the expanding Sino-Pak military ties.
- Sources said that China-Pakistan ties across domains — political, economic, nuclear and military — have been ongoing for decades, and Beijing has been supplying weapons to Rawalpindi.
- The PL-15, developed by China's Aviation Industry Corporation (AVIC), is a long-range, radar-guided missile designed to engage high-value airborne targets at ranges exceeding 200 km.
- The PL-15 is China's standard active-radar-guided AAM, and it was intended to at least match the performance of the US-made AIM-120D Advanced Medium-Range Air-to-Air Missile (AMRAAM).
- Its export version, the PL-15E, is reported to have a maximum range of 145 km and is integrated with Pakistan's JF-17 Block III and J-10CE fighters.
- The domestic version in use by the Chinese military has a reported range of between 300-500 km.

Do You Know:

- On April 26, the Pakistan Air Force (PAF) released visuals of JF-17s armed with PL-15E and PL-10 missiles. Pakistan's fleet includes an estimated 45-50 JF-17 Block IIIs and 20 J-10CEs — approximately 70 aircraft capable of deploying the PL-15E, according to Pakistan's military.



- The missile's guidance system includes inertial navigation, Beidou satellite updates, a two-way datalink, and AESA radar terminal homing.
- It features a dual-pulse solid rocket motor and can reach speeds exceeding Mach 5. The warhead, typically high-explosive fragmentation, weighs between 20 to 25 kg.

The weapon may have been sourced directly from China's People's Liberation Army Air Force (PLAAF). Both countries jointly manufacture the J-17 aircraft, the mainstay of the PAF.

- The Indian military's statement on the PL-15 is significant, coming two days after an understanding with Pakistan to stop all military actions.
- For Delhi to single out Beijing sends a signal to the Chinese leadership on its role in the hostilities between India and Pakistan, at a time when China said it will play a constructive role to bring about a ceasefire between India and Pakistan.
- China and Pakistan had played a role in watering down the UN Security Council statement on the Pahalgam terror attack – it did not name The Resistance Front which had initially claimed responsibility for the terror attack in which 26 civilians were killed.

TRUMPETING CLAIMS

For the fifth time in as many days the U.S. President has claimed credit for bringing India and Pakistan back from “nuclear conflict” by mediating the May 10 ceasefire agreement, a claim that is puzzling and problematic. The claim of mediation has been rebutted by the Ministry of External Affairs (MEA), unofficially and more formally several times, with officials giving a timeline of how the talks had been held “directly” between the Directors General of Military Operation (DGMO) on a hotline, after the Pakistani DGMO proposed a stop to hostilities three days after Operation Sindoor began, and India acceded to the request. The government has said that Pakistan's request came after it received a jolt over India's strikes on Pakistani bases. It has also said that like many countries, the U.S. was engaged with the situation, and officials including Prime Minister Narendra Modi, External Affairs Minister S. Jaishankar and National Security Adviser Ajit Doval had kept them apprised of India's position. Mr. Trump's assertions, backed by his administration, have been a cause for obvious outrage in Delhi, as they violate India's “long-stated” principle of not accepting third-party mediation on bilateral issues. His other comments, including an offer to mediate to resolve the Kashmir dispute and the equivalence he draws between India and Pakistan, also go against India's previously well-respected policies against the internationalisation of an “internal issue” and the hyphenation with Pakistan. Moreover, the MEA spokesperson has categorically denied that any trade-related issues were discussed between Indian and U.S. interlocutors, even as Mr. Trump has repeated that he had prevailed on India and Pakistan to put aside their “nuclear missiles” by threatening to stop trade with them if they did not, and promising to enhance trade ties if they did. That Mr. Trump has not once referred to India's core concerns on terrorism, appeared to swallow the Pakistani narrative on a “nuclear war”, and even suggested a “dinner” between Mr. Modi and Pakistan Prime Minister Shehbaz Sharif, trivialises the serious nature of the rupture between Delhi and Islamabad.

New Delhi must also analyse what lies behind Mr. Trump's obvious shift from the camaraderie on display with Mr. Modi just months ago. Are the comments explained as simply “Trump being Trump”, or is he sending a more considered message on U.S. policy for the region? The extent of the China-Pakistan political and military cooperation may also have caused some alarm in the U.S.



India must make it clear that its battle against cross-border terrorism from Pakistan cannot be brushed aside by any country, especially if it is one of India's closest partners, and co-founder of the Quad. The U.S. President's statements have not just challenged India's narrative or policy principles but also questioned New Delhi's credibility, and some tough messaging will be required to clear the air convincingly on the issue.

PRIME MESSAGE

Prime Minister Narendra Modi's address to the nation on Monday night and his visit to the Adampur base of the Indian Air Force in Punjab on the frontlines with Pakistan on Tuesday were reassuring for the nation that has been in the midst of a volatile conflict. Mr. Modi reiterated India's revised strategy of responding to terrorism with clarity and resolve. For one, India is no longer willing to concede the fig leaf of an explanation often offered by Pakistan that terrorists were non-state actors acting independently of the state. Operation Sindoor is ongoing, but it is also a continuation of this new strategic approach which earlier manifested, less successfully, in the surgical strikes of 2016 and Balakot airstrikes of 2019. India is willing to engage with Pakistan diplomatically, but only on the central and relevant question of terrorism emanating from that country and the status of Pakistan-occupied Kashmir. Mr. Modi also made it clear that India would stay the course on the decision to suspend the Indus Waters Treaty. Though Mr. Modi did not directly join issue with U.S. President Donald Trump on his claim that his administration brokered the understanding between New Delhi and Islamabad, he was categorical in his assertion that India would be guided entirely by its national interest in deciding its future course of action. Further moves by India will depend on how Pakistan responds to the changed approach of India and the new realities.

Mr. Modi's visit to Adampur, 100 km from the border and also a site of India's Russian-made S-400 air defence system, disproved Pakistan's claim that the base was hit during the recent military face off. That said, there is a need to insulate strategy from populist sloganeering and prime-time TRP wars. India's stakes are high, and they must not be held hostage by the designs of Pakistan's terrorists, which are of course unacceptable. Quiet diplomacy and covert operations may not be suitable for TRP media wars but can be extremely useful in the pursuit of the country's strategic interests. While India should not be unsettled by Pakistan's nuclear sabre-rattling, it is also time India took the lead with other partner countries to start a new global conversation on the risks of nuclear weapons. The dangers of a nuclear conflict are far too serious to be ignored, and discussions within India and the world should be cognisant of that. While India's position against third-party interference in India-Pakistan relations is a historically established position, it must also build global opinion against Pakistan's strategy of terrorism and nuclear blackmail.

FIRE AND CEASEFIRE

India and Pakistan on Saturday announced an understanding to stop military actions against each other after three days of intense and escalating fighting. It was United States President Donald Trump who first made the announcement of a "ceasefire" between the two countries, and in further statements, American officials have said U.S. Vice President J.D. Vance and U.S. Secretary of State Marco Rubio were in close touch with leaders of both countries including Prime Minister Narendra Modi, 'helping' them arrive at this understanding. The current flare-up was caused by the terrorist attack on tourists in Pahalgam on April 22. Pakistan has used terrorism as an unstated policy. By demonstrating that India can take overt military action against targets in Pakistan in the event of a terrorist attack, the Narendra Modi government has effectively



announced a new security doctrine. Pakistan will not be allowed to hide behind deniability and continue to promote terrorism against innocent people. The Indian armed forces performed with stellar courage and professionalism, while civilians in Jammu and Kashmir paid a heavy price in terms of lives, peace and property. The people of Punjab also had to bear the brunt of the conflict. In the midst of the fire, the Modi government underscored a key principle of Indian identity that it is pluralist, multi-religious and democratic, and correctly identified Pakistan's strategy to create communal discord in the country.

Now that a war has been avoided and the conflict been brought to a halt, the Modi government must take stock and share its learning with the people of India and their representatives. The Opposition Congress has demanded an all-party meeting chaired by Mr. Modi and a special session of Parliament. Several other political parties have supported the demand. The Centre can no longer remain silent on key questions regarding developments during the operations, the deaths and the losses. Truth cannot be allowed to be a casualty in war. Recent days have demonstrated significant new turns in geopolitics that have implications for India. China reportedly supported Pakistan's operations. U.S. involvement in the conflict between India and Pakistan is nothing new. But the Centre has to clarify the nature of the current involvement, as it raises concerns about the internationalisation of the Kashmir dispute. The recent days also saw competitive jingoism between the Bharatiya Janata Party (BJP) and the Congress, which is not helpful. The BJP, which is in power, is accountable and it cannot escape that by raising historical phantoms. For a country to be able to secure itself and prosper, there must be cool-headed thinking among its leaders, domestic political consensus and social harmony, and a respect for professional views as opposed to jingoistic slogans.

TOXIC TROLLING

A full-scale war between India and Pakistan may have been averted, but the troll army has come out in force to disturb the peace. After India's Foreign Secretary Vikram Misri announced on May 10 that an understanding had been reached between the two sides to halt all military actions, his personal account on X (formerly Twitter), was flooded with abusive comments which did not spare his daughter. Mr. Misri locked the account, and several diplomats and politicians have condemned the toxic culture in no uncertain terms, pointing out that several red lines had been crossed. Mr. Misri was only doing his job and conveying a decision taken by the political leadership. The Foreign Secretary had been addressing the media since Operation Sindoor began on May 7, in response to the deadly terrorist attack in Pahalgam on April 22, in which 26 people died. The Ministry of Information and Broadcasting (I&B), which had rightly slammed Pakistan for unleashing "a full-blown disinformation offensive" on social media about the ground reality regarding Operation Sindoor, remained quiet about the vicious trolling of Mr. Misri and the doxing of his daughter. Unfortunately, with the phenomenal rise of social media in India but little Internet literacy, there is a pattern of platforms being regularly used for hate speech, abusive comments, and deliberate distortion of facts.

The public sphere may have become more participatory, but that does not necessarily ensure civil behaviour. Surveys have shown that women, minorities and marginalised communities are particularly targeted by trolls. The extreme reactions often include rape and death threats. With surveillance now the byword for all tech companies, surely it should not take long to locate and end the online run of trolls. A stringent anti-troll law must be put in place to stop the acute mental and physical harassment trolls can cause. The draft Digital Personal Data Protection (DPDP) Rules, 2025, set to be rolled out this year, prescribe penalties for misuse of personal information. Now,



there are only a limited number of provisions under the Bharatiya Nyaya Sanhita and the Information Technology Act to address cyberbullying. The courts have been more proactive by directing quick removal of offending content and also mandating the disclosure of basic subscriber information linked to such accounts. In the Shaviya Sharma case (2024), the Delhi High Court had noted that “there can be no doubt that acts of doxing if permitted to go on unchecked could result in violation of right to privacy”. In a democracy, all voices should be heard but disinformation and misinformation must be stopped with the help of guidelines and the law.

EXPRESS VIEW ON MP MINISTER’S COMMENTS ON COLONEL SOFIYA QURESHI: FIRE THE MINISTER

Since the terrorist attack at Pahalgam on April 22, through the days of collective anger, grief and sympathy for the victims and their families, to the destruction of terrorist camps and training grounds by Operation Sindoor — India has been united as it sought justice. In his address to the nation after the ceasefire, Prime Minister Narendra Modi pointed out that “the heinous attempt to break the harmony and unity of this country” failed as “every citizen, every community, every class, every political party, unitedly spoke in one voice for strong action against terrorism”. The PM’s address echoed the sentiments of the country, including leaders across the political spectrum. There are some, though, who mask prejudice and hate and empty bluster as patriotism.

Less than a day after the PM’s address, BJP MLA and Madhya Pradesh Tribal Affairs Minister Vijay Shah said at a public meeting that terrorists in Pakistan had been taught a lesson “using their own sister”. He was referring to Colonel Sofiya Qureshi, prominent in the media briefings during Operation Sindoor. The MP High Court did the right thing — it took cognisance of his remarks, called them “cancerous” and “dangerous”, and ordered an FIR against him. The ruling party must take action against its minister because setting an example at this level is crucial. For, Shah’s voice is a prominent one but it is not the only one of its ilk. Earlier this week, Foreign Secretary Vikram Misri and his daughter were attacked and abused online because India’s top diplomat did his job and articulated the government’s position on pausing hostilities.

The current pause is a moment to reflect on how to press India’s advantage diplomatically and strategically, ensure that the economic gains that underpin its progress and power are built on. The space for diplomacy, post Op Sindoor, be it on the river waters or on military de-escalation, needs to be secure and expansive. When TV studio warriors — at a comfortable remove from those facing blackouts and vulnerable to shelling — call for “eradication”, “dismembering” and “total victory”, when they peddle outright falsehood to whip up public opinion, they constrain the room for manoeuvre for India’s diplomacy. Even Congress, which has admirably avoided partisan politics on the operation, needs to rethink before it invokes Indira Gandhi and 1971. In the fact-free world of social media, where the abuse machine hums 24 by 7, this isn’t a valuable history lesson but a call for dialing up the machine. Comparisons of April 22, 2025, with 26/11 or 1971 are loose, and fraught. Operation Sindoor was a necessary attempt to secure citizens against terror, and raise the costs of a proxy war for Rawalpindi — much work needs to be done in its wake. Getting TV anchors to be accurate or trolls to behave may be impossible, firing the Minister is in the government’s remit — and the right thing to do.

THE TERROR TRIO OF PAKISTAN

Flanked by top Pakistani military officials, Abdur Rauf, a local cleric and a U.S. designated terrorist, led prayers for those killed on May 7 by Indian attacks, inside Lashkar-e-Taiba’s (LeT)



headquarters in Muridke, Punjab. Wrapped in Pakistan's 'Star and Crescent' flag, the slain were awarded 'state honours', and wreaths were reportedly laid by Pakistani Army Chief Gen. Asim Munir and Punjab Chief Minister Maryam Nawaz on their remains.

Indian security officials confirmed on May 10 that five high-profile terrorists were killed during 'Operation Sindoor'. India said it hit nine terror camps of Jaish-e-Mohammad (JeM), LeT and Hizb-ul-Mujahideen in Pakistan-occupied Kashmir (PoK) and Pakistan. Hafiz Muhammad Jameel and Mohammad Yusuf Azhar, two brothers-in-law of JeM founder Maulana Masood Azhar, LeT commanders Mudassar Khadian, Khalid and JeM's Mohammad Hassan Khan were among the dead.

For more than three decades, these three outfits have been responsible for attacks across India, including the 2001 Parliament attack, the 2008 Mumbai attack and the recent (April 22) Pahalgam massacre. Here's a look at each of these outfits, which are backed by Pakistan's security establishment.

Hizb-ul-Mujahideen

Founded in 1989, Hizb-ul-Mujahideen started operating in PoK's Muzaffarabad with the aim of integrating Jammu and Kashmir with Pakistan. As a militant wing of Pakistan's Islamist organisation Jamaat-e-Islami (JeI), Hizb was set up at the behest of the Inter Services Intelligence (ISI), the Pakistani spy agency. The group has a cadre strength of over 1,500 and its chief is Mohammed Yusuf Shah, also known as Syed Salahuddin. It operates in five divisions, targeting Srinagar, Kupwara, Bandipora, Baramulla, Anantnag, Pulwama, Doda, Rajouri, Poonch and Udhampur. While its headquarters is in PoK, Hizbul has units in both Islamabad and Rawalpindi to communicate with the military and the government.

Born at the peak of insurgency in Kashmir, Hizb saw an internal tussle over ideology, leading to a split with Salahuddin heading one faction and Hilal Ahmed Mir the other. In 1993, India's counter-terrorist attacks peaked, wiping out several top leaders, including Mir. Through the years, Hizb has clashed with Jammu Kashmir Liberation Front (JKLF) — another ISI-funded group, which advocates for Kashmir's independence.

In July 2000, Salahuddin made a conditional offer of ceasefire to India, in a press conference in Islamabad, leading to a meeting between the group's chief commander Abdul Majeed Dar and a high-level Indian official team at Srinagar. However, facing pressure from other terrorist outfits in Pakistan, Salahuddin retracted his offer within days after the meeting. Dar, who played a significant role in the indoctrination, recruitment, launching and training of cadres, was killed in 2003 by unknown gunmen in Sopore. The attack was reportedly carried out by a splinter group of Hizb, after he had fallen out of favour with Salahuddin.

Through the years, the group has been responsible for numerous attacks on elected leaders in J&K, grenade attacks on J&K police stations, bomb attacks on military personnel and the Delhi High Court blast of 2011. Top leaders such as Ahsan Dar, Ashraf Dar, Maqbool Alla, Burhan Wani, Riyaz Naikoo, Sabzar Bhat have been killed by Indian security forces. It was designated a terrorist organisation by the U.S. in 2017.

Lashkar-e-Taiba

Called the 'Army of the pure', Lashkar-e-Taiba was founded in Afghanistan's Kunwar province in 1990. Its active presence was first established in 1993 when its cadres infiltrated across the LoC.



Funded by Pakistan's Islamist organisation Markaz-ad-Dawa-wal-Irshad, LeT challenges India's sovereignty over Kashmir, and believes in uniting all Muslim majority regions in Asia and impose Islamic rule in India. Its chief, Hafiz Muhammad Saeed, set up its headquarters in Muridke and is currently imprisoned in Pakistan's Central Lahore Jail for 'terror financing'. Apart from Muridke, LeT has bases in Muzaffarabad, Lahore, Peshawar, Islamabad, Rawalpindi, Karachi, Multan, Quetta, Gujranwala, Sialkot, and operates several Islamic institutions, schools, clinics and seminaries across Pakistan.

With India, the U.S. and Israel as its prime targets, LeT has recruited cadres from Pakistan, Afghanistan, Sudan, Bahrain, Turkiye and Libya. It has an active presence in Jammu and Kashmir, Chechnya and other parts of Central Asia, with over 700 cadres in J&K itself. Networking with several other terror outfits like al-Qaeda, LeT has been responsible for some of India's deadliest terror attacks such as the Mumbai train attacks (2006), 26/11 attack (2008), Akshardham temple attack (2002), serial blasts in Varanasi, Bengaluru, New Delhi, Kolkata, Hyderabad and Mumbai and several suicide attacks on security bases. Post-1999, LeT implemented the 'Fiyadeen' attacks in which small units stormed security forces' bases. There were instances of LeT members, disguised as security personnel, rounding up non-Muslim civilians in J&K and killing them.

Under pressure from the Financial Action Task Force (FATF), the Pakistan government 'arrested' Hafiz Saeed in 2019, and he was sentenced to 11 years of imprisonment for 'terror financing'. LeT has been outlawed in India and designated as a terrorist organisation by the U.S. In 2002, under international pressure, the Pakistani government banned the group.

One of its bases, Markaz Taiba in Muridke, which trained terrorists like Ajmal Kasab and David Headley for the 2008 Mumbai attacks, was hit by India during Operation Sindoor.

Jaish-e-Mohammad

The hijacking of Indian Airlines flight IC 814 in Kandahar by Harakat-ul-Mujahideen (HuM) in 1999 facilitated the release of HuM's secretary general Maulana Masood Azhar. Upon his release, he launched Jaish-e-Mohammad (JeM) at a stadium in Bahawalpur in March 2000, after being designated as a global terrorist by the U.S.

JeM's objectives include withdrawal of Indian security forces from J&K and the "liberation" of Kashmir. It also wishes to take control of Amritsar, New Delhi and Babri Masjid in Ayodhya — where now a Ram temple stands. With funding from the ISI and foreign countries, JeM has been responsible for terror attacks in India such as the 2001 Parliament attack, 2016 Pathankot airbase attack, and the 2019 Pulwama attack.

Active across J&K districts, JeM chief Masood Azhar was arrested after the 2001 Parliament attack but released on orders of a three-member Review Board of Lahore High Court in 2002. Since then, Pakistan has maintained it does not know his whereabouts, but Azhar has reportedly remained in Bahawalpur, as indicated by a speech given in December 2024.

On May 7, Indian strikes destroyed Markaz Subhanallah, which served as JeM's headquarters in Bahawalpur, and killed several of Azhar's family members, who are part of JeM.



WHAT WAR HYSTERIA HIDES: DEATHS, DESTRUCTION, DISINFORMATION

The military escalation between India and Pakistan following the Pahalgam massacre has been accompanied by a barrage of misinformation and disinformation. Data shows that concerned citizens, particularly from the border areas, have intensely searched for war-related news since the recent conflict between the nuclear powers started.

Over the past two weeks, public interest in war-related topics surged to the highest levels in recent times in India. Google searches for terms such as 'war' and 'Pakistan' hit the highest point in five years. Searches for the terms 'nuclear' and 'drones' also peaked. This shows a spike in both curiosity and anxiety as tensions kept escalating.

However, many online searches led to events that never actually happened. An examination of the 'news events' that were debunked by fact-checkers following Operation Sindoor shows the extent and nature of fake narratives in circulation. One prominent example was the viral fake news about the 'destruction of Karachi port', shared by a user on X and viewed over 2.5 million times. The image was actually from an Israeli air strike on Rafah in Gaza. Another widely circulated and inflammatory post claimed that an Indian drone had struck an area near a mosque in Islamabad; that was, in fact, a fire accident from the previous year.

A search on AltNews, a fact-checking platform, reveals the many hyper-nationalistic claims that have been circulating on social media handles in both Pakistan and India. These posts have often been accompanied by commentary — subtle or explicit — calling for war. Such commentary tends to obscure the harshest reality of war — its toll on human lives.

A look at the death tolls from past wars and major operations involving India (where reliable data is available) reveals the human cost of conflict. Over 13,140 defence personnel laid down their lives in the J&K Operation (1947-48), India-China War (1962), India-Pakistan War (1965), India-Pakistan War (1971), Kargil War (1999), and Operation Pawan undertaken by Indian peacekeeping forces for the disarmament of the LTTE. In addition, over 26,500 defence personnel were wounded in these wars/operations.

Frequent clashes with hostile neighbours also come at a financial cost, as weapons are amassed over years. Over the past three decades, India has consistently featured among the world's top arms importers. The country has featured in the list of top five arms importers since 2000. India was not in the list of top 10 arms importers only once since 1991, in 1993. Apart from importing arms, India also spends a substantial sum in manufacturing weapons and maintaining the armed forces.

War places a heavy burden on a country's economy and also hampers trade. Sanctions on warring nations often trigger a financial downturn. A look at the figures of countries that are currently at war shows that their GDP growth rate had taken a hit during the conflict. For instance, Russia rebounded from the COVID-19 pandemic with a 5.6% GDP growth in 2021, only to see its GDP fall to -2.1% in 2022 following the start of its war with Ukraine. Similarly, Ukraine's GDP had been steadily growing at around 2-3% annually from 2016, except during the pandemic year of 2020. But the outbreak of war in 2022 caused Ukraine's GDP to plummet to an unprecedented -28.8%. Israel, which has been at war with Hamas since 2023, also recorded its lowest GDP growth in almost eight years in 2023 (with the exception of the pandemic year of 2020).



OP SINDOOR BRIEFING: READING BETWEEN LINES OF RASHMIRATHI, RAMCHARITMANAS

Operation Sindoor Dinkar quotes: On Monday, as senior officers of the Indian Armed Forces began briefing the media on Operation Sindoor, a video played on the screen, along with some lines by the poet Ramdhari Singh 'Dinkar'.

- When the officers were later asked about the choice of the lines, Air Marshal A K Bharti responded by quoting a chaupai (quatrain) from the Ramcharitmanas that encapsulated the message that India had sent to Pakistan.
- The lines played at the briefing were: "Jab naash manuj par chhata hai, pehle vivek mar jaata hai (when destruction awaits, good sense is the first to die)" ...
- "Hit vachan nahin tune maana, maitri ka moolya na pehchana/ Toh le main bhi ab jaata hun, antim sankalp sunata hun/ Yachna nahin ab rann hoga, jeewan jay ya ki maran hoga (You did not listen to good counsel, did not appreciate the value of friendship/ So I am leaving now, here's my final resolve/ No more imploring, now there will be combat, the triumph of life, or there will be death)."

Do You Know:

- These are lines from Dinkar's epic poem Rashmirathi, a retelling of the Mahabharata with Karna as the protagonist, although they are not in the precise order in which they occur in the poem. This passage appears in the chapter 'Krishna ki Chetavani' (Krishna's Warning).
- As war between the Kauravas and the Pandavas is imminent, Lord Krishna goes to the Kaurava prince Duryodhana to make one last attempt at peace. He tells Duryodhana that his cousins, the Pandavas, are willing to forgo their right to the kingdom of Hastinapura, if Duryodhana would give them just five villages and leave them in peace.
- When asked about the poem, Air Marshal Bharti replied, "Main bas aapko Ramcharitmanas ki kuchh pankti yaad dilaoonga, aap samajh jaayenge... 'Binay na maane jaladhi jad, bhay teen din beet/ Bole Ram sakop tab, Bhay bin hoi na preet'. Toh samajhdar ke liye ishaara hi kaafi hai (I would just like to remind you of a few lines from the Ramcharitmanas, and you will understand [the quatrain]... For the wise, a mere indication is enough."
- The Ramcharitmanas is Tulsidas's version of the Ramayana. These lines come when Lord Rama, on His way to Lanka, asks the ocean to allow Him to pass. For three days, the Lord makes polite requests, even though he had an arrow with which he could have simply dried up the ocean.

THREE'S A CROWD

Sumit Ganguly Writes: Even though there are press reports that it has been violated, there is, at least in principle, a ceasefire in place between India and Pakistan.

- President Donald Trump has claimed that the United States played a critical role in brokering the ceasefire and that Vice-President J D Vance and Secretary of State, Marco Rubio, had spoken at length with their Indian interlocutors, thereby helping to bring about the ceasefire.
- Despite Rubio's call for an India-Pakistan meeting at a neutral venue to start "constructive talks" that the United States was willing to facilitate, it is certain that India will not agree to any such



arrangement where the US acts as mediator. This proposal, bluntly stated, is dead on arrival and reflects the lack of any appreciation on the part of the Trump administration about India's unyielding stance on the matter.

- The reasons for India's unwillingness to accept any external intercession are complex. It stems from India's experience with both multilateral and third-party interventions to resolve the Kashmir dispute.
- Most Indians who pay the slightest heed to international affairs and more specifically the Kashmir dispute, are aware of the partisan role that the US played at the United Nations Security Council (UNSC) in the wake of the first Kashmir war (1947-48). The United Kingdom had seized the opportunity to inveigle the US into adopting a pro-Pakistan stance at the UNSC.
- The Harry Truman administration, which was neither especially interested nor particularly well-informed of post-Partition politics of the Subcontinent, had allowed the former colonial power to shape the terms of the debate at the UNSC.
- India, which had somewhat naively agreed to refer the dispute to the United Nations on the advice of Lord Louis Mountbatten, the last viceroy, quickly discovered that its legalistic arguments about a breach of international peace and security carried little weight. All Indian diplomacy could do was to stall the process until the United Nations lost interest in the subject in the early 1960s.

Do You Know:

- A ceasefire is an agreement between nations involved in a conflict that seeks to regulate the termination of all military activity "for a given length of time in a given area", as defined by the book *The Practical Guide to Humanitarian Law*, by Françoise Bouchet-Saulnier. A ceasefire does not represent an end to hostilities. It represents a truce, that is, "a temporary suspension of hostilities," in both international as well as non-international armed conflicts. They also "do not reflect a juridical end to the state of war," as stated in the document.
- A ceasefire in itself or a breach of a ceasefire does not have any legal consequences as the agreements are seen as a first step between conflict and peace. In times of conflict, humanitarian law remains concerned, mostly, with regulation of the "use of violence and the protection of civilians."
- The remedies for a breach of a ceasefire are detailed in the Regulations Respecting the Law and Customs of War on Land, also called the Hague Regulations, that were formulated in 1910.
- According to the encyclopedia entry under the Oxford Public International Law, Article 36 of the Hague Regulations says that if an armistice or a ceasefire does not define its duration, then "the belligerent parties may resume operations at any time, provided that the enemy is warned within the time agreed upon." Moreover, a serious breach of a truce by one of the involved parties gives the other a right to denounce it, and in urgent cases, to recommence hostilities immediately, the entry stated quoting Article 40 of the Regulations.
- A violation of the ceasefire terms by "private persons acting on their own initiative" authorises the "injured party to demand the punishment of the offenders or, if necessary, compensation for the losses sustained," Article 41 states.



'NOT FLAWLESS': SC REMOVES POINT-BASED SYSTEM FOR SENIOR ADVOCATE DESIGNATION

As per the points-based system laid down by the top court in 2017, all matters relating to designation were to be dealt with by a Permanent Committee to be known as "Committee for Designation of Senior Advocates".

- The Supreme Court Tuesday did away with the existing points-based assessment devised by it for grant of senior designations to advocates in the top court and high courts and issued a new set of guidelines.
- A bench of Justices A S Oka, Ujjal Bhuyan, and S V N Bhatti said that "the decision to confer designation shall be of the Full Court of the High Courts or this Court."
- As per the points-based system laid down by the top court in 2017, all matters relating to designation were to be dealt with by a Permanent Committee to be known as "Committee for Designation of Senior Advocates".
- In its judgment Tuesday, the SC termed this "not workable". It said the point-based assessment "has not achieved the desired objectives. Moreover, the experience shows that the points-based assessment is not flawless. We have realised that with experience." The SC, however, said that the Permanent Secretariat put in place for the Permanent Committee as per the 2017 judgment will continue. Under the fresh guidelines, applications of all candidates found eligible by the permanent secretariat, along with documents submitted by the applicants, shall be placed before the full court.

Do You Know:

- The Permanent Committee was to be headed by the CJI for SC and Chief Justice for HCs. It would include two most senior judges of the SC or HCs, as the case may be. In case of SC, the committee would also include the Attorney General for India and Advocate General of state for HCs.
- The committee had to evaluate the lawyers by giving them points based on number of years of practise, reported judgments, publications in journals and interview.
- The Supreme Court had laid down rules for designations in judgments in 2017 and 2023. However, while hearing a matter regarding remission, the apex court took exception to the conduct of a lawyer, who had become a senior, and decided that the senior designation rules be made more foolproof.

PRESIDENT ASKS SC ON ASSENT TO BILLS: CAN COURT IMPOSE TIMELINES TO DECIDE?

IN A reference to the Supreme Court, President Droupadi Murmu has posed 14 crucial questions over the top court's April

8 verdict that fixed timelines for Governors and the President to act on Bills passed by state Assemblies.

- Seeking the Supreme Court's opinion under Article 143(1), Murmu sought to know whether the actions of the Governors and President are justiciable and whether such timelines can be imposed on them in the absence of any such provision in the Constitution.



- The reference pointed out that “there are conflicting judgments of the Supreme Court as to whether the assent of the President of India under Article 201 of the Constitution of India is justiciable or not”.
- Under Article 145 (3), when the President makes a reference for the court’s opinion, it is placed before a five-judge bench. In the Ayodhya dispute, the apex court, citing pendency of the case, had declined to answer the question referred to it on whether a temple existed below the disputed structure.
- Article 143 (1), which was invoked by the President to seek the court’s opinion, says that “if at any time it appears to the President that a question of law or fact has arisen, or is likely to arise, which is of such a nature and of such public importance that it is expedient to obtain the opinion of the Supreme Court upon it, he may refer the question to that Court for consideration and the Court may, after such hearing as it thinks fit, report to the President its opinion thereon”.
- The top court had said that “in case of any delay beyond this period, appropriate reasons would have to be recorded and conveyed” to the state concerned.
- The court, in its ruling, declared the action of Tamil Nadu Governor R N Ravi as illegal and erroneous in reserving 10 Bills for consideration of the President in November 2023 after they had already been reconsidered by the Assembly.
- In her reference to the Supreme Court, President Murmu sought to know: “Is the exercise of constitutional discretion by the President under Article 201 of the Constitution of India justiciable? In the absence of a constitutionally prescribed timeline and the manner of exercise of powers by the President, can timelines be imposed and the manner of exercise be prescribed through judicial orders for the exercise of discretion by the President under Article 201 of the Constitution of India?”
- The President also asked: “Can the exercise of constitutional powers and the orders of/by the President / Governor be substituted in any manner under Article 142 of the Constitution of India?”

Do You Know:

- On April 8, the Supreme Court had set a timeline for Governors to act on pending Bills, and for the first time, prescribed that the President should take a decision on the Bills reserved for consideration by the Governor within three months from the date on which such reference is received. Under Article 201 of the Constitution, no timeframe has been set for a Presidential decision.
- Under Article 143(1) of the Constitution, the President may refer a “question of law or fact” to the Supreme Court for its opinion. The opinion, unlike a ruling, is not binding.
- The Constitution extended the provision in the Government of India Act, 1935 to seek the opinion of the Federal Court on questions of law to questions of fact as well, including certain hypotheticals.
- Under the Constitution, the President acts on the aid and advice of the Cabinet. The advisory jurisdiction allows her the means to seek independent advice to act on certain constitutional matters. It is a power that the President has invoked on at least 15 occasions since 1950.



CLOSING ARGUMENT

The Union government has missed an opportunity to put a lid on the prolonged controversy over the arbitrary and the undemocratic use of power by unelected Governors. A Supreme Court judgment on April 8, 2025 clarified the constitutional position over the powers of the Governor and the President in giving assent to Bills passed by State Assemblies. A Division Bench of Justices J.B. Pardiwala and R. Mahadevan held that Tamil Nadu Governor R.N. Ravi's act of withholding 10 State Bills was "illegal" and "erroneous". The well-reasoned judgment had outlined the possible courses of action for the Governor and the President once a Bill is before them for their assent, though the Constitution does not specify timelines. The judgment established long awaited and much required clarity on several questions. Now, the Centre, through a Presidential Reference, has brought up all these questions again to the Court, seeking its 'opinion' under Article 143. The power of Governors has been an extremely contentious question. The heightened brazenness of some Governors in recent years has created more bad blood between the Centre and the States, and undermined the mandate of States to govern. The Court's judgment took into account multiple judgments, reports of committees that examined the working of Indian federalism, and Constituent Assembly debates to arrive at a firm conclusion that Governors or the President do not have arbitrary powers to indefinitely hold up a law made by an elected Assembly from coming into force.

Governors are whimsical appointees of the Centre, and the Constitution does not vest them with infinite powers, least of all to undermine the elected Assembly. The Centre could have used the Court's judgment to bring a closure to the controversy once and for all. It could have, if it felt necessary, brought constitutional amendments in line with the Court's judgment. Instead, the Centre is raking up questions that are already settled, through a presidential reference. As constitutional scholars have pointed out, an opinion given by the Court does not override the Court's judgment. If it was only clarity that the Centre wanted, it could have sought it through a review petition and other established procedures. By choosing the unusual path of a Presidential Reference, the Centre is signalling an intent to seek for itself powers to be exercised through Governors, that the makers of the Constitution had not given it. The Court's judgment provided a sound framework for a consensus on the role of the Governor. The Centre should accept that, and if at all required, convene a meeting of Chief Ministers and political party representatives, to resolve any other residual issues.

PAYMENT FIRMS MUST REVEAL CLIENT INFO IN CRIME CASES: HC

Observing that "the duty to protect data must yield where public interest and criminal investigation intersect", the Karnataka High Court has said that digital payment intermediaries such as PhonePe has no complete immunity under the law from disclosing confidential information about transaction details/account credentials of registered users to the police for investigation in a criminal case.

"The protection of consumer privacy cannot eclipse the lawful imperative of investigating officers to secure evidence and take the investigation to its logical conclusion. Confidentiality must coexist with accountability," the court observed. Justice M. Nagaprasanna made these observations while dismissing a plea filed by PhonePe Pvt. Ltd.



Summons questioned

The company had questioned the summons issued by CEN police station, Bengaluru Rural district, asking the company to give certain information about transactions on a complaint lodged by a person alleging that he had lost money in 2022 while using several digital payment gateways.

It was contended by PhonePe that digital payment intermediaries had immunity from disclosing information to anyone, including the police, except the courts, under the provisions of the Payment and Settlement Systems (PSS) Act, 2007 and the Bankers Books Evidence (BBE) Act.

“The provision itself carves out that except where such disclosure would be required in obedience to the orders passed by the court of competent jurisdiction or a statutory authority in exercise of power conferred under the statute,” the court noted.

Hence, the court said that the investigating officer was a statutory authority, who was acting in terms of the powers conferred under the Code of Criminal Procedure while conducting investigation, and therefore the contention that details could not be divulged could not be accepted.

IS SAFE HARBOUR IMPORTANT FOR SOCIAL MEDIA?

The story so far:

In written submissions to the Parliamentary Standing Committee on Communication and Information Technology, the Union Ministry of Information and Broadcasting said that it is reconsidering the concept of safe harbour for social media platforms, to combat the issue of “fake news” online.

What is safe harbour?

Safe harbour is a legal concept that protects individual websites that allow third party users to share content from legal liability for any unlawful posts. The concept was put in place in the early years of the internet as a key safeguard to encourage innovation online and prevent website owners from being unfairly hounded for content they had no hand in publishing. The concept of a middleman being responsible for third party content is known as intermediary liability, and safe harbour protects sites, by default, from any criminal action for content hosted by them. In the U.S., safe harbour is enshrined in Section 230 of the Communications Act of 1934, inserted into the decades-old law in 1996. In India, Section 79 of the Information Technology Act, 2000, grants intermediaries similar protections.

The protections are not without conditions. In India, if an intermediary receives “actual knowledge” of illegal content on their website, they lose liability protections under Section 79 if they don’t work to take the content down within a certain time period. The Supreme Court has read down “actual knowledge” to mean a court order or government notification.

Without safe harbour protections, online intermediaries could face tremendous consequences for illegal content. For instance, in 2004, the then head of the website eBay in India was arrested because of a user listing of a disk containing child sex abuse material for sale.



How are intermediary liability protections regulated in India?

While safe harbour does have the conditions described above, the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 has put in place additional conditions for platforms to retain protection from intermediary liability. Social media firms need to have a nodal officer, a grievance officer resident in India, and need to periodically submit reports of complaints they receive on content, and action taken against them for this. Different parts of the IT Rules have been challenged in courts in the last few years.

For example, in 2023, the Union government notified the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2023, which contained provisions that would strip safe harbour from sites for content that has been notified as “fake news” by the Press Information Bureau’s fact check unit. That amendment was immediately challenged in the Bombay High Court, among others by the comedian Kunal Kamra. Petitioners accused the government of exceeding its authority by designating a fact check unit that could be an arbiter of truth, and putting pressure on social media companies to take content down without following the longer process of sending a notice to users whose content is being removed. The Bombay High Court sided with Mr. Kamra, and the case is being appealed by the government.

Why is the government considering amending the safe harbour clause?

The government has accused foreign social media platforms of flouting Indian laws and acting too slowly on takedown notices. On multiple occasions before Elon Musk acquired Twitter, now known as X, the platform had public confrontations with the Union government regarding orders to hide users’ content. X under Mr. Musk has continued to fight the government’s right to issue blocking and takedown orders without notice to users at the Karnataka High Court. The Union government has pitched amending safe harbour as a way to get platforms to be more proactive in governing their sites, not just for what they deem to be misinformation, but for AI-generated deepfakes, cyberfrauds and so on. In the U.S., both former President Joe Biden and current President Donald Trump have taken aim at Section 230 for different reasons — Mr. Biden’s White House sought to weaken safe harbour protections as a way to make platforms more liable for extremist content, and Mr. Trump for the alleged silencing of conservative voices.

The Ministry of Electronics and Information Technology has indicated that it would draft a Digital India Act (DIA) that would incorporate these changes, but the outlines of how safe harbour would change under this proposed law have not yet been revealed. Moreover, no DIA draft law has been released yet.

RIGHT TO KNOW

The Supreme Court of India order on May 9, setting aside the Delhi High Court order directing the Wikimedia Foundation to take down a page on its Wikipedia Internet encyclopaedia, is notable for several reasons. In October 2024, a single judge of the High Court had issued the interim order after Wikipedia users floated a new page detailing the defamation case and a discussion forum in which some users commented adversely on the single judge’s order, construing these actions to be in contempt. After a Division Bench upheld the order, the Foundation moved the Court. Subsequently, the Bench of Justices Abhay S. Oka and Ujjal Bhuyan observed that “[e]very important issue needs to be vigorously debated by the people and the press, even if the issue of debate is sub judice before a court” and that the High Court had overreacted to adverse comments of its take-down order in the forum. The Bench’s order was limited to the Foundation’s appeal



over the legality of the take-down order, following on from a similar one in April to set aside an order to remove allegedly defamatory edits on ANI's Wikipedia page. Yet the order is also clear that the right to know is a basic right under Articles 19(1)(a) and 21, casting the case against the Foundation in a light that may have eluded the High Court. While discussing the presumption of contempt, Justices Oka and Bhuyan noted that the right to know controls the people's ability to participate in public development and to access justice.

Since ANI's suit continues, the High Court may consider applying the value of the right to know to the question of the Foundation's intermediary status under the Information Technology Act. The Foundation only avails the technical infrastructure to Wikipedia users, who then operate according to a set of guidelines to maintain the encyclopaedia. The setup allows users to act independently even as the guidelines are clear that Wikipedia will only collect and organise information from other sources, and not develop new theses of its own. Thus, the Foundation caters to the people's right to know by protecting users against reprisals by the aggrieved powerful and by enhancing the quality of their contributions through the platform's democratic apparatus. The right to know and the right to freedom of expression should be upheld before the Supreme Court is involved in each case. As the Justices invoked former Chief Justice of India D.Y. Chandrachud quoting Jeremy Bentham to say: "publicity about courtroom proceedings ... keeps the judge himself, while trying, under trial."

DOES ARTICLE 21 INCLUDE RIGHT TO DIGITAL ACCESS?

The story so far:

On April 30, the Supreme Court (SC) directed revisions to Know-Your-Customer (KYC) digital norms to ensure accessibility for 'persons with disabilities' (PwD), reinterpreting Article 21 of the Constitution to encompass the 'right to digital access'.

What laws safeguard rights of PwD?

The Constitution, through its Preamble, Fundamental Rights, and Directive Principles, alongside disability statutes, obligates the state to adapt laws, policies, and infrastructure which allow PwDs to exercise their rights on par with others. Advancing these guarantees and giving effect to the Convention on the Rights of Persons with Disabilities (UNCRPD), India enacted the Rights of Persons with Disabilities (RPwD) Act, 2016, which adopted a 'social-barrier' approach that defines disability as arising from impairments, along with physical, mental, intellectual, social, and psycho-social obstacles which make full participation in society difficult.

Crucially, Section 42 of the RPwD Act, 2016, mandates 'government measures' to ensure that all audio, print, and electronic media are accessible; that electronic media includes audio description, sign-language interpretation, and captions; and that everyday electronic goods and equipment follow 'universal-design' principles.

Are KYC details mandatory?

To curb illegal finance and money laundering, the Prevention of Money-laundering Act, 2002 (and its 2005 Rules) mandates every bank and financial institution to verify client identities, maintain comprehensive records, and report relevant information to the Financial Intelligence Unit. Consequently, digital KYC verification has become indispensable for a wide range of essential services — from opening a bank, demat or trading account to accessing SIM cards, pension



schemes or insurance policies. It also unlocks government benefits — from national scholarships to Aadhaar-linked ‘direct benefit transfers’.

Building on this mandate, the RBI’s 2016 Master Direction on Know Your Customer (KYC) rules prescribe a Customer Due Diligence (CDD) framework and, via Clause 18, introduces Video-based Customer Identification Process (V-CIP), enabling remote customer verification through secure, real-time video interaction. Customers can prove their identity online by clicking a selfie; signing on a paper physically or digitally; printing and rescanning, or clicking a photo of the filled-in form; verifying OTPs in 30 seconds; and reading a random code flashed on the screen.

How does it affect PwDs?

Acid-attack survivors left with permanent ‘facial disfigurement’ and severe eye burns — and individuals with complete blindness or low vision — have filed writ petitions seeking directions to respondents, including RBI, the Department of Telecommunications and SEBI, to devise alternative digital KYC, e-KYC and video-KYC methods to make remote identity checks inclusive for all PwDs as they face significant hurdles under the current framework.

Currently, each ‘regulated entity’ has to devise its own tests. Methods such as eye-blinking, reading a flashing code, or writing it down and taking a selfie exclude blind users. Despite clear mandates in the 2021 and 2022 Information and Communication Technology (ICT) Accessibility Standards, most KYC apps and websites flout them — there is no screen-reader prompt for camera alignment, no audio cues for lighting or focus, and no way to differentiate document sides during upload. Additionally, thumb impressions, commonly used by visually impaired users, are not accepted as valid signatures, nor are PAN cards issued with them. Aadhaar-based biometric systems worsen the exclusion. Scanners and interfaces lack basic ‘accessibility’ features such as ‘text-to-speech’ or ‘self-verification’. As a result, blind applicants are frequently asked to appear in person or are rejected on vague technical grounds. The RBI’s Master Directions also bar any form of ‘prompting’ during KYC verification, leaving users without assistance.

How has the SC intervened?

The SC has consistently held that accessibility for PwDs is a ‘constitutional imperative’. In *Rajive Raturi versus Union of India* (2024), it ruled that ‘accessibility’ is central to the right to life, dignity, and freedom of movement under Article 21. During the COVID-19 vaccination drive, the court emphasised that digital registration must be fully accessible to prevent exclusion. In the instant case, the top court held that ‘digital barriers’ blatantly violate the rights of PwD under the UNCRPD and India’s disability laws. Anchoring its judgment in the principle of ‘substantive equality’, it directed that digital KYC guidelines be revised with ‘accessibility’ at their core. It flagged that the digital divide affects not just PwDs, but rural users, senior citizens, the economically disadvantaged, and linguistic minorities.

Relying on Articles 14, 15, 21, and 38, the court affirmed that ‘digital access’ is inseparable from the ‘right to life and liberty’. It mandated the state to ensure that all digital infrastructure is accessible, especially for marginalised communities.

GREEN CONSERVATION KEY TO DEVELOPMENT: SC ENDS RETROSPECTIVE APPROVAL

UNDERLINING THAT environment conservation is key to development, the Supreme Court Friday struck down and held as “illegal” a 2017 Ministry of Environment notification that allowed grant of environmental clearance (EC) to projects ex-post facto i.e., after commencement of work. It also

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



struck down a 2021 Office Memorandum (OM) issued by the Ministry in pursuance of the 2017 notification.

— A bench of Justices A S Oka and Ujjal Bhuyan also restrained the Centre from issuing circulars/ orders/ OM/ notifications providing for grant of ex-post facto EC or for regularising acts done in contravention of the 2006 Environment Impact Assessment (EIA) notification.

— The Supreme Court, however, clarified that environmental clearances already granted till date under the 2017 notification and the 2021 office memorandum “shall...remain unaffected.”

— The 2017 notification had offered a one-time amnesty window of sorts, and allowed approvals for projects where work had commenced without obtaining prior environment clearance under the 2006 EIA notification.

— The 2017 amnesty was applicable for six months between March 2017 and September 2017. In 2021, citing compliance of a National Green Tribunal order, the Ministry issued an OM spelling out a Standard Operating Procedure (SOP) “for dealing with violation cases”.

— “The 2021 OM seeks to protect the violations of the EIA notification which have taken place or continue to take place 15 years after the EIA notification came into force. Thus, the 2021 OM seeks to protect violators who have acted with full knowledge of consequences of violating the EIA notification,” the court said.

— The SC said, “Under Article 21 of the Constitution of India, the right to live in a pollution-free environment is guaranteed. In fact, the 1986 Act has been enacted to give effect to this fundamental right. In 1977, fundamental duties of all citizens were incorporated in the Constitution which enjoined every citizen of India to protect and improve the environment as provided in Clause (g) of Article 51A. Therefore, even the Centre has a duty to protect and improve the natural environment.”

Do You Know:

Legal framework for forest conservation

— The legal framework on forest conservation in India has evolved from both pre-independence and post-independence laws. The Indian Forest Act of 1927 is the foundational legislation that classifies and regulates the use of forests without defining it. It enables/allows the government to prepare the record of forest land.

— It was enacted to strengthen the colonial power on the Indian forests, restricting the rights of tribal communities and ignoring the conservation aspect of forest governance. After independence, the subject of the forest was placed under the State List of the Constitution, which led to the over-exploitation of forests by the state and rapidly declining forest cover.

— To control the situation, the 42nd Amendment to the Constitution in 1976 transferred the forest from the State List to the Concurrent list. This move of the government was strengthened by the Forest Conservation Act (FCA) of 1980 (amended and renamed in 2023 as Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980), which made the approval of the central government mandatory for diverting forest land for non-forestry purposes.



— The FCA was supplemented by the Wild Life Protection Act of 1973, the Environment Protection Act of 1986, the Biological Diversity Act of 2002, The Forest Rights Act of 2006, and The Compensatory Afforestation Act of 2006.

RESTORE FOREST NEAR HYDERABAD UNIVERSITY OR HAVE OFFICERS SENT TO JAIL, SC TELLS TELANGANA

The Supreme Court Thursday slammed the Telangana government for deforestation in the Kancha Gachibowli area in Hyderabad, saying it appeared to be “pre-planned” and that the state should decide whether it wants to restore the greenery or have its officers sent to jail.

- The Supreme Court was hearing a suo motu case initiated after the Telangana government began large-scale felling of trees at a 400-acre parcel of land in Kancha Gachibowli village near the University of Hyderabad (UoH) to build IT parks. On March 30, the state government sent at least 50 earthmovers to the UoH campus to clear the forested land for auction.
- On being told that the state, in its counter affidavit, had not proposed any plan to restore the area but had instead defended itself, the CJI Thursday said, “If you want the chief secretary and half a dozen officers to shift to a temporary prison, we can do that... We are always advocates of sustainable development, the question here is felling of 1,000 trees, taking wrong advantage of the long vacation (used for deforestation).”
- On April 3, the Supreme Court directed the Telangana government to stop its “alarming deforestation activities” in the Kancha Gachibowli forested area. The apex court in earlier hearings had warned state officials of contempt of court proceedings. It had also asked the Telangana wildlife warden to take immediate steps to protect wildlife affected by the deforestation and sought a reply from the state to the spot inspection report by the court-appointed Central Empowered Committee (CEC).

Do You Know:

- The global standard for “forest” is provided by the Food and Agriculture Organisation (FAO) of the United Nations: at least 1 hectare of land with a minimum of 10% per cent tree canopy cover. While the FAO does not include areas “predominantly under agriculture or urban land use” in a forest, India counts all 1-hectare plots with 10% canopy cover “irrespective of land use” as forest. The FSI is not the only one looking at India’s forest cover. Over the years, several independent studies have reported significant loss of forests in India. According to Global Forest Watch, a World Resources Institute platform, India lost 1,270 sq km of natural forest between 2010 and 2021.
- Kancha Gachibowli is one of Hyderabad’s last remaining urban forests. It is rich in biodiversity, home to numerous bird, mammal and reptile species, and beautiful rock formations. Protests against the government’s decision to auction the land off stem from the need to preserve existing carbon sinks in the city. Urban forests such as Kancha Gachibowli help regulate local climates by providing shade, reducing temperatures, and increasing humidity.
- For the government, the forest lies bang in the middle of Hyderabad’s Financial District. Auctioning the land would not only fill government coffers, but also attract potential investments of Rs 50,000 crore, and generate as many as 5 lakh jobs, the government says. Notably, the Gachibowli IT corridor is one of the most expensive localities in Hyderabad, boasting extremely high property rates.



- Although the 400 acres in question were a part of the 2,300 acre parcel allotted to the UoH when it was established in 1974, legally, the state government is the sole owner of the entire land. Over the years, it has allocated pockets of land from this 2,300 acres for various purposes: constructing a bus depot, a telephone exchange, a IIIT campus, the Gachibowli sports stadium, a shooting range, etc.
- The disputed 400 acres were handed over by the then united Andhra Pradesh government to a private sports management firm in 2003, only to be reclaimed in 2006 due to non-use. This triggered a lengthy legal battle, which eventually saw the SC reiterate that the Telangana government was the sole owner of the land. But the 400 acres have never been demarcated. Nor has it been notified as a forest, even though it is a part of the UoH's larger forest ecosystem. This is at the heart of the current issue.
- Students and activists protesting against the Telangana government cite the SC's landmark verdict in T N Godavarman Thirumulpad v Union of India (1996). The apex court had held that any land with forest cover qualifies as "forest land", even if the land is not notified as a forest.
- On March 30, the government sent at least 50 earthmovers to the UoH campus to begin clear the forested land for auction. The east campus was barricaded to keep students out. This triggered massive protests in the campus. As many as 53 students were detained, and two others were arrested and remanded in judicial custody. Several students were injured. The Students' Union declared an indefinite strike even as the earthmovers continued with their work.

RESTORED FAITH

Justice, if not unduly delayed, restores public faith in due process and the criminal justice system. The recent verdict in the Pollachi sexual assault case, where a Coimbatore Mahila Court convicted all nine accused and sentenced them to life imprisonment for the remainder of their natural lives, is a significant step in this regard. More so, because the entire case originated from a single plea for help from a young victim, which helped expose the involvement of multiple tentacles of a body of criminals. In February 2019, a 19-year-old college student reported to the Pollachi East police that four men had sexually assaulted her in a car near Pollachi 12 days earlier. The ensuing investigation revealed this complaint to be just the tip of the iceberg. As in the Prajwal Revanna case in Karnataka, the seizure of digital devices unveiled the full scope of the atrocities. Since 2016, a group of young men had been systematically preying on vulnerable young women, from disadvantaged groups, filming the assaults, and using these videos for further exploitation. The sheer depravity uncovered shocked the State's collective conscience. Public outrage intensified with the exposure of the accused's political connections. One was identified as the All India Anna Dravida Munnetra Kazhagam (AIADMK) Pollachi town students' wing secretary (later expelled), while another, involved in an assault on the survivor's brother, held a local secretary position in Amma Peravai, an AIADMK-affiliated youth organisation. Faced with mounting public pressure, the State government initially transferred the investigation to the Crime Branch-CID and subsequently to the Central Bureau of Investigation.

Mahila Court Judge R. Nandhini Devi also directed the State government to provide a total compensation of ₹85 lakh to the survivors. The judge concurred with the prosecution's argument that the perpetrators had exploited their financial resources, physical power, political influence, and the incriminating videos to silence the survivors and perpetrate repeated assaults. She emphasised that she was clear that the judgment should "reflect the public abhorrence of the crime". As elections approach, politicians must resist the temptation to politicise this judgment,



which not only delivered satisfactory justice but also challenged the misuse of political and financial clout. To foster a genuine feeling of security, the government must now assure its citizens an environment free from exploitation.

TOP COURT SEEKS EXPERT OPINION ON BLOOD DONATION BAR ON TRANS PERSONS

The Supreme Court Wednesday asked the Centre to seek expert opinion on the bar on transgender people and gay persons from donating blood, pointing out that it could lead to stigma.

- The National Blood Transfusion Council's guidelines say that trans people, gay persons and sex workers, among others, are "at risk" for HIV and Hepatitis B or C infections.
- The bench of Justices Surya Kant and N K Singh was hearing a plea challenging the guidelines.
- "Aren't we creating a kind of segregated group? By these methods, stigma, biases and prejudices are all enhanced," Justice Singh told Additional Solicitor General Aishwarya Bhati, who was appearing for the government.
- Justice Singh said: "What is worrying me... are we going to brand all transgenders as risky and thus indirectly stigmatise these communities? Unless you can show with some medical evidence there is some kind of link between transgenders and these diseases. You can't say all transgenders are involved in these kinds of activities, even normal persons engage in such activities..." ASG Bhati said: "If such donations are on a one to one basis, there's no difficulty. For example, relative, family member or a friend. This is blood that will go to the blood bank."
- The law officer said there is an application for intervention by Thalassemia patients. "They are completely dependent on donated blood. If your lordships look at it from the perspective of the public health requirement of the nation and the reality of the nation, you will appreciate that the purpose is not to identify or stigmatise anyone in any manner, it is to take the best possible scientific and medical evidence that is available today...". She added that the decision was borne out of scientific temper.

Do You Know:

- The governing body of NBTC, in its 26th meeting on June 1, 2017, approved the Guidelines to bring in a Blood Transfusion Service which offers a "safe, sufficient and timely supply of blood and blood components to those in need." The guidelines were designed to promote best practices in Blood Transfusion Services to ensure donations from the "lowest risk donors possible".
- In the present case, clauses 12 and 51 of the Guidelines are being challenged as "violative of Articles 14, 15 and 21 of the Constitution of India to the extent they exclude transgender persons, men having sex with men and female sex workers from being blood donors".
- Clause 12 of the Guidelines is titled 'Risk Behavior' falls under the "Blood Donor Selection Criteria", and mandates that the donor be free from any determinable disease transmissible by blood transfusion and "not be a person considered at risk for HIV, Hepatitis B or C infections", such as transgender and gay people, female sex workers, injecting drug users, persons with multiple sexual partners or any other high risk, determined by the medical officer deciding their fitness for blood donation.



- Further, Clause 15 permanently defers those “at risk for HIV infection”, including gay and transgender people, from donating blood. Permanent deferral refers to blood donors who will never be allowed to donate blood.

SHOULD NOTA BE INCLUDED IN ALL ELECTIONS COMPULSORILY?

The story so far:

Recently, the Vidhi Centre for Legal Policy filed a Public Interest Litigation (PIL) for including NOTA as an option compulsorily in every election, even if there is only one single candidate.

When was NOTA introduced?

NOTA or the ‘None of the Above’ option was introduced in Indian elections for the first time in 2013 on the PIL filed by the People’s Union for Civil Liberties which sought a mechanism to “recognise the right of a voter not to vote, but still the secrecy of his having not voted is not maintained in its implementation...”

Is NOTA relevant in Indian elections?

It is true that not many voters have opted for NOTA during the last national election and the other subsequent State-level elections. However, not holding an election in a constituency because there is only one candidate, would mean denying voters the chance of expressing their opinion (through NOTA) against that single candidate who will anyhow get elected unopposed. The Election Commission (EC) has argued against NOTA stating that it has not brought in the desired results as not many voters have opted for NOTA in past elections. But one should not forget that NOTA is a way through which our electoral system can become more responsive to people.

What is the EC’s argument?

The EC is completely opposed to the idea of making NOTA a compulsory option in all constituencies even if there is only one candidate contesting the election. The Election Commission presented data that in all the Lok Sabha elections held since 1971, there have been only six uncontested elections. Another data point cited by the EC was that since 1952, there have been only nine cases of candidates getting elected unopposed. The EC’s lawyer said that, “the chance of election being uncontested has become a rarity which is also proven by statistical data; hence Supreme Court should not even entertain such a PIL”. They went on to argue that “treating NOTA as mandatorily contesting candidate in all direct uncontested elections does not find a place in the statues and same would require legislative amendments in the provisions of Representation of the People Act 1951, and the conduct of Election Rules 1961”.

Since it is such a rarity, the EC should not have its hands full. If the EC can conduct elections in such a large number of constituencies given its resources, holding elections in constituencies, with a NOTA option, even if there is only one candidate, should not amount to a lot of additional work.

Are NOTA voters a minority?

It is true that looking in terms of per cent only little more than 1% of voters, voted for NOTA in the three Lok Sabha elections (2014, 2019 and 2024) held since NOTA was introduced. But given the size of the electorate in one Parliamentary constituency, each having on an average about 25 lakh voters, even these numbers are not small. There are many State assembly elections where little more than 1% opted for NOTA over the last decade, the highest being in Bihar with 2.48%



during the 2015 Assembly election, followed by Gujarat with 1.8% during the 2017 Assembly elections. If one looks at the NOTA votes over the years in different States, one sees that it was slightly higher in the very first election held in the State after NOTA was introduced but declined in subsequent elections, although the trend is not linear.

What next?

Some reforms are needed. One can be by fixing the minimum per cent of votes to be polled by the candidate as a benchmark for getting elected depending upon the size of the constituency. The other method could be by giving legitimacy to NOTA votes and voters, by making a provision for re-election if certain percentage of voters opt for NOTA in an election.

ISSUE OF DUPLICATION OF EPIC NUMBERS RESOLVED, SAYS ELECTION COMMISSION

The Election Commission (EC) on Tuesday said it had resolved the long-pending problem of duplication of voter ID card numbers and issued fresh elector photo identity cards (EPIC) to those who faced the issue.

The 10-digit EPIC number is issued by the EC to each elector. The number is a unique alphanumeric code assigned to each registered elector to prevent impersonation.

West Bengal Chief Minister Mamata Banerjee had earlier alleged that multiple voters in the State had the same EPIC number. The Congress too had raised the issue.

EC sources said that in order to resolve the problem of duplication of numbers, the entire database of over 99 crore electors was searched by the Chief Electoral Officers (CEO) of all the 36 States and Union Territories and electoral registration officers of all the 4,123 Assembly constituencies in all the 10.5 lakh polling stations. It was found that on average, about one voter in four polling stations faced the issue of EPIC number duplication, they added. There are nearly 1,000 electors per polling station.

“During the field-level verification, it was found that holders of such similar EPIC numbers were genuine electors in different Assembly constituencies and different polling stations. All such electors have since been issued new EPICs with new numbers,” a senior official of the EC told The Hindu.

Flagging the issue of EPIC number duplication in West Bengal on February 27, Ms. Banerjee alleged that the ruling BJP at the Centre, “with the blessings of Election Commission of India”, was including voters from other States in the West Bengal voters’ list.

Two days later, the EC said that irrespective of the EPIC number, a person can cast vote only once at their designated polling stations in their respective constituencies in their States or Union Territories. It had said that it would remove the duplication and ensure that each voter gets a unique EPIC number.

The Trinamool, however, rejected the EC clarification saying it was a “cover-up” and it was impossible for voters in two different constituencies to have the same EPIC number, citing the panel’s own handbook.

**‘Will not impact results’**

Every voter’s name is on the electoral roll of the polling station where she is an ordinary resident. Having similar EPIC numbers never enabled any such person to vote at any other polling station. Thus, the issue of duplication of EPIC numbers could not have impacted the results of any elections, it said.

PM SHRI: WHY KERALA WILL TAKE CENTRE TO THE SC

The Kerala government has decided to approach the Supreme Court against the Centre’s decision to withhold the release of Rs 1,500 crore to the state under various centrally sponsored education schemes, according to Kerala’s Education Minister V Sivankutty. He has alleged that the funds have been withheld as Kerala has stayed away from adopting the Centre’s flagship PM Schools for Rising India (PM SHRI) scheme.

- CPI(M)-led Kerala government has opposed the PM SHRI scheme mainly because it is part of the NEP 2020. The government sees NEP as a tool for the saffronisation of education in the country. Moreover, it also argues that the PM SHRI scheme will bring the state schools under the control of the Centre.
- The Kerala government has said that it has already implemented many elements of the PM SHRI scheme. For instance, on the infrastructure front, Kerala schools, both government and aided ones, have made major progress over the last nine years. The state already has 40,000 smart classrooms in numerous schools, which have a broadband connection.
- The Kerala government has said the Centre has withheld release of Rs 1,500 crore aid to the state education sector since 2023-24, primarily under the Samagra Shiksha Abhiyan scheme (SSA) — an Indian government scheme designed to ensure universal elementary education (UEE) for children aged 6 to 14.

Do You Know:

- PM SHRI is a scheme under the Union Ministry of School Education and Literacy. It aims to upgrade more than 14,500 existing schools across the country, and transform them into model institutions that embody the spirit of the National Education Policy (NEP) 2020.
- The scheme “is to be implemented as a Centrally Sponsored Scheme with a total project cost of Rs 27360 crore which includes a central share of Rs 18128 crore for the period of five years from year 2022-23 to 2026-27,” according to a September 2022 press release by the Centre. States will bear 40% of the project expenditure, like any other Centre scheme.
- So far, 12,400 schools from primary level to higher secondary, in 670 districts across the country, have become part of the scheme.
- However, schools under state boards in Kerala, Tamil Nadu and West Bengal have not been part of the scheme. That’s because these states have refused to sign a memorandum of understanding (MoU) with the Union School Education Ministry to implement the PM SHRI scheme.



THE EDUCATIONAL LANDSCAPE, ITS DISCONCERTING SHIFT

Education has historically been regarded as the cornerstone of societal advancement — a realm where critical thinking, free inquiry, and the pursuit of knowledge could flourish. At its best, higher education had always cultivated intellectual independence, nurtured dissent, and inspired progress across disciplines and societies. The boundaries of human understanding were continually pushed through unfettered dialogue and academic exploration.

Yet, in recent decades, the educational landscape, especially within universities, has undergone a profound and disconcerting shift. Institutions once celebrated for fostering independent thought now appear increasingly constrained by bureaucratic controls, external mandates, and ideological gatekeeping. Rather than serving as laboratories of innovation and resistance, the Canadian thinker, H.A. Giroux, sees universities becoming engines of conformity, prioritising managerial efficiency and market alignment over academic freedom and intellectual integrity. Indoctrination, intimidation and intolerance become the central ingredients of education.

From independence to centralisation

A particularly disquieting development in this decline is the unyielding centralisation of academic curricula. In the past, universities enjoyed considerable autonomy to craft syllabi tailored to their students' needs, faculty expertise, and the shifting contours of intellectual inquiry. Today, however, this independence is steadily eroding. Centralised agencies — be they governmental bodies such as the University Grants Commission (UGC) or frameworks such as the National Education Policy (NEP) — increasingly dictate the structure and content of academic programmes. These prescriptions are often influenced not by academic merit or pedagogical philosophy, but by economic agendas or partisan leanings.

The UGC, originally intended to coordinate academic standards, has mutated into an instrument of control. It dictates appointments, interferes in administration, and shapes curricula, often with scant regard for academic judgement, thereby becoming the long arm of a state increasingly intolerant of independent or critical thinking. Let us be clear: this is not about standards — it is about submission. Under the guise of regulation, the UGC has eroded the autonomy of Indian universities to the point of extinction. The promise of self-governance has been replaced with bureaucratic tutelage. An institution that is stripped of autonomy in faculty selection, research direction, and protection of dissent ceases to be a university in any meaningful sense.

The consequences of this centralisation are far-reaching. It undercuts not only academic autonomy but also produces compliant drones, regiments intellectual discourse, and marginalises alternative perspectives. When syllabi are standardised across regions and institutions, the intellectual ecosystem becomes monolithic — devoid of diversity, nuance, or radical innovation. This intellectual flattening not only stifles creativity but also discourages the interrogation of dominant narratives and received assumptions.

Pressures on the academic climate

Historically, campuses have played a vital role in catalysing social change — whether in anti-colonial movements, civil rights struggles, or pro-democracy uprisings. By exerting control over what is taught and how it is taught, policymakers and administrators ensure that universities remain compliant rather than confrontational. Suppressing critical perspectives ensures that higher education does not produce citizens who question authority or imagine alternatives to the



status quo. Take, for instance, a research scholar who gives a reference to Noam Chomsky's views on the decline of democracy or talks about nationalism and human rights. There is every chance that the student and his supervisor will be reprimanded by the state, a preposterous intervention indeed.

Take, for instance, the resurgence of reactionary politics that has led to increasing interference in academic affairs. Scholars whose work critiques systemic injustice, discriminatory politics, corporate exploitation, or nationalist rhetoric often find themselves marginalised, defunded, or even expelled or deported. Entire disciplines, especially in the social sciences and humanities, are being defunded or dismissed as politically awkward.

Such pressures have had an unsettling effect on academic life. Teachers, wary of professional reprisals, begin to engage in self-censorship. Controversial research topics are sidestepped not out of disinterest, but out of fear. Students, too, internalise this climate of caution, refraining from engaging critically with contentious issues, apprehensive about academic penalties, peer backlash, or threats to their future careers. The outcome is a smothering intellectual climate where fear of dissent trumps inquiry, and conformity is mistaken for collective wisdom, resulting in the decline of public intellectuals.

This erosion of academic freedom is compounded by the increasing corporatisation of higher education. Universities are no longer viewed as public institutions dedicated to knowledge and social advancement. Instead, they are treated as businesses, expected to generate profit, attract investment, and enhance their brand image. The logic of the market now governs the priorities of educational institutions, reshaping both what is taught and why it is taught. The corporate corruption of higher education and the wrecking of the university is indeed apparent.

Consequently, disciplines that promise immediate financial returns — such as technology, business, and engineering — receive substantial funding and institutional support. Meanwhile, fields that emphasise critical thought, ethical reflection and historical understanding — such as philosophy, literature, and the arts — are sidelined as unproductive or irrelevant. The value of education is thus reduced to its marketability, and knowledge becomes a commodity to be consumed rather than a pursuit to be cherished.

It is often seen that faculty members are not immune to these pressures. Academic faculty are increasingly subject to performative pressures, evaluated through metrics such as publication counts and student satisfaction ratings. The proliferation of global university rankings exacerbates this issue, prioritising conformity to western norms and standardised metrics over indigenous intellectual traditions and context-specific inquiry. This regime incentivises strategic branding and replication of external models, rather than genuine academic innovation.

Academic governance as a concern

This shift has also altered the structure and the ethos of academic governance. University leadership, it is now proposed, can comprise administrators drawn from corporate backgrounds rather than only academic. These individuals will, understandably, bring with them a managerial mindset that privileges efficiency, quantifiable outputs, and brand visibility over scholarly rigour and pedagogical richness. Furthermore, the appointment of Vice Chancellors from non-academic fields compromises the collegial culture of universities, disconnecting decision-making from teaching and research realities.



Visibly, the prevailing trend of appointing academics lacking intellectual engagement with literature and social issues raises concerns about ideological biases influencing leadership selections. To address this, universities should prioritise appointments grounded in the intellectual ethos of liberal arts and sciences, ensuring that selection procedures are rigorous and objective.

The crisis of education has, therefore, at its core, a crisis of imagination. The university must at all costs be preserved as a sanctuary of intellectual freedom, where merit is not the casualty. Failure to do so imperils not only education but also the very idea of democracy. By reclaiming the university's essence, we restore the transformative potential of knowledge, rather than reducing it to mere transaction.

ITI UPSCALING PROJECT: PLUGGING THE SKILL GAP

Traditional workshops are today giving way to manufacturing units that demand digital fluency, competency in data analysis, AI and robotics-related skills and the ability to work with climate-friendly engineering technologies. However, for at least a decade, surveys and reports have been flagging the skill deficits of the Indian workforce. Only a small fraction of graduates from the Industrial Training Institutes (ITI) get placed in the cutting-edge economy. The deficit also means that a large section of the youth lacks avenues and support systems to realise its potential. The government's move to overhaul ITIs was, therefore, long overdue. Last week, the Union Cabinet approved the National Scheme for Industrial Training Institute Upgradation and sanctioned the setting up of five National Skilling Training Institutes (NSTI). The Rs 60,000-crore scheme aims to forge links between the technical education ecosystem and industry.

Established shortly after Independence, ITIs were intended to serve as vocational training centres for the emerging industrial sector. Today, India has close to 15,000 such institutes. Nearly 80 per cent of them came up after 2006-2007 when the National Council for Vocational Training relaxed rules, leading to a mushrooming of private ITIs. However, abetted by a faulty monitoring system, many flouted even the most basic norms. Audits conducted by the Directorate General of Training revealed that accreditation was granted to ITIs even while they were under construction or lacked basic safety measures. The government's move to restrict the new programme to 1,000 ITIs could streamline the system.

Twenty lakh youth will be skilled in the revamped ITIs over five years. By conservative estimates, this would cater to about a fifth of the human capital needs of industry. The ITI upscaling project should, therefore, be seen as a beginning. Several experts have argued that the task of schooling professionals for the smart economy is too enormous to be left to government alone. A tenth of the new programme's costs will be borne by the private sector, which has been accorded a more active role in designing courses and training faculty. The government must nudge industry towards enhancing its engagement with skill development.

PUMPED HYDROPOWER PROJECT IN NILGIRIS GETS PRELIMINARY APPROVAL

An expert panel of the Ministry of Environment, Forest and Climate Change has granted preliminary permissions to carry out an environmental impact assessment (EIA) study for a proposed 1,000 MW Upper Bhavani pumped hydropower project in the Nilgiri Hills, located in the ecologically fragile Western Ghats.



- Developed by NTPC Tamil Nadu Energy Company Limited, a joint venture of National Thermal Power Corporation Limited and Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO), the pumped hydropower or pumped storage project aims to harness the waters of the Upper Bhavani Dam and Avalanche-Emerald reservoirs in the Nilgiris to generate 1,000 MW of power.
- The project will require 167.85 hectares of land, of which 56.35 hectares is forest land, while 111.50 hectares is non-forest land, and it is located within a 1 km distance from Mukurthi National Park. The national park is known for the flagship Nilgiri Tahr, an endangered species endemic to this part of the Western Ghats.
- The ministry's expert appraisal committee (EAC) on river valley and hydroelectric projects – one of the 11 sectoral panels that scrutinise projects before granting prior environmental clearances – granted the preliminary approval on April 15, minutes of the meeting show.
- The preliminary permission, technically known as a grant of terms of reference (ToR), spells out the scope of an EIA study and forms the basis for a public hearing and the eventual environmental clearance.
- While granting the ToR, the EAC has specified that the company should assess the project's impact on aquatic and terrestrial ecosystems, and noted in its minutes that a site visit shall be carried out by a subcommittee before granting final environmental clearance.
- The EAC granted the preliminary permission even though it had in February expressed concerns regarding the "ecological and environmental sensitivity of the region, emphasising that it forms part of the Western Ghats, a globally recognised biodiversity hotspot". Given the area's rich biodiversity and fragile ecosystem, the EAC had stressed on conducting comprehensive environmental assessments and had asked the developers to find alternative sites.

Do You Know:

- Pumped storage or pumped hydropower projects typically involve the utilisation of the elevation difference between two large reservoirs, one at a higher elevation and the other at a lower elevation. Water is pumped up from the lower reservoir and released back through turbines to generate electricity. Central and state governments have promoted pumped hydropower projects as part of India's plans to achieve its non-fossil fuel energy targets.
- TANGEDCO has also proposed the Kundah and Sillahalla pumped hydro projects in the Nilgiris, and the latter has faced protests by locals for the environmental harm it may potentially cause in the region.
- Earlier in October, the Centre's EAC on river valley and hydroelectric projects had expressed concern about another pumped hydropower project proposed in the Western Ghats in Maharashtra. It had noted that 15 such projects had been granted ToRs or preliminary permissions in the Western Ghats and that site visits would be important to make project-specific assessments before granting final environmental clearances.



HOW DID INDIA DEVELOP GENOME EDITED RICE?

The story so far:

Union Agriculture Minister Shivraj Singh Chouhan recently announced that India has become the first country in the world to develop rice varieties using genome editing technology. The new seeds will be available for farmers after the required clearances within six months and large-scale seed production will probably take place during the next three crop seasons.

What are the new varieties?

A team of researchers from various institutions, guided by the Indian Council of Agricultural Research (ICAR), were behind the development of the two varieties — the DRR Dhan 100, also known as Kamala, which was developed from a popular high yielding green rice Samba Mahsuri, and Pusa DST Rice 1, which was developed from the Maruteru 1010 (MTU1010) variety.

What are its peculiarities?

According to the ICAR, the increase in food demand, challenges posed by climate change and increasing biotic and abiotic stresses such as pest attacks and scarcity of water, led to the development of high yielding, climate resilient and nutritionally rich crop varieties. Kamala has shown superior yield, drought tolerance, high nitrogen use efficiency and 20 days earliness over its parent variety. It has an average yield of 5.37 tonnes per hectare against the 4.5 tonnes per hectare of Samba Mahsuri across two years and 25 locations of testing in the country. "The earliness trait will help in saving water, fertilizers, and reduced emission of methane," the ICAR said. The second variety, Pusa DST Rice 1, has a yield of 3,508 kilograms per hectare (a capacity of 9.66% more) over the parent rice variety, MTU 1010, which has an average yield of 3,199 kg per hectare under 'inland salinity stress'. It also showed a superiority of 14.66% over the MTU 1010 under alkalinity conditions, and a 30.4% yield advantage under coastal salinity stress.

What was the technology used?

According to Joint Director (Research), Indian Agricultural Research Institute, Viswanathan. C, scientists have used Site-Directed Nuclease 1 and Site-Directed Nuclease 2 (SDN-1 and SDN-2) genome editing techniques to develop the seeds. Though this technique was used to develop different crops since 2001, such as tomatoes, a fish variety in Japan and a soybean variety in the U.S., making a rice variety has been done for the first time. In 2020, the first peer-reviewed research paper on Pusa DST Rice 1 was published, which got cited in more than 300 papers since then. The paper on Kamala is in the stage of publication. "The international research community has approved both the varieties," Dr. Viswanathan said.

Are they GM crops?

Dr. Viswanathan says that since the genome editing technology SDN-3 is not involved in this process, they are not genetically modified (GM) crops. In the SDN-1 approach, scientists make a cut and the repair is done automatically while in SDN-2, scientists give guidance to the cell to do the repair and the cell copies it. In SDN-3, however, scientists introduce a foreign gene from other varieties and integrate it into the improved varieties. This process is considered as genetic modification. In this case, the mutant was developed without any foreign gene and mutation occurred through natural process. This is a precision mutation technique and several countries have exempted this process from the regulations required for developing GM crops. "No foreign



gene is there in these crops, only the native gene is there in the final product,” Dr. Viswanathan said. A team of scientists from various governmental institutions were part of this research. It was tested in the fields under the All India Coordinated Research Project on Rice during 2023 and 2024.

What are the objections?

Venugopal Badaravada, who was a farmers’ representative in the ICAR governing body said that the ICAR’s genome-edited rice claims are premature and misleading. A day after the announcement he said in a statement that farmers demand accountability, transparent data, and technologies that are tested in our fields — not just polished press releases. He was expelled from the governing body soon after this and the ICAR accused Mr. Badaravada of spreading falsehoods about the institution. The Coalition for a Genetically Modified-Free India, a group of activists who are fighting a case against GM crops in the Supreme Court, said the biotech industry and lobbies have resorted to falsely portraying gene editing as a precise and safe technology, whereas published scientific papers show that this is untrue. “India’s de-regulation of two kinds of gene editing is outright illegal,” the organisation said. They claimed that gene editing tools are proprietary technologies under Intellectual Property Rights (IPR) ownership and have a direct bearing on the seed sovereignty of the country’s farming community. “The Government of India has to reveal the situation with regard to IPRs on the released varieties transparently, immediately. The Government of India is compromising on farmers’ seed sovereignty and our food sovereignty by bringing in technologies entangled in IPR issues,” they said.

SCIENTISTS CREATE FIRST ‘PANGENOME’ OF ASIAN RICE

Scientists have assembled a first of its kind ‘pangenome’, a kind of reference genome, by stitching together key parts of genomes from 144 varieties of wild and cultivated varieties of rice from Asia. Much like the Human Genome Project in 2003 mapped genomes from a range of individuals, expressing the genetic diversity of the human species, the rice pangenome allows researchers to develop new rice cultivars and introduce new traits for disease-tolerance as well as resilience against climate shocks.

Rice is a staple for nearly two-thirds of the globe. It is the primary crop grown in India over the monsoon months of June-September. In 2024-25, India produced a record 220 million tonnes of rice over 51,000 ha with an average yield of 4.2 tonnes/ha. Several studies over the years have warned that rising temperatures due to climate change would not only affect yields but also increase arsenic uptake among several rice varieties. India’s average temperature has increased by 0.7° C since 1901. 2024 was the hottest year on record, with the average minimum temperature 0.9° C above the long-term average.

Earlier this month, the Indian Council of Agricultural Research (ICAR) announced the development of two varieties of genome-edited rice, Samba Mahsuri and MTU 1010, that reportedly promise higher yields and better drought resistance. These, however, are yet to be released into farmer fields.

To develop the pangenome, the scientists — nearly all associated with the Chinese Academy of Sciences — report undertaking a “deep analysis of complex gene flows” both within cultivars (domesticated) and between cultivars and wild rice, highlighting the evolutionary and domestication pathways of various rice types. This study reinforced support for the hypothesis



that all Asian cultivated rice had an evolutionary origin from a wild variety called Or-IIIa, the ancestor of japonica.

Asian cultivated rice (*Oryza sativa* L.) was domesticated from its wild progenitor *O. rufipogon*, and is one of the most important food crops in the world. Or-IIIa is a variant of *O. rufipogon*.

While reference genomes of a species generally confine themselves to identifying the characteristic genes that make up a species, a 'pangenome' has the common genes as well as maps out the unique genes found in the individual rice varieties. It presents a more complete understanding of the genetic variation present in rice.

Primarily using 'PacBio high-fidelity' (HiFi) sequencing technology and computational methods, their analysis revealed 3.87 billion base pairs of novel genetic sequences absent from the single acknowledged reference genome, *O. sativa ssp japonica*.

They identified 69,531 genes collectively spanning the pangenome, with 28,907 core genes and 13,728 wild-rice-specific genes.

Population genetics studies have earlier shown that ancient japonica rice was first domesticated from the *O. rufipogon* group IIIa (Or-IIIa) population in China, and that indica rice was subsequently domesticated when ancient japonica spread southward and westward in Asia and crossed with the local *O. rufipogon* group I (Or-I) population.

Another key finding of the study was that of the 69,531 genes identified, about 20% were specific to wild rice. These genetic resources can improve understanding of rice environmental adaptation, phenotypic plasticity and regeneration potential. "By bridging the gap between wild and cultivated rice genetics, our study opens new avenues and provides useful wild rice resources for developing superior and more productive rice varieties," the authors note.

"These improved varieties could incorporate valuable traits from wild rice species, potentially enhancing their resilience to rapid environmental changes."

TOTAL FERTILITY RATE IN INDIA REMAINS AT 2.0; BIHAR RECORDS HIGHEST COUNT, BENGAL LOWEST

The Total Fertility Rate (TFR), the average number of children born to women over their lifetime, in the country has remained at 2.0 in 2021, the same as in 2020, shows the Sample Registration System (SRS) report for 2021 released by the Registrar-General of India (RGI) on May 7.

Bihar reported the highest TFR at 3.0, while Delhi and West Bengal reported the lowest of 1.4.

The report said there had been a gradual decline in the share of population in the age group of 0-14 from 41.2% in 1971 to 24.8% in 2021. The "proportion of the economically active population between 15-59 years has increased from 53.4% to 66.2% during the same period", the report said.

The population has gone up from 5.3% to 5.9% for the 65-plus age group and 6% to 9% for the 60-plus age group.

During the 2024 interim Budget, Union Finance Minister Nirmala Sitharaman had announced a high-power committee to consider the challenges arising from "population growth and demographic changes."



Though the committee is yet to be formed, the announcement suggested there has been “fast” population growth in the country, however the SRS data says otherwise.

A comprehensive pattern will emerge after the Census is conducted, pending since 2021 and which was last conducted in 2011.

As Census is usually counted every 10 years, the SRS is the largest demographic survey in the country mandated to provide annual estimates of fertility and mortality indicators at the State and national level.

The survey was conducted in 8,842 sample units across all States, covering about 84 lakh sample population.

Elderly population

Kerala recorded the highest percentage of population in the age group of 60 and above with 14.4% of the total population falling under this category.

Tamil Nadu 12.9% and Himachal Pradesh 12.3% are the other two States with the highest percentage of elderly population, the report said.

On the other hand, Bihar 6.9%, Assam 7% and Delhi 7.1% have the lowest percentage of the population in the age group of 60 and above.

The mean age at effective marriage for females has increased from 19.3 years in 1990 to 22.5 years in 2021.

“It is noteworthy that the replacement level TFR, viz. 2.1, has been attained at the national level, along with Delhi 1.4, West Bengal 1.4, Tamil Nadu 1.5, Andhra Pradesh 1.5, Jammu and Kashmir 1.5, Kerala 1.5, Maharashtra 1.5, Punjab 1.5, Himachal Pradesh 1.6, Telangana 1.6, Karnataka 1.6, Odisha 1.8, Uttarakhand 1.8, Gujarat 2.0, Haryana 2.0 and Assam 2.1,” the report said.

RAISING HEALTHY HEARTS: REIMAGINING SCHOOL NUTRITION TO TACKLE CHILDHOOD HYPERTENSION

It is easy to think of high blood pressure as something that happens later in life. But in India, that assumption is starting to look dangerously outdated. More and more children are being diagnosed with elevated blood pressure, and many of them do not even know it. It is not until adolescence or adulthood that the signs become too loud to ignore.

The numbers tell a worrying story. The Comprehensive National Nutrition Survey (CNNS) from 2016–18 found that 7.3% of Indian adolescents had hypertensive blood pressure levels. That number climbs to 9.1% in urban areas. Then there is the National Family Health Survey-5 (NFHS-5), which shows that 12% of teens aged 15–19 already have elevated blood pressure. These are not isolated cases. This is a trend. And it points to one very clear takeaway: if we want to tackle hypertension, we have to start early. Really early.

There are a few things feeding into this trend — rising childhood obesity, less physical activity, and a lifestyle that has shifted indoors and online. But if we had to name the biggest culprit, it would probably be the food our children are eating.



Walk into any grocery store or school canteen, and the reality hits you. Processed snacks that promise flavour and convenience in seconds. And they are taking a toll. On average, Indian adolescents are consuming more than 8 grams of salt a day. That is almost double the World Health Organization's recommended limit for adults. Most of it comes from packaged snacks, fast foods, and street-side treats that are heavy on salt and low on nutrition.

Over time, children develop a preference for these hyper-palatable foods, while their tolerance for healthier options drops. They create habits, and those habits are forming early.

India's mid-day meal scheme (PM POSHAN) can become a pathway to break these habits early. As of 2025, the scheme now feeds approximately 120 million children across over 1.27 million schools, making it the largest school meal programme globally.

As the programme scales, there's an opportunity to evolve beyond basic nutrition. Can these meals also be a gateway to healthier food habits and greater food literacy? For many children, these meals are not just their main source of nourishment but also their first exposure to structured eating.

What if the next phase of PM POSHAN combined nutritional targets with efforts to cultivate a more joyful, educational relationship with food? Could we introduce regionally-inspired menus, fresh produce, or even involve students in food preparation and learning?

For inspiration, we can look to Japan, where the concept of ShoKuiku, food education, is woven into school life. Children help plan meals, learn where their food comes from, and serve lunch to their classmates. They study nutrition and food origins. It is a simple yet powerful approach, which helps children understand how to make better choices. And the results speak for themselves: lower rates of childhood obesity and a healthier relationship with eating. If Japan seems too far removed from India's realities, consider Vietnam. Their Ministry of Education teamed up with Ajinomoto to improve school lunches by adapting the ShoKuiku model in 2012.

We need to bring that same ambition into our schools. We can do this by elevating PM POSHAN scheme into a food-literacy engine, and reshaping habits, palates, and minds.

DRINKING TO DEATH

Often described in media reports as "hooch tragedies" or "spurious liquor cases", the recurring incidents of illicit alcohol poisoning across India — most recently near Amritsar, Punjab, which claimed at least 23 lives — follow a grimly familiar pattern of poverty, greed, and regulatory failure. Each tragedy is eerily similar to the previous one, be it in terms of the socio-economic profile of the victims or the motivation of the perpetrators. The victims are typically poor, daily wage earners, seeking respite from the harsh realities of everyday drudgery. They are drawn by the lure of cheap alcohol, a vulnerability exploited by bootleggers, who are at the fag end of a long supply chain. These illicit brews often involve dangerous shortcuts, from incorporating toxic substances such as dead scorpions to diluting industrial methanol, a poisonous chemical that is deceptively similar to consumable ethanol. Methanol, easily pilfered and inexpensive, becomes a deadly profit source for bootleggers who may misjudge dilution ratios, leading to fatal consequences. The nexus among bootleggers, the police, and lower-level politicians is often apparent. While police negligence in Punjab has led to suspensions, these events are more about organised methanol theft in which the bootlegger is only the last mile operator. Methanol is not a drink; it is industrial alcohol, an intermediary in the petrochemical industry with extensive



downstream use, and is, therefore, not illicit, except as an ingredient in hooch. It is categorised as a Class B poison in many States, but is cheaper than the liquor made biologically, mostly from molasses. After paying for the pilferage from authorised methanol dealers, bootleggers can still make a handsome profit.

Legal proceedings in illicit liquor cases often involve murder and attempted murder charges, besides those under prohibition laws. Yet convictions, as seen in the 2015 Malvani case, can be elusive. A court acquitted 10 of the 14 accused after nine years. None was found guilty of violating the Poison Act. Since methanol production and delivery are inter-State affairs, there is a case for a central framework on methanol transport for preventing such pilferage as well as stringent State regulation. The Poison Act may add teeth to the prosecution's case. But what is more important is to ensure that the lawmaker-enforcer dyad is incorruptible so that illegal methanol distribution is impossible. Eventually though, it is the sorry economic, social and educational situation of victims that creates a market for unscrupulous agents to make money. This can only be eradicated by tackling poverty, social inequality, and the lack of access to education alongside systemic corruption within law enforcement.

A BELATED ADMISSION

It has been four years since the delta variant of the SARS-CoV-2 virus hit India. The country bore the brunt of the pandemic's devastating impact, with harrowing scenes of overwhelmed health-care systems, oxygen-supply shortages and even bodies floating in the Ganga in Uttar Pradesh. Reports based on data sourced from the Civil Registration System through RTIs and other means, by The Hindu in particular, besides independent surveys, showed that the toll was clearly staggering and in millions, much more than the official tally. The government's response was defensive and dismissive; the attempt was to consistently undermine the findings. After maintaining that the reported number of COVID-19 deaths during this period was accurate, the government, through the Registrar General of India, released a report last week that showed that there were 21.5 lakh excess deaths in 2021 as against 3.32 lakh reported COVID-19 deaths. During a pandemic, the bulk of these excess deaths must have been related to the effects of the disease. Besides, lockdown restrictions had resulted in lower fatalities due to causes such as road accidents. The high number of excess deaths was estimated by The Hindu's calculations to be nearly 6.5 times more than the reported deaths. The fact that this multiple was even higher for Gujarat (44.2), Madhya Pradesh (19.5), Uttar Pradesh (19.5) and Telangana (18.2) suggests that COVID-19 deaths were under-reported significantly in 2021. These were largely due to the fact that deaths due to comorbidities were perhaps not considered as COVID-19 deaths or because those numbers were suppressed in order to paint a rosier picture of the government's response to the pandemic.

The nearly four-year delay in releasing this report, alongside the Sample Registration System Report for 2021, reveals the Union government's reluctance to comprehensively assess the pandemic's true impact and its casual approach to publishing critical demographic data. This reluctance in publishing timely information coincides with the fact that India's civil registration system that tracks births and deaths has become more robust over time with most States reporting the bulk of the deaths that occur, either in institutions such as hospitals or at homes. In some States, this reporting happens with a lag when compared to others, but it is encouraging that registration levels are getting better. But medical certification of the causes of the deaths still remains low when compared to other developing countries such as Brazil. A robust maintenance of registration and certification records is important for public health tools. The delay in release



of vital data defeats the purpose of the improvements made in civil registration. Data delayed is also data denied.

INDIA'S COUGH SYRUP CRACKDOWN — WHAT PROMPTED IT AND WHAT FOLLOWS

Last month, the Central government restricted the use of a common cold drug combination for children under the age of four, and also asked manufacturers to include a warning on the label, in package insert or the promotional literature of these drugs.

This fixed drug combination (FDC), present in several popular brands of cough syrups for children, consists of chlorpheniramine maleate and phenylephrine hydrochloride. While chlorpheniramine is an antihistamine, used to relieve allergy-like conditions such as a runny nose, watery eyes and sneezing, phenylephrine is a decongestant that works by narrowing small blood vessels, providing temporary relief from inflammation.

In a gazette notification issued on April 15, the Union Ministry of Health stated that this FDC was likely to involve risk to children below four years of age and safer alternatives to this drug are available. The matter was examined by a Subject Expert Committee, following which the restrictions were imposed.

“Phenylephrine, which is a decongestant, can also have effects on heart beat and blood pressure. These effects are unpredictable in young children and hence, there has been concern about the use of the drug in this age group,” he said.

Paediatricians pointed out that second-generation antihistamines such as cetirizine and fexofenadine were safer alternatives.

WHY ARE TEMPERATURES RISING IN A.P. AND TELANGANA?

The story so far:

On May 12, 17 districts of Andhra Pradesh recorded temperatures above 41°C, with the A.P. State Disaster Management Authority saying heatwave-like conditions are set to prevail in the northern districts of Srikakulam, Vizianagaram, Paravathipuram-Manyam, East Godavari, and Kakinada. Mercury levels surged past the 40°C mark across all 33 districts of Telangana on April 21. Situated on the eastern side of the Deccan plateau in south India, Andhra Pradesh and Telangana feature regularly on the list of Indian States most prone to heatwaves during the summer.

How does the geographical location of the States affect the weather?

Latitudinally, both Andhra Pradesh and Telangana fall under the Tropic of Cancer. This puts the States in the Torrid (or tropical) Zone — a region characterised by its hot and humid weather. “Both A.P. and Telangana are near the Tropic of Cancer, therefore the sun is vertically above these States during summer months, leading to increased solar radiation and heating,” Mahesh Palawat, Vice President, Meteorology and climate Change at Skymet, told The Hindu. Moreover, Telangana is a landlocked State with no major water bodies nearby to moderate temperatures. As a result, it experiences a continental climate, where temperatures can rise sharply during the day. This is also true for interior districts of Andhra Pradesh. According to Mr. Palawat, most parts of Telangana lie on the rocky terrain of the Deccan plateau with black soil, which absorbs more heat, causing temperatures to spike.



“Land surface, terrain and green cover make a lot of difference to the temperature of an area,” Vimal Mishra, professor at IIT Gandhinagar, told The Hindu. “If you compare these States to regions which are under intensive agriculture or have dense forests, those areas are much cooler due to evaporative cooling,” he said. Evaporative cooling is a process that leads to a reduction in temperature of the surroundings as water evaporates. In drier climates, when water evaporates, it takes up heat from the surroundings as its source of energy to convert to vapour, thus cooling the surroundings. “The terrain of Telangana and Andhra Pradesh is rocky and there isn’t much agriculture during summer at least, and effect of irrigation is minimal,” Dr. Mishra said. He also said that there is ample research to show that irrigation makes a lot of difference to summer air temperatures; that it can suppress heatwaves. “Irrigation involves using water on land surface, which is stored as soil moisture. During high temperatures in summer, evaporation from soil and transpiration from plants causes evaporative cooling in the area, reducing the intensity of heatwaves,” Dr. Mishra said. The rocky terrain of Andhra Pradesh and Telangana does not allow for this phenomenon to be pronounced enough for it to make a difference in temperatures.

Lack of sufficient rainfall is another factor that leads to high summer temperatures in both States. “Between March and May, these States don’t get enough rainfall to cool down the temperatures. Monsoon reaches here after June 10. This causes less cloud cover and more sunshine, hence leading to higher temperatures,” Mr. Palawat said. Loss of forest cover also leads to reduction in evapotranspiration.

What should be done?

According to Dr. Mishra, the absence of early warnings forecast system based on hourly observations is one of the biggest challenges to mitigating heatwaves. “The India Meteorological Department has started working in this area, but lot of progress is still to be made.”

Understanding the risk is the first step towards mitigating the impact of heatwaves, which should be followed by differentiating districts based on dry heat and humid heat, Dr. Mishra said.

HOW IS KERALA HANDLING ITS WASTE PROBLEM?

The story so far:

Since October 2, 2024, Kerala has been aggressively advocating its latest campaign — ‘Vruthi’. Meaning cleanliness of the body and mind, this campaign has involved everyone from all levels, from the Chief Minister and Malayalam film stars to school children, local self-government representatives, bureaucrats, and sanitation workers. In a five-day conclave, titled ‘Vruthi 2025: The Clean Kerala Conclave’ held at Thiruvananthapuram recently, in which around 25,000 people participated, it was stated by the Local Self-Government Minister that the State had reached formidable success in waste collection from houses — around 75% of houses have been reached, which was just 40% till a year back.

Why was this campaign necessary?

The State of Kerala has achieved a certain standard of hygiene, thanks to the various developmental factors associated with the State in the course of history.

In the early days, the waste generated from consumption (mostly organic) would mostly be put to use in the backyard of the same house (for example, as manure). However, post liberalisation, the materiality of production and consumption changed significantly. Kerala, being a rapidly



urbanising society, both spatially and temporally, where the share of agriculture in the State's GDP is less than 10%, consumer behaviour also changed exponentially to market-driven products. The materiality of these new products led to a situation where, not only did the waste generated increase manifold, it also could not be disposed of or absorbed in the backyard. Hence, it started spreading within neighbourhoods and localities.

A senior bureaucrat, who is part of the Kerala Solid Waste Management Project (KSWMP), stated that during the UPSC interview, the foremost issue that she said she wanted to resolve, being head of the district, was waste management. While this was over a decade ago, she observed that this continues to be the foremost issue that many UPSC aspirants want to tackle. It is against this background that collective voices have now started emerging.

It is also to be noted that the basic principles of urban planning in the 17th and 18th centuries emerged and evolved due to a health epidemic — the plague in England. Health continues to be an important driver for urban reforms and hence, the Vruthi campaign is the need of the hour.

What is being done?

When the State government realised that the spirit of personal hygiene had not translated into clean and hygienic public spaces, a high-decibel campaign along with strategic and context-specific interventions was planned by local governments to make Kerala garbage-free. The campaign was titled 'Malinya Muktham Nava Keralam' (waste-free Kerala), connecting all key stakeholders and agencies working in the domain of waste management.

Recent episodes of the drowning of a corporation sanitary worker in the Amayizhanjan canal at Thiruvananthapuram, along with increasing dog bites, and frequent outbreaks of Zoonotic diseases in the State, has brought all levels of administration and various sectoral agencies to engage and collaborate with their respective local self-governments. The need for clean and hygienic public spaces was understood as an imperative for healthy living in the State.

While the Kerala government mobilised all key stakeholders, the larger civil society also helped in unlocking many unexplored pathways for this endeavour. These included strengthening the Haritha Karmasena, local government functionaries, locality-based campaigns, art and cultural activities, encouraging a competitive approach within local governments to achieve a 100% garbage-free status, and engaging children, youth, schools, colleges and various voluntary groups.

How is it different from the Swachh Bharat Mission?

The Swachh Bharat Mission (SBM) 1.0 and 2.0 are top-to-bottom mission modes for both rural and urban India. The SBM follows a framework where people at the top level decide how many toilets should be built, how many sewage treatment plants should be constructed, how many waste treatment plants should be sanctioned etc. It was and continues to be a supply-driven chain where cities try to fit themselves in that particular framework.

The Malinya Muktham Nava Keralam campaign, on the other hand, is primarily for behavioural change, where massive participation of the people is needed and ensured through various exercises. Moreover, the Vruthi conclave was not speaking the language of a particular technology and was thus technology neutral. It gave importance mainly to decentralised solutions, while also giving back some positive features of centralised solutions. From the 'Black Soldier Fly' to 'Windrow Composting', the conclave was a platform for cities to customise themselves and decide what solutions are best adapted to them.



Are centralised or decentralised solutions better?

Moving away from the binary of centralised and decentralised form of governance in managing waste, the conclave emphasised lessons learnt from both the successes and failures of centralised and decentralised solutions. There are stories where centralised solutions were a great success — for example, the Guruvayur Municipality's waste treatment. However, it was the mismanagement of centralised systems that led to the failure of waste management initiatives in Kochi, as was evident in the infamous Brahmapuram fires of 2023. Likewise, the successes of decentralised solutions were also discussed. It was stated that this year there has been a phenomenal jump in allocation from the State government to local self-governments for waste management. However, the same could not be effectively deployed owing to huge gaps in their capacities. The Kerala Urban Policy Commission has recommended that professionalisation of services is a key driver for attaining success in urban governance, including waste management.

What lies ahead?

As of now, while there is a visible change, the pattern continues to be linear. The current campaign is driven by the State government owing to the reasons discussed above. The moment the State government withdraws from it, will the trajectory continue in the same direction? This is a question that needs to be evaluated.

Additionally, Extended Producer Responsibility (EPR) laws need to be strengthened in the country. These laws shift the responsibility of managing a product's waste to the producer, rather than the local government or consumer.

There is also a need to break the current inertia in society; a behavioural change is of utmost importance. 'My waste, my responsibility', is the current slogan coined by the State and this should reach down to every level of governance and structures, including families.

Is building collectives important?

People's collectives have been built at various levels. This would include institutions such as schools, business enterprises, residents' welfare associations, workers' associations etc. Such collectives need to be brought on board the campaign for it to succeed effectively.

Kerala has consistently ranked first in the country on indices relating to human and sustainable development and is currently at crossroads on managing its waste. The way in which it would manage its waste problem, with an open mind and drawing on a large canvas, incorporating worldwide changes, will pave the way for a cleaner and healthier Kerala, which can be a shining model of a new age urban society, not just for the State but for the entire country.

STORY OF A SACRED JHARKHAND HILL AT THE CENTRE OF OLD FRICTION BETWEEN JAINS & SANTALS

The Jharkhand High Court on May 3 directed the state government to enforce a pre-existing ban on the consumption and sale of meat, alcohol, and other intoxicants on a hill considered to be sacred by both the Santal Adivasi and Jain communities.

— Referred to as Marang Buru by Santals and Parasnath by Jains, the hill in Jharkhand's Giridih district has been the site of a century-old inter-community conflict.



— Jains believe that 20 of the 24 Jain tirthankaras (divine teachers) attained nirvana (liberation) on Parasnath Hill. The name “Parasnath” is derived from Parshvanatha, the 23rd tirthankara. Today, there are more than 40 Jain temples and dhams on the hill.

— Marang Buru (literally “the Great Mountain”) is the supreme animist deity in the Santal tradition. The Jug Jaher Than (sacred grove) on the hill is the most sacred dhorom garh (religious site) of the Santals, akin to what Mecca means for Muslims. Also significant is the Dishom Manjhi Than on the hill, the symbolic seat of the dishom manjhi (the traditional Santal leader) where customary rituals are performed.

— Its religious significance aside, Marang Buru is the supreme seat of justice for Santals. The Lo Bir Baisi, a tribal council that resolves disputes which cannot be handled at the village level, convenes at Boda Darha in Sohraiya village, on the eastern part of the sacred mountain.

— It was with a resolution of this council that the historic Santal Hul was launched in 1855. Led by Sidhu and Kanhu Murmu, the rebellion targeted the oppressive dikus, literally “outsiders”, including zamindars, mahajans, and British officials.

— Jains believe that an ancient king donated the Parasnath Hill to the community. But revenue department official P C Roy Choudhury in the 1957 Hazaribagh District Gazetteer wrote that “the oldest of the [Jain] temples appears to date only from AD 1765.”

— It was in 1911 that the conflict between Adivasis and Jains over Marang Buru/Parasnath officially entered state records.

— This account describes the Sendra festival which has been a frequent flash point in the Santal-Jain conflict over the hill. During the three-day-long Sendra, all male members of the Santal community head into the forest to hunt. “It’s a rebirth for Santal men. Either die or hunt to survive,” Arjun Marandi, a community elder, told The Indian Express.

— For Jains, who follow a rigorous spiritually-motivated vegetarian diet, Sendra has long caused consternation. But initial attempts to ban hunting on the hill were unsuccessful.

— Continuing pressure from dikus and concerns regarding India’s depleting forests gradually eroded Adivasi rights over the hill post-Independence.

— In 1972, the year in which the Indira Gandhi government passed the Wildlife Protection Act, Adivasi villages around Marang Buru lost their status under the Fifth Schedule of the Constitution.

— Areas included in the Fifth Schedule give Scheduled Tribes certain special rights with regards to administration and control of resources. The forested area on and around the hill was designated as a wildlife sanctuary in 1978, which further reduced Adivasi rights over it.

— As a result, rituals at the Jug Jaher Than in Marang Buru were halted from the 1970s to 2000, the year Jharkhand attained statehood. Ajay Tudu, a prominent Santali activist who led the movement for the resumption of Adivasi rituals at Marang Buru, was shot dead by unknown assailants in 2008.

— Most recently, a 2023 memorandum by the Ministry of Environment, Forest and Climate Change ordered that no alcohol or meat be served within a 25 km radius of the hill — an area encompassing 99, mostly Adivasi, villages — out of respect for the sentiments of the Jain community.



— Nonetheless, earlier this week, Santals celebrated the Sendra festival in the jungles of Marang Buru. The Marang Buru Sanvta Susaar Baisi (MBSSB), a local Santal association led by Sikandar Hembrom, has also filed a counter-petition asserting Santals' traditional rights over the hill.

Do You Know:

Santhal Rebellion: On June 30, 1855, over 10,000 Santhals were mobilised by their leaders — Kanho Murmu, Chand Murmu, Bhairab Murmu, and Sidho Murmu – to revolt against the East India Company over oppression by revenue officials, zamindars, and corrupt moneylenders. The landmark event in tribal history, referred to as Santhal Hul, took place in Bhognadih village in present-day Jharkhand.

SIKKIM DAY

— Sikkim Day is annually celebrated on May 16, recalling the history of the former kingdom's integration with India in 1975.

— **History:** The kingdom of Sikkim was established in 1642, when, according to one account, three Tibetan lamas consecrated Phuntsong Namgyal as the first ruler or Chogyal of Sikkim. The monarchy of the Namgyal dynasty was maintained for the next 333 years, until its integration with India in 1975.

— Sikkim signed a formal protectorate with the British through the Treaty of Tumlong in 1861, meaning the British had control over it, but it was not officially under their rule, and the Chogyals could continue holding onto power.

— Other official treaties followed: The treaty of Titaliya in 1817 gave the British authorities a number of commercial and political advantages in Sikkim. The Calcutta Convention of 1890 demarcated the border between Sikkim and Tibet and was signed by Viceroy Lord Lansdowne and Qing China's Imperial Associate Resident in Tibet. The Lhasa Convention of 1904 affirmed the Calcutta Convention.

— In 1950, the Indo-Sikkim Treaty was signed, making Sikkim an Indian protectorate. It would not be sovereign, as India controlled its defence, external affairs and strategic communications.

— Anti-monarchy protests grew in Sikkim in 1973, where the monarch was left with no choice but to ask New Delhi to send assistance. This led to the signing of a tripartite agreement between the chogyal, the Indian government, and three major political parties, so that major political reforms could be introduced.

— A year later, in 1974, elections were held, where the Sikkim Congress, led by Kazi Dorji won. A referendum was held in Sikkim in 1975, where two-thirds of eligible voters took part. Here, 59,637 votes were cast in favour of abolishing the monarchy and joining India, with 1,496 voting against.

— Within a week, India's Ministry of External Affairs introduced the Constitution (Thirty-Sixth Amendment) Bill in the Lok Sabha to recognise Sikkim as a state in the Union of India. This was passed in the Parliament and assented to by President Fakhruddin Ali Ahmed, coming into effect on May 16, 1975.



WITH A NEW POPE, AN UNDERSTANDING OF CATHOLICISM IN INDIA

Upon the passing of Pope Francis, Chicago-born Cardinal Robert Francis Prevost was elected to succeed him as Pope Leo XIV.

The conclave to elect the new pontiff began on May 7. The election of the Pope takes place through an electoral college composed of Cardinals from around the world. This time, the electoral college included 135 Cardinals from 70 countries, with four Cardinals from India, the country's highest-ever tally.

Among all Christian denominations, Catholics comprise the largest population, forming 15.9% of the global population and a large share of the Indian Christian population as well. The Vatican is a spiritual symbol for this denomination. In this context, this is an analysis of the Catholic denomination, its religious behaviour, and its demographic share among Indian Christians.

According to data from the PEW Research Center, about 37% of Christians in India are Catholic, 17.9% are Baptist, 9.5% are Presbyterian, and 24.3% belong to other denominations. About 10% of Christians do not affiliate with any denomination.

The distribution of Catholics among Christian social groups:

Nearly 75% of general category Christians, 16.8% of Scheduled Caste Christians, 23.7% of Christian tribal people, 55.5% of Other Backward Classes Christians, and 23.5% of Christians from the Most Backward Classes are Catholic.

Though the majority of Indian Catholics belong to upper castes, for the first time, a Dalit, Anthony Poola, the Archbishop of Hyderabad, was among the four Indian cardinals who voted for the new Pope. He was appointed as a cardinal in 2022 by Pope Francis.

A majority of the Christian population in Nagaland and Mizoram is Catholic. In Meghalaya, it is 90.8% and in Goa, it is 58.7%.

Within Christianity, Catholics exhibit a comparatively softer attitude towards religion than Presbyterians and Christians who do not affiliate with any denomination. Even Baptists and Christians from other denominations are stricter than Catholics when it comes to opposing inter-religious marriages. Catholics tend to have higher literacy levels compared to members of all other Christian denominations except Presbyterians.

SHORT NEWS

WHY SOVIET-ERA SPACECRAFT, LAUNCHED 53 YEARS AGO, CRASHED BACK TO EARTH

A Fragment of a Soviet spacecraft launched more than 50 years ago crashed in the Indian Ocean, west of Jakarta, Indonesia, on Saturday. No injuries or damage were reported. The part, which was from the Kosmos 482 mission, was supposed to land on Venus but could not due to a malfunction in the spacecraft. Most parts of the probe, launched on March 31, 1972, came back to Earth within 10 years of liftoff. Only one section, weighing more than 495 kg ended up stuck in space, in an ever-reducing orbit around Earth. Till the very end, scientists did not know exactly when and where this piece would crash.



PUSHKAR KUMBH

- The Pushkar Kumbh has begun at Keshav Prayag, located in the border village of Mana in Chamoli district, after 12 years.
- According to religious tradition, when the planet Jupiter enters the Gemini sign once in 12 years, the Pushkar Kumbh is held at Keshav Prayag, the confluence of the Alaknanda and Saraswati rivers in Mana village.
- This event is primarily attended by devotees of the Vaishnavite tradition from South India.

INDIA SEMICONDUCTOR MISSION

- The Union Cabinet has approved a joint venture between HCL and Foxconn to set up a chip assembly and packaging unit in Uttar Pradesh, making it the sixth project to receive approval under the government's ambitious Rs 76,000 crore India Semiconductor Mission.
- The Semicon India Programme, with a total outlay of Rs 76,000 crore, was approved in 2022 with a total outlay of INR 76,000 crore for the development of the semiconductor and display manufacturing ecosystem in our country.
- It is a strategic initiative undertaken by the government of India to promote the domestic semiconductor industry. Its goal is to improve semiconductor design and manufacturing capabilities domestically and to encourage innovation, employment, and economic growth.
- India Semiconductor Mission (ISM) has been setup as an Independent Business Division within Digital India Corporation having administrative and financial autonomy to formulate and drive India's long term strategies for developing semiconductors and display manufacturing facilities and semiconductor design ecosystem.
- ISM is the nodal agency for efficient, coherent and smooth implementation of the schemes under the Semicon India Programme.

PROHIBITION OF ATTACKS AGAINST NUCLEAR INSTALLATIONS AND FACILITIES

- This agreement was signed between India and Pakistan on December 31, 1988, and entered into force on January 27, 1991.
- It provides that India and Pakistan inform each other of the nuclear installations and facilities to be covered under this Agreement on January 1 of every calendar year.
- On January 1, 2025, too, India and Pakistan had exchanged, through diplomatic channels, the list of "nuclear installations and facilities. This was the 34th consecutive exchange of such lists between the two countries, the first one having taken place on January 1, 1992.

ISRO'S 101ST SPACE MISSION

- The Indian Space Research Organisation's (ISRO) 101st satellite launch failed in the early hours of May 18. The Earth observation satellite EOS-09 was aboard the PSLV-C61 (Polar Satellite Launch Vehicle).



— This was the 63rd PSLV launch. Since their introduction in the 1990s, PSLVs have only failed twice – the first during the inaugural flight in 1993 and in 2017, when the C-39 mission was unsuccessful.

— ISRO has three main types of launchers: the PSLV, the Geosynchronous Satellite Launch Vehicle (GSLV), and the Geosynchronous Satellite Launch Vehicle Mk-III (LVM3). Variants are chosen based on the payload weights and the orbit they are to reach.

— The EOS-09 satellite carried a Synthetic Aperture Radar (SAR) payload, capable of providing images of the Earth in all weather conditions.

CHANDRAYAAN-5 – LUPEX

— The Chandrayaan-5 mission, weighing 6.5 tonnes, is proposed to lift off on a Japanese rocket, H3, sometime in 2027-28. Indian and Japanese space agencies will soon commence the preliminary design phase of the lander and the rover.

— Chandrayaan-5, also known as LUPEX (Lunar Polar Exploration), is a joint project between ISRO and JAXA to study water and water-ice both on the lunar surface and the subsurface.

— ISRO is developing Chandrayaan-5's lander, whereas JAXA is building the 350-kg rover. There will be seven scientific instruments onboard, some contributed by the European Space Agency (ESA) and NASA. ESA is developing the mass spectrometer and NASA the neutron spectrometers — both are currently in the design phase

— Using the rover, JAXA teams plan to trace areas on the Moon with presence of water, sample the nearby soil or regolith by drilling into the surface. The onboard instruments will measure the water content and its quality and perform other in-situ observations.

— Spectrometers are specialised scientific instruments that aid in performing in-situ (at the site) experiments requiring calculation of the energy and mass of samples. These experiments help understand the evolution of the composition of hydrogen and other elements.

— The proposed Chandrayaan-4 mission will be a return sample mission: samples dug from the Moon will be brought to Earth for ISRO to study the mineral composition of the lunar surface.

RARE-EARTH MAGNETS

— China has imposed new restrictions on rare-earth magnets and related materials as a direct response to US tariffs imposed on April 4, now it has started impacting the EV markets in India.

— Rare earth magnets, especially neodymium-iron-boron (NdFeB) magnets, are crucial for EV manufacturing, particularly in electric motors. They provide the strong magnetic fields needed for efficient and powerful electric motors, including traction motors that drive EVs.

CAQM ISSUES 19-POINT DIRECTIVES TO ELIMINATE STUBBLE FARMING

— The Commission for Air Quality Management (CAQM) is tasked with formulating air pollution control strategies in the National Capital Region (NCR) and adjoining areas.



— According to an order issued by the Commission for Air Quality Management (CAQM), a new “Parali Protection Force” to patrol fields once dark and a common fixed price for paddy straw are among the 19-point steps that Punjab, Haryana, and Uttar Pradesh must take to fully eliminate stubble burning this year.

— The Parali Protection Force — made up of police, agriculture, and civic officers — is to “closely monitor, oversee and guard” against stubble burning incidents.

The Commission for Air Quality Management in NCR and Adjoining Areas (CAQM) was constituted through the CAQM Act, 2021, which came into force in the same year on April 13. The air quality monitoring body is tasked with better coordination, research, identification, and resolution of problems surrounding the air quality index and related matters in NCR and adjoining areas.

It has the power to take measures, issue directions, and entertain complaints to protect and improve the air quality in the region.

ONSET OF MONSOON

— The India Meteorological Department (IMD) on Tuesday(13th May) announced the onset of the Southwest Monsoon over some areas of the Bay of Bengal and Andaman Sea.

— The Southwest Monsoon is the chief rainy season for the country. Over 70 per cent of the country receives the majority of its annual rainfall during the June to September season.

— Every year, the monsoon winds first arrive over the Andaman Sea and the Bay of Bengal around the third week of May and further progress into mainland India.

DR AJAY KUMAR

— Dr Ajay Kumar is appointed as the new UPSC chairperson. He succeeds Preeti Sudan, whose tenure ended on April 29, 2025.

— Dr Ajay Kumar, a 1985-batch IAS officer of the Kerala cadre, has served as India’s Defence Secretary from August 23, 2019, to October 31, 2022, before being appointed as the UPSC chairperson.

— Article 316 of the Constitution provides for the appointment of the Chairman and other members of a Public Service Commission shall be appointed, in the case of the Union Commission or a Joint Commission, by the President, and in the case of a State Commission, by the Governor of the State.

— A member of a Public Service Commission shall hold office for a term of six years from the date on which he enters upon his office or until he attains, in the case of the Union Commission, the age of sixty-five years, and in the case of a State Commission or a Joint Commission, the age of sixty-two years, whichever is earlier

ANITA ANAND

— Anita Anand on Wednesday (May 14) became the first Hindu woman to be sworn in as Canada’s Minister of Foreign Affairs.



— In 2019, she became the first Hindu woman to serve as a Member of Canada's Parliament, and the first Hindu to become a Cabinet Minister.

— Since then, she has served the public in several capacities. In 2021, she became the second woman ever to become Canada's Defence Minister.

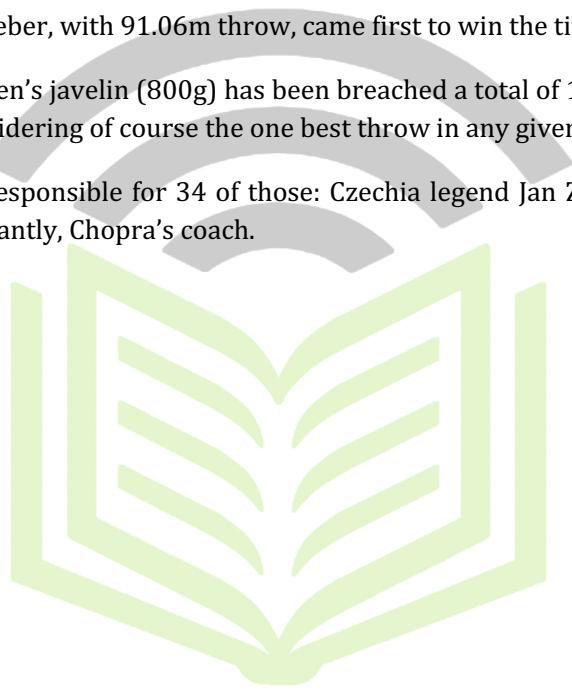
DOHA DIAMOND LEAGUE

— At the Doha leg of the Diamond League, Neeraj Chopra breached the elusive 90m frontier with a 90.23m throw to finish second in the league. He became the third Asian and 25th man in history to achieve the feat.

— Germany's Julian Weber, with 91.06m throw, came first to win the title.

— The 90m mark in men's javelin (800g) has been breached a total of 129 times in history by 26 different athletes, considering of course the one best throw in any given event.

— One man alone is responsible for 34 of those: Czechia legend Jan Zelezny, the world record holder and, more relevantly, Chopra's coach.



DreamIAS



BUSINESS & ECONOMICS

WHY US & CHINA HAVE AGREED TO TEMPORARILY SLASH TARIFFS

After two days of high-level negotiations in Geneva, Switzerland, the United States and China on Monday announced a 90-day pause in their trade war, suspending the high tariffs and non-tariff barriers that the two countries had put in place after April 2.

- In a joint statement, the US and China said they were committed to establishing “a mechanism to continue discussions about economic and trade relations”.
- Since February 1, US President Donald Trump has imposed tariffs on China for a variety of reasons. The first lot of tariffs was for the sale of fentanyl, an opioid that is responsible for thousands of deaths due to overdose in the US. On April 2, which Trump designated as “Liberation Day”, Washington imposed an additional 34% tariffs on China.
- China responded with its own counter-tariffs, unlike most other countries. By April 10, the tariffs had reached a prohibitive level. The US had imposed 145% tariffs on China, and China had responded with 125% tariffs on US imports. At this 145% rate, the price of an \$100-worth imported Chinese good in the US would rise to an eye-watering \$245.
- In addition to tariffs, China also imposed some non-tariff barriers on the US, such as export restrictions on rare earth minerals, and restrictions/investigations against multiple US companies.
- After the truce, the base tariff rates have fallen to 10% for both countries. However, the US continues to levy a 20% tariff on account of fentanyl smuggling.

Do You Know:

- China has also suspended the non-tariff barriers it installed after April 2.
- Explaining the rationale behind the tariffs, the US Trade Representative Jamieson Greer yet again pointed to the \$1.2 trillion trade deficit on goods that the US had with the rest of the world. This essentially means that US consumers import goods worth \$1.2 trillion more than what the consumers in the rest of the world import from the US.
- The Trump administration sees a trade deficit negatively, saying it is proof of the fact that the rest of the world is “ripping off” the US. That is because, as Greer argues, while the US opens its markets to the rest of the world, other countries protect their companies, and subsidise them to take over the US market.
- Greer said the trade deficit had ballooned more than 40% since the end of President Trump’s first term in 2020. He also underscored that merely talking and requesting other countries to open their markets had not helped over the decades, and that imposing high tariffs was the most logical way forward.

BIG DEAL

The trade agreement between the U.S. and China, the two biggest economies in the world, serves as a breather in an otherwise tense global trade environment. The U.S. has agreed to temporarily



lower, for 90 days, its overall tariffs on Chinese goods from 145% to 30%, while China will cut its tariffs on American imports from 125% to 10%. Markets across the world cheered the announcement, jumping between 2%-3.8% following the news. The thaw comes on the back of tensions and tariffs being ratcheted up by both sides, starting with U.S. President Donald Trump's February 1 announcement of a varying tariff on imports from China, Mexico and Canada. Notably, he excluded China from the 90-day pause on 'reciprocal' tariffs announced in early April. One way to look at this latest development is that it shows Mr. Trump is backing down from his tariff war-footing, acknowledging the importance of China to the U.S. economy. Indeed, the joint statement by both countries begins by mentioning "the importance of their bilateral economic and trade relationship". However, another view is that his heavy-handed approach has succeeded in convincing China to come to the negotiation table. Tariffs of 145% were unsustainable but served their purpose. The fact also is that Mr. Trump's main grievance, of a ballooning trade deficit with China, remains unaddressed. The two sides have agreed to continue talks, which will be key in determining whether this seemingly intractable problem can be worked around or result in tensions again.

For India, this brings both uncertainties and certainties. If further talks between the U.S. and China are successful, investors who have moved to other countries will likely start viewing China favourably again. The advantages of manufacturing there — scale and costs — are still significant. The China+1 model, which India in any case has not been able to leverage adequately, might start to lose its sheen. The other uncertainty is around India's own trade talks with the U.S. It has now informed the World Trade Organisation of potential reciprocal measures to the U.S.'s increased duties on steel and aluminium imports. Even though talks on a U.S.-India trade deal are ongoing, this latest statement shows that tensions remain high. The certainties are two-fold. The first is that India's trade deficit with China remains vast and rising, and the U.S.-China agreement will not reduce this. 'Make in India' is currently inextricably linked to 'Import from China'. The second certainty carries over from the first. The Centre must lean heavily on States to adopt labour and land reforms that can allow scalable manufacturing to become cost-effective here. Without this, India will remain dependent on Chinese imports, regardless of its dealings with the rest of the world.

TRUMP TO REDUCE US DRUG PRICE, INDIAN PHARMA BRACES FOR IMPACT

Global pharma companies could ramp up pressure on India to raise the prices of drugs in India and other developing markets, as US President Donald Trump's new executive order is set to force companies to align US drug costs with cheapest ones abroad.

- Trump said he would introduce a "most favoured nation" (MFN) policy whereby the US pays "the same price as the nation that pays the lowest price anywhere in the World".
- "Prescription drug and pharmaceutical prices will be reduced, almost immediately, by 30 per cent to 80 per cent. Prices will rise throughout the world in order to equalise and, for the first time in many years, bring fairness to America. I will be instituting a Most Favoured Nation's policy, whereby the United States will pay the same price as the nation that pays the lowest price anywhere in the world," Trump said in a social media post.
- "For many years, the world has wondered why prescription drugs and pharmaceuticals in the United States are so much higher in price than in any other nation—sometimes being five to ten times more expensive than the same drug, manufactured in the exact same laboratory or plant, by the same company," Trump said.



- International trade experts said Trump's executive order may offer immediate relief to American patients, but it is likely to trigger a global price recalibration—with pharmaceutical giants intensifying pressure on lower-cost markets like India to raise their prices as the low cost markets would determine prices in the lucrative US market.

Do You Know:

- India's generic drug industry, which is not only a source of low-cost medicines in India but also in the US and UK, has long been a bone of contention for large pharma companies in developed countries. These companies argue that weak intellectual property rights in India leave them uncompetitive. Trump's executive order follows the US placing the Indian patent regime on its "Priority Watch List" for intellectual property rights (IPR), which has a significant bearing on drug manufacturing.
- Head of think tank Global Trade and Research Initiative (GTRI), Ajay Srivastava, said that Trump's MFN pricing policy should be a wake-up call, as pharmaceutical companies facing tighter price controls in the West will be forced to redouble their efforts to raise prices in markets like India.
- India's pharmaceutical laws fully comply with the WTO's Agreement on TRIPS. However, India has long resisted pressure to adopt "TRIPS-plus" provisions—additional patent protections often pushed by developed countries through Free Trade Agreements (FTAs). These include data exclusivity, automatic patent term extensions, patent linkage, broader patentability criteria, and evergreening practices, Srivastava said.

INDIA SHOULD LOWER TARIFFS – FOR THE RIGHT REASON

India shouldn't fret over US President Donald Trump telling Apple Inc's CEO Tim Cook not to make the country its next major manufacturing-cum-export hub after China. "We put up with all the plants you built in China for years. We are not interested in you building in India," Trump claims to have said. Delhi mustn't take that comment too seriously. Cook is ultimately accountable to the shareholders of Apple, which now makes about 40 million out of its 220 million-odd iPhones sold globally in India, and the balance from China. The Cupertino-headquartered tech giant's plans to expand its operations in India are purely a function of the cost-competitiveness of assembling handsets here and the perceived need to diversify supply chains from China as part of a larger geopolitical risk mitigation strategy. These are business decisions, not made overnight or unmade at the whim of one person, however powerful.

India's focus should be on making itself a preferred investment destination for not just Apple, but all global companies that made China their factory to produce for the world. That would mean going beyond assembling to creating a full-fledged manufacturing ecosystem — of the sort already existing in India's automotive and ancillary sectors and needing replication in industries such as smart phones, computers and consumer electronics. All this requires economies of scale, which India can partly offer through its largely domestic market, like China's. But true cost-competitiveness and operational scale-up comes only from making for the domestic as well as global market. Trump's exhortation to Cook to confine Apple's make-in-India plans to only taking care of iPhone sales in India seems more like wishful thinking. And India must prove just that — through stable policies, making it worthwhile for Apple to deepen its engagement by expanding both production capacity and the local supplier base.



India also does not have to show excessive concern over Trump's assertion of Delhi offering to "drop all tariffs" on goods imported from the US. The fact is that the bilateral trade agreement between India and the US is still under negotiation. What's clear is that India is more open to cutting tariffs and offering greater market access for imports, just as it is seeking the same from its trade partners. This approach — a refreshing departure from the protectionist tendencies that gained hold during the first two terms of the Narendra Modi government — was noticeable in the recently sealed comprehensive trade deal with the United Kingdom. India's economic history, both pre- and post-reform, provides sufficient evidence of growth acceleration whenever policymakers have displayed openness to foreign trade and investment. Lowering tariffs and allowing greater import competition is something India should do for its own sake — and not because Trump says so.

INDIA NOTIFIES WTO OF PLAN TO IMPOSE RETALIATORY TARIFFS ON U.S. IMPORTS

At a time when India and the U.S. are in talks over a trade deal, fresh tensions have emerged as India has notified the World Trade Organization (WTO) of its proposal to impose tariffs on \$7.6 billion worth of imports from the U.S. in retaliation for that country raising its import duties on steel and aluminium to 25%.

According to a communication from the WTO, India's reciprocal measures could kick in 30 days from the date it sent its notification to the WTO — May 9. The WTO said it was circulating the communication "at the request of the delegation of India".

The matter first became a point of friction during U.S. President Donald Trump's first term, when in 2018, he had first imposed higher tariffs on steel and aluminium imports. Then, in February 2025, with effect from March, at the start of his second term, he modified this by imposing tariffs of 25% on imports of steel and aluminium and removing all country-specific and product-specific exemptions that most countries had managed to obtain.

While the U.S. had declined overtures from India in April for talks over the matter, saying these higher tariffs were not safeguard measures but were taken in the interest of national security, India has maintained that they are safeguard measures.

"The measures have not been notified by the United States to the WTO, but are, in essence, safeguard measures," India asserted in its communication to the WTO. "India maintains that the measures taken by the United States are not consistent with the General Agreement on Tariffs and Trade, 1994 (GATT 1994) and Agreement on Safeguards (AoS)."

Further, it said that since the U.S. did not hold mandatory consultations under Article 12.3 of the AoS, India had the right to retaliate.

It added that "India reserves the right to suspend concessions or other obligations... that are substantially equivalent to the adverse effects of the measure to India's trade".

India further said that its proposed measures would be in the form of a suspension of concessions or other obligations on selected products originating in the U.S., which would in effect result in an increase in tariffs on these items.

"India reserves its right to suspend concessions or other obligations after the expiration of thirty days from the date of this notification (May 9, 2025)," it added.



The communication further said that the U.S. measures would affect \$7.6 billion worth of imports into the U.S. from India, on which the duty collection would be \$1.91 billion.

“Accordingly, India’s proposed suspension of concessions would result in an equivalent amount of duty collected from products originating in the U.S.,” it added.

India said it would inform both the Council for Trade in Goods and the Committee on Safeguards of the WTO on “the next appropriate steps”.

Not the first time

If India does go ahead with its retaliatory measures, it would not be the first time. In June 2019, India imposed higher tariffs on 28 products from the U.S. after the U.S. removed India from its Generalised System of Preferences (GSP) and refused to discontinue its 2018 steel and aluminium tariffs.

The duties — covering \$240 million in trade value — were withdrawn in September 2023, after Prime Minister Narendra Modi’s state visit to Washington.

WHAT WILL BE IMPACT OF INDIA-U.K. TRADE DEAL?

The story so far:

After nearly three-and-half years, India and the U.K. finally gave their nod to a Free Trade Agreement (FTA) this week. Commerce Minister Piyush Goyal said the pact would set a new benchmark for “equitable and ambitious trade between the two large economies”. Though the fineprint has not yet been made public, domestic industry has welcomed the announcement, amid concerns about the potential impact on agriculture and medium and small enterprises (MSMEs). The deal is likely to be signed after three months, and will take over a year to implement.

Why is the deal significant for both nations?

The U.K. is India’s 16th largest trading partner and India is the U.K.’s 11th largest partner. Their bilateral trade is about \$60 billion with India enjoying a positive trade balance, which is expected to double by 2030, according to the Indian government’s estimates. The new trade deal, as assessed by the British government, would increase the bilateral trade by another \$34 billion. The agreement comes in the backdrop of global trade reeling under uncertainty triggered by U.S. President Donald Trump’s tariff regime.

What are the expectations from the FTA?

While the details are yet to be published, the British government said it would benefit from India agreeing to slash tariffs on 90% of the product categories for export, with 85% of them becoming “tariff-free” within a decade. Further, basing its assessment on 2022 prices, it estimated that \$534 million worth in tariffs would be saved when the deal is enforced. On the other hand, New Delhi expects to benefit from tariffs being eliminated on 99% of its export product categories. It expects an increase in export opportunities for sectors such as textiles, leather, footwear, auto parts, engineering as well as gems and jewellery, among others. The British government mentioned about curtailed tariffs on automobiles, whisky and gin, sectors which had been hit by Mr. Trump’s tariffs. Alcoholic beverages from the U.K. will now have a 75% tariff rate, from the present 150%. This would be further reduced to 40% within a decade. Tariffs on automobile exports too stand



reduced from over 100% to 10% albeit with a certain quota based on price for conventional combustion engine vehicles and capacity for electric vehicles.

With respect to services, India has secured an exemption for Indian workers temporarily in the U.K. and for their employers from paying social security contributions for three years under the Double Contribution Convention. Immigration was among the major points of contention during negotiations with the erstwhile Conservative government. The FTA will also seek that visa processes remain “transparent” and no “unnecessary” obstacles are created in professional travel.

How has domestic industry responded?

Indian industry is upbeat about the announcement and expects a spike in exports. Textiles are among the major items of export to the U.K. Mithileshwar Thakur, secretary-general at the Apparel Export Promotion Council (AEPC), told The Hindu that exports are expected to “grow exponentially”. He said India would now enjoy duty-free access to U.K. markets like their main competitors Bangladesh and Vietnam. On competition, he clarified that there was “hardly any” import from the U.K. in this sector.

The Indian automobile industry feels it will benefit from the deal. C.S. Vigneshwar, president, Federation of Automobile Dealers Associations (FADA), contended that the FTA would ensure the the U.K. has better access to India’s premium (vehicle) segment markets, and Indian makers would serve the U.K.’s mass segment markets. “We do not expect the U.K.’s mid-segment cars to be competitive to Indian vehicles because the cost of production and labour is lower in India,” he stated.

Kirit Bhansali, chairman, Gems and Jewellery Export Promotion Council (GJEPC), in a social media post projected a rise of \$2.5 billion of exports within the next two years in the sector, thus, culminating in bilateral trade doubling to \$7 billion.

Are there concerns?

There are concerns in primarily two sectors, agriculture and MSMEs. Vijoo Krishnan, general secretary of the All-India Kisan Sabha, points to a previous FTA with Sri Lanka having led to a price crash in similar products produced by Indian farmers like spices and tea, among others. He also cites the case of the lasting impact of the ASEAN FTA’s impact on rubber which stood at ₹230/kg in 2011 compared to ₹170/kg in 2025. He observes that FTAs have paved “unequal” paradigms for Indian farmers and MSMEs. “The Indian farmers hold small lands, a good number of them being less than five acres. This is not the case with advanced countries,” he stated. Mr. Krishnan further points to the World Trade Organization’s contention about minimum selling price in India. “Given the number of farmers we have, the cumulative amount of subsidies is huge though per-capita pales in comparison to European farmers. Also, WTO considers the base price from the late 1980s,” he states, elaborating, “there has been much escalation of costs since then and farmers must be given commensurate increase in prices, incentives and subsidies”. Ajay Srivastava, founder of the India-based Global Trade Research Initiative, said permitting foreign firms to compete on an equal footing in India could weaken the policy tools India needs to build local capacity in vital sectors such as defence, renewables, health systems and infrastructure. “It also threatens the ecosystem of MSMEs that rely on protected access to government contracts to stay viable,” he observes.

On public procurement, the U.K. held that the FTA would allow their companies to bid for government procurement contracts on “better terms and with greater access to the relevant



information to support their bids". According to Dinesh Abrol, adjunct faculty at the Transdisciplinary Research Cluster on Sustainable Studies at JNU in Delhi, this could lead to a growing import dependency.

The other unaddressed aspect in the FTA concerns the U.K.'s Carbon Border Adjustment Mechanism (CBAM) which would impose a "carbon price" on goods bearing greenhouses being imported into the country. This would be of particular consequence to Indian aluminium and steel exports. Although unrelated to the U.K., Mr. Goyal warned that India too would retaliate with likewise taxes should Europe go ahead with the carbon pricing mechanism, suggesting a cause for potential uncertainty.

UNDER CONTROL

April's 69-month low retail inflation and 13-month low wholesale inflation should come as a relief to the public and policymakers alike. For the public, it shows that the easing of prices in the first few months of the year is continuing. For policymakers, it goes a step further in confirming that last year's alarming levels of inflation are well and truly under control, and that the Reserve Bank of India (RBI) was right to cut interest rates twice in a row. The fall in retail inflation was driven by a contraction of nearly 11% in vegetable prices, and 5.2% in the price of pulses. However, it is important to note that although vegetable prices are lower than last year, this contraction is mainly due to a very high base — vegetable inflation was in the 27%-30% range in the February-April period of last year. Inflation at the wholesale level, too, was driven down by easing vegetable prices, which contracted 18.26% in April. This, too, was on a relatively high base of nearly 12% last April. The base effect aside, it does look like the government's efforts to bolster buffer stocks of essential food items, conduct open market releases, and ease imports during supply shortages have helped in easing inflation. The other — less positive — factor could have been the liquidity crunch that banks were facing in the first few months of the year. Lower liquidity results in lower amounts left to lend, which squeezes money with companies and the public, and thus can lower inflation. As things stand, even though retail inflation has been decreasing for six consecutive months, its trajectory for the rest of the year will significantly be determined by the monsoon and its vagaries. Similarly, the ongoing tariff uncertainty and threats of retaliation by India will also play a part.

The latest inflation data does have some policy implications. The first and most obvious one is that it will likely encourage the RBI's Monetary Policy Committee to cut interest rates again in June. However, an important consideration for it will also be how the latest GDP growth data — to be released this month end — will look. The other, more immediate step for public sector oil marketing companies is to finally cut fuel prices in line with crude oil inflation in the WPI coming in at a 22-month low. If not, then the government should officially abandon its dynamic pricing policy, where prices are supposedly revised daily. That fuel prices have been virtually unchanged in three years, despite oil prices falling 42% over the period, means the policy is a sham in any case.

WHY FARMERS PREFER RICE, WHEAT

Farmers, like all businessmen, are rational and risk-averse. Everything else being the same, they will choose to grow crops that offer reasonable price as well as yield assurance. No surprise, then, that rice and wheat are their most preferred crops — more so when they have access to basic irrigation that can supplement natural rainfall.



- The most obvious explanation for the expansion in rice and wheat area is the government's near-guaranteed purchases of the two crops at minimum support prices (MSP).
- This kind of government backstop does not exist for other crops, discouraging their cultivation, save in years when market prices are good. Thus, Punjab's cotton area has plunged from 3.4 lh in 2015-16 to one lh in 2024-25. It rose from 17.7 lh in 2015-16 to 23.6 lh in 2020-21 for Telangana, only to fall to 18.1 lh in 2024-25.
- But it isn't just MSP assurance that makes farmers more inclined to plant rice and wheat.
- No less significant is yield risk, which is relatively less in the two crops because of their being grown largely under irrigated conditions and also receiving priority with regard to public breeding and research support.
- Take wheat. The traditional tall varieties with slender stems yielded only 1-1.5 tonnes of grain per hectare. The new Green Revolution varieties were semi-dwarf with strong stems and didn't "lodge" – bend over and even falling flat – when their panicles or ear-heads were heavy with well-filled grains. Being non-lodging made them more responsive to fertiliser and water application.
- In rice, too, yields have risen over time. The traditional tall varieties produced 1-3 tonnes of paddy (rice with husk) per hectare over 160-180 days duration from seed sowing to grain harvesting.
- Earlier this month, the Indian Council of Agricultural Research (ICAR) unveiled a genetically-edited (GE) mutant line of Samba Mahsuri. It has been developed by "editing" a gene coding for an enzyme that suppresses cytokinin levels in rice. Cytokinins are plant hormones that help increase the number of grains per panicle. ICAR scientists have basically used CRISPR-Cas GE technology to cut and modify the DNA sequence of the said 'Gn1a' gene, in order to reduce its expression and promote cytokinin accumulation, leading to higher grain numbers.
- In short, continuous breeding improvements in wheat and rice – focusing on raising yields, resistance to diseases and pests, resilience to abiotic stresses from drought and salinity to extreme temperatures, and lowering of maturity periods – have increased the attractiveness of growing the two crops. This is on top of the assured MSP procurement and access to irrigation, whether through canals or groundwater, they enjoy. Other crops haven't received the same extent of agricultural research and development support.

Do You Know:

- Minimum support price (MSP) is the price at which the government is supposed to procure/buy that crop from farmers if the market price falls below it. MSPs provide a floor for market prices and ensure that farmers receive a certain "minimum" remuneration so that their costs of cultivation (and some profit) can be recovered.
- The MSPs are announced by the Union government on the recommendations of the Commission for Agricultural Costs and Prices.
- Crops covered under MSP are:
 - 7 types of cereals (paddy, wheat, maize, bajra, jowar, ragi and barley),
 - 5 types of pulses (chana, arhar/tur, urad, moong and masur),



- 7 oilseeds (rapeseed-mustard, groundnut, soyabean, sunflower, sesamum, safflower, nigerseed),
- 4 commercial crops (cotton, sugarcane, copra, raw jute)

RBI BOARD REVIEWS ECONOMIC CAPITAL FRAMEWORK; SURPLUS TRANSFER TO GOVT MAY RISE UP TO `3 LAKH CRORE

The central board of directors of the Reserve Bank of India (RBI) on Thursday reviewed the Economic Capital Framework (ECF), which is used to determine risk provisioning and surplus distribution by the central bank to the government.

- Based on the ECF, the RBI transfers dividend to the government every year. According to various estimates, the RBI may transfer Rs 2.5 lakh crore to Rs 3 lakh crore as surplus to the government for the accounting year 2024-25. This would be a fresh record dividend transfer by the RBI to the government. For the accounting year 2023-24, the RBI had transferred the highest-ever surplus transfer of Rs 2.11 lakh crore to the government.
- The central board of the RBI is likely to meet on May 23 to determine the dividend amount to be transferred to the government for FY25, in line with the revised Economic Capital Framework.
- “The 615th meeting of the Central Board of Directors of the RBI was held today in Mumbai under the Chairmanship of Sanjay Malhotra, Governor. As part of the agenda, the Board reviewed the Economic Capital Framework (ECF) of the RBI,” the central bank said on Thursday. Higher dividend payout by the RBI will help the government in managing the fiscal deficit. The higher surplus transfer is also likely to improve liquidity conditions in the system.
- The RBI transfers surplus to the government from its profit after setting aside Contingency Risk Buffer (CRB). The RBI’s CRB is the country’s savings for a ‘rainy day’ (a financial stability crisis) which the central bank consciously maintained in view of its role as Lender of Last Resort (LoLR).
- In FY25, the central bank’s earnings in FY25 were robust, led mainly by sale of dollars to curb volatility in the rupee and sharp rise in gold prices and appreciation in prices of government securities held by the RBI.

Do You Know:

- Based on the Economic Capital Framework (ECF), the RBI transfers dividend to the government every year. An expert committee led by Bimal Jalan, former RBI Governor, had recommended that the framework may be periodically reviewed every five years. Accordingly, the ECF review was scheduled for August 2024.
- The RBI is a “full service” central bank — not only is it mandated to keep inflation or prices in check through monetary policy, it is also supposed to manage the borrowings of the Government of India and state governments; supervise or regulate banks and non-banking finance companies; and manage the currency and payment systems.
- The RBI isn’t a commercial organisation like the banks or other companies that are owned or controlled by the government – it does not, as such, pay a “dividend” to the owner out of the profits it generates.



- What the central bank does, therefore, is transfer the “surplus” – that is, the excess of income over expenditure – to the government, in accordance with Section 47 (Allocation of Surplus Profits) of the Reserve Bank of India Act, 1934: “After making provision for bad and doubtful debts, depreciation in assets, contributions to staff and superannuation fund [and for all other matters for which] provision is to be made by or under this Act or which are usually provided for by bankers, the balance, of the profits shall be paid to the Central Government.”

FIRST MONTHLY LABOUR FORCE SURVEY: APRIL UNEMPLOYMENT RATE AT 5.1%

India's unemployment rate stood at 5.1 per cent in April for persons aged 15 years and above, with the rate for males at 5.2 per cent and for females at 5.0 per cent, the first monthly bulletin of Periodic Labour Force Survey (PLFS) released on Thursday by the National Statistics Office (NSO) under the Ministry of Statistics and Programme Implementation showed.

- In urban areas, the unemployment rate stood at 6.5 per cent, while in rural areas, the unemployment rate for persons aged 15 years and above was recorded to be 4.5 per cent. Females saw a higher unemployment rate at 8.7 per cent than 5.8 per cent for males in urban areas. In rural areas, however, the unemployment rate for females was lower at 3.9 per cent than 4.9 per cent for males in April. Experts said the rural-urban divide is indicative of the job creation pressures in the urban areas.
- The monthly estimates are based on current weekly status (CWS) approach, which measures activity status of persons surveyed based on reference period of last seven days preceding the date of survey.
- The unemployment rate for youth, aged 15-29 years, stood at 13.8 per cent in April, with the rate in urban areas at 17.2 per cent and at 12.3 per cent in rural areas. Overall, the youth unemployment rate for females was higher at 14.4 per cent than for males at 13.6 per cent. In urban areas also, the youth unemployment rate was higher for females at 23.7 per cent than for males at 15.0 per cent. However, in rural areas, the youth unemployment rate for females was lower at 10.7 per cent than for males at 13.0 per cent. “This could be due to (a) higher female preferences for education in urban areas than rural areas and (b) low employment opportunities in urban areas than rural areas for females,” Paras Jasrai, Economist and Associate Director, India Ratings and Research said.
- The Labour Force Participation Rate for persons aged 15 years and above in the country stood at 55.6 per cent in April, with the rate for urban areas at 50.7 per cent and for rural areas at 58.0 per cent. The gender-wise split showed the low labour force participation rate of females at 34.2 per cent as against 77.7 per cent for males.
- The female LFPR was lower for urban areas at 25.7 per cent than 38.2 per cent in rural areas for the age group 15 years and above. In comparison, the male LFPR stood at 75.3 per cent in urban areas and 79.0 per cent in rural areas.

Do You Know:

- Labour force participation rate refers to the part of the population which supplies or offers to supply labour for pursuing economic activities for the production of goods and services and therefore, includes both ‘employed’ and ‘unemployed’ persons. Under the CWS approach, labour force refers to the number of persons either employed or unemployed on an average in a week before the date of survey.



- The Worker Population Ratio (WPR), which indicates the employment rate, was recorded at 52.8 per cent for persons of age 15 years and above in April. The WPR for persons aged 15 years and above stood at 47.4 per cent in urban areas and 55.4 per cent in rural areas.
- Under the CWS, the WPR refers to the number of persons who worked for at least one hour on any day during the days preceding the date of survey.
- Under the revamped PLFS, 3.80 lakh persons and 89,434 households were surveyed for the monthly bulletin of April. The sample design of the PLFS has been revamped from January 2025, under which there is a monthly rotational panel scheme for both rural and urban areas wherein each selected household is visited four times in four consecutive months – one with first visit schedule and other three with the revisit schedule in the following three months.
- Unemployment rate is defined as the percentage of persons unemployed among the persons in the labour force. The urban unemployment PLFS is based on current weekly status approach, under which a person is considered unemployed if he/she did not work even for one hour on any day during the week but sought or was available for work at least for one hour on any day during the period.
- Labour force is the number of persons either employed or unemployed on an average in a week preceding the date of survey.

₹3,706-CR CHIP ASSEMBLY PLANT NEAR NOIDA CLEARED

The Union Cabinet has approved a joint venture between HCL and Foxconn to set up a chip assembly and packaging unit in Uttar Pradesh, making it the sixth project to receive approval under the government's ambitious Rs 76,000 crore India Semiconductor Mission.

- The plant will attract an investment of Rs 3,706 crore, with around Rs 1,500 crore coming from the government's kitty as part of incentives under the chip manufacturing scheme. This plant will manufacture display driver chips for mobile phones, laptops, automobiles, PCs, and other devices which include a display. The facility will be designed for 20,000 wafers per month, and will have an output capacity of 36 million units each month.
- This is Foxconn's second attempt at making a foray into India's local chip production push. In 2022, the company had applied for a semiconductor manufacturing plant along with Vedanta, however, that joint venture fell apart a year later in 2023 after the two could not find a viable technology partner.
- The plant will be set up near Jewar airport at the Yamuna Expressway Industrial Development Authority in Uttar Pradesh. This is the first chip plant that will come up in the state under the centre's India Semiconductor Mission. Four plants – including a fab and three assembly units – are coming up in Gujarat and one assembly and packaging plant is under construction in Assam.
- Union IT Minister Ashwini Vaishnaw said that the plant will start rolling out chips in 2027. It will be able to meet around 40 per cent of India's local demand for such chips, and the rest would be used by Foxconn in its foreign manufacturing facilities as well.
- When Foxconn, which also assembled Apple iPhones in India, had first applied to build a fabrication plant in the country nearly three years ago along with Vedanta, it was hailed as a major marker of initial success for the Centre's chip push.



- However, since that initial hiccup, the government has managed to attract five chip manufacturing and assembly facilities in the country. The country has so far attracted investment worth \$18 billion under the first phase of the India Semiconductor Mission.

Do You Know:

- In December 2021, the government had rolled out a Rs 76,000 crore chip incentive scheme, under which the Centre offered half the amount of a plant's capital expenditure costs as subsidy. The proposals cleared on Thursday will all receive 50% of their capex costs from the Centre. Then there are schemes like the production linked incentive (PLI) plan for smartphone and laptop manufacturing, where again, the government is offering a subsidy to companies on the basis of their sales bills.
- India's chip incentive plans are focused on boosting all three aspects of the semiconductor ecosystem – packaging units called ATMP facilities; assembly and testing projects called OSAT plants; and full-scale foundries that can manufacture chips.
- Semiconductors are highly complex products to design and manufacture, that provide the essential functionality for electronic devices to process, store and transmit data. No other industry has a similar level of investment in both R&D (22% of annual semiconductor sales to electronic device makers) and capital expenditure (26%), according to a report commissioned by the Semiconductor Industry Association, thereby making semiconductor fabrication an extremely capital intensive business with high entry barriers.

THE RIGHT TO REPAIR MOVEMENT IN INDIA**The story so far:**

The Department of Consumer Affairs (DoCA) last week announced that a report for a “Framework on Repairability Index (RI) in Mobile and Electronic Sector” had been submitted to the government. Under the RI, consumer electronics and electronic appliances would be assigned a score depending on how easy they are to repair by evaluating products under criteria like availability of spare parts, cost of repair, software updates, and availability of information.

Why a focus on repairing products?

The home appliance industry is full of examples of products like washing machines and air conditioners which if purchased several years ago work for a long time without any problems, while the newer ones face frequent failures. While “planned obsolescence” — selling consumers less durable products intentionally so that they come back to buy a newer model — is often cited as a reason for this, there is often a simpler reason: companies are cutting corners on raw materials and manufacturing, under the strain of increasing metal costs and price competition.

Attero Recycling CEO Nitin Gupta said in an interaction with The Hindu in 2023 that the “amount of metal content on [appliance] units” had come down, and that shortages in materials like copper have led to leaner engineering choices. India is a net importer of metals, Mr. Gupta said, increasing pressures to maintain existing electronic products.

These developments have made repair a much bigger issue in many electronics, and a looming factor for consumers to consider when purchasing a product. This isn't a uniquely Indian problem. U.S. lawmaker Marie Gluesenkamp Perez recently described a draft law she had introduced



requiring appliance makers to display average annual maintenance and repair costs alongside the price of a product, and said that longer-lasting older appliances (and potentially newer ones built to last) like washing machines were a form of “durable wealth” as they last longer. Prolonging the life of an appliance ties into other priorities, like promoting e-waste recycling (part of what Indian officials have described as a “circular economy,” where parts and metals go back into a value chain, a long-held but inadequately achieved aim), and regulating the demand for “virgin” metals that have been freshly mined.

The main impetus, however, is likely the end-consumer benefit of having longer-lasting products. Since the processing power of smartphones and computers in particular have not grown as much in recent years as in the 2010s, ecological and economic imperatives align on making sure that consumers have products that last, or at least products that can be repaired cheaply and quickly.

What is the right to repair?

Consumer groups around the world have been fighting for the right to repair, a broad umbrella term referring to greater flexibility for a consumer in terms of how they can get their products repaired. In India, the DoCA has launched a right to repair portal, which lists the authorised service centres of various manufacturers and repair literature published by them.

This is a non-confrontational interpretation of the right to repair. In the U.S., consumer groups have rallied around the term to resist companies that seek to monopolise the repair of their products, such as by restricting access to spare parts, and penalising customers who choose third party repair services. Protections for such customers have emerged from the American right to repair movement, but the Indian interpretation aligns closely with equipment manufacturers’ insistence that the availability of authorised service channels are sufficient.

With the RI framework, the government indicated that it would work to pursue such scoring “without causing any impediment to the industry with regard to innovation and ease of doing business”. Electronics makers have strenuously fought some right to repair legislations in the U.S., cautious of the business impact of losing repair revenue, which has emerged as a key revenue stream in some sectors. McDonald’s ice cream machines are a commonly cited example, as they break down frequently and franchisees have only been permitted to have them repaired by technicians of the Taylor Company, which makes the machines.

The committee that drafted the RI framework was dominated in membership by industry groups and electronics manufacturers. However, that does not mean that the deliberations and the report’s outcome will completely favour them, like the right-to-repair portal did. Pushpa Girimaji, a consumer rights advocate and lawyer who has closely tracked the intricacies of the right to repair, was part of the committee; Ms. Girimaji recently described a manufacturer’s refusal to offer repair on an aging lift as “highly exploitative and a violation of the consumers’ right to choice,” and hit many of the key notes that consumer advocates elsewhere have advocated for, including accommodation of third party repair services.

**LIFE & SCIENCE****ASTEROID YR4 MIGHT MISS EARTH; WILL IT MISS THE MOON, TOO?**

Scientists used the ATLAS telescope in Rio Hurtado, Chile, to discover asteroid 2024 YR4 in December 2024 as a new entrant in the asteroid databases — and it made a splash. Since its discovery, it has kept planetary defence scientists on their toes because of the possibility that it could collide with the earth someday.

Alarm on, alarm off

YR4 is a near-earth asteroid, an object orbiting the sun whose closest approach to the star is within 1.3-times the earth-sun distance. Such asteroids are classified as potentially hazardous objects if their orbits cross the earth's and they are more than 140 m wide.

Astronomers first estimated asteroid YR4's size using wide-field ground-based telescopes operating in the visible range. Infrared observations from the James Webb Space Telescope have since revealed a clearer picture of the asteroid's size. YR4 is now estimated to be 65 m wide, about the size of a 10-storey building. To compare, the space rock that wiped out the dinosaurs 66 million years ago was 10km wide.

Even though YR4 didn't meet the 140 m threshold, its non-small size plus its trajectory were enough for NASA to sound the highest-ever (in its history) asteroid impact alert in mid-February. The agency had announced then that YR4 had a 3.1% chance of hitting the earth in 2032. In a subsequent update, with more data and closer analysis, NASA rolled that update back saying its chance of hitting the earth was actually negligible and that it might strike another body instead.

Probability of impact

On April 2, NASA announced that there was a 3.8% chance YR4 could collide with the moon on December 22, 2032, about seven and half years away. But there's still a 96.2% chance it will miss.

The observatories built by astronomers are constantly on the lookout for new asteroids in the sky and also keep an eye on known potentially hazardous ones. Scientists use observational data they collect to build computer models to figure out the orbits of these objects. (When they enter the solar system, the sun's gravity puts them in an orbit around itself.) Researchers then have these models check if a future orbit intersects with that of the earth.

The NASA Sentry website lists the latest impact probability of all asteroids of note. It uses the Torino scale to assess each rock's hazard to the earth. A Torino rating of 0 indicates no threat and 10 indicates a global disaster. YR4 had a Torino rating of 3 before astronomers found it to be mostly harmless.

Even should YR4 slam into the moon, the moon's orbit won't change — but it will gouge out a 500- to 2,000-metre-wide impact crater. The impact area will shudder with a terrifying explosion 340-times more powerful than the Hiroshima bomb.

Spacecraft in orbit around the moon, such as India's Chandrayaan-2 orbiter, will be able to see it coming.



A preventable disaster

Astronomers are however divided on whether the impact will be visible from the earth. Some scientists say it won't be visible to the unaided eye due to the moon's brightness. Others differ: for example, Gareth Collins, a professor of planetary science at Imperial College London, told New Scientist in February that "the impact flash of vapourised rock would be visible from earth, even in the daytime."

"It would be very exciting to get to see it!" Nugent said.

"You will just get a bright flash on the moon. If it is on the near side, there will be [many] telescopes observing it because it will tell you about the lunar regolith and its composition," Murthy said.

YR4 will pass by the earth again in 2028. Scientists will be able to acquire more data about it after a four-year gap, refine their models, and develop a better picture of whether the asteroid might strike the moon. Finally, even though YR4 went from "threat" to "no threat" for the earth, the planet is still bombarded by rocks from space, like the 2013 Chelyabinsk meteor. "The problem with larger asteroids is that the earth is quite fragile and an asteroid would dump lots of dust in the atmosphere, which would drastically affect the climate for years, or decades, before life recovers," Murthy said.

"We have had potentially catastrophic collisions in the last century and we know that there is always the big one coming."

Yet there's also hope. As Nugent said: "Asteroids are the only preventable natural disaster."

GOLD, AS USUAL AT GREAT COST

Q: Is it possible to turn lead into gold?

A: In India and other parts of the world, some ancient natural philosophers practised an enterprise called alchemy. It was in some ways an early form of chemistry, but guided by less-than-scientific ideas of the time. One form of alchemy was concerned with converting base metals like lead into gold. We know today that doing this requires us to change the composition of the nucleus of the lead atom, which is not easy.

In a new study, scientists working with the Large Hadron Collider (LHC) in Europe have reported turning lead atoms into gold atoms for a fraction of a second.

The LHC is famous for accelerating protons to high energies and smashing billions of them head on. But in the study, the researchers energised heavy lead nuclei and had them pass close to each other, without colliding, giving rise to so-called ultra-peripheral collisions. Even though the nuclei don't physically touch, they interact via their powerful electromagnetic fields, which caused some of the nuclei to break up. The team found that when a lead nucleus emitted protons, it essentially became a gold nucleus.

Also, current theoretical models could only roughly predict these emissions: the researchers said this was because their models tended to underestimate how often one or two protons were emitted. In other words, scientists have room to improve their understanding of how these electromagnetic breakups work.



IN REMAINS OF 2004 FLARE, SCIENTISTS FIND SECOND NATURAL SOURCE OF GOLD

In a new paper published in The Astrophysical Journal Letters, a team of researchers led by Anirudh Patel of Columbia University has reported that the universe may have another way to produce the element gold — which scientists have so far believed has been produced only in the cataclysmic collisions of ultra-dense worlds called neutron stars.

Knowing where different elements in the universe come from helps scientists understand how the universe's chemical makeup has changed through time. The early universe only had hydrogen, helium, and trace amounts of lithium. All other elements were created later in stars, cosmic explosions, and laboratory experiments. Mapping the sources tells us how galaxies, stars, and planets took shape over time. Understanding the sources can also reveal how often an element was produced and how the presence of an element influenced the source's own evolution.

The team reported the first direct observational evidence of a process called r-process nucleosynthesis in a powerful flare emitted by a body called a magnetar in 2004.

Almost a day after the flare, the magnetar emitted strong gamma rays, which NASA's Compton Gamma Ray Observatory recorded. Per the team, the delayed emission was inconsistent with standard flare afterglows and contained evidence of radioactive decay from r-process nuclei.

Magnetars are neutron stars with extremely strong magnetic fields. Sometimes they release large bursts of energy in flares.

The energy levels in the delayed emission and how they changed in time were found to be consistent with the decay signatures of radioactive isotopes rich in neutrons produced in the rapid neutron-capture process, or r-process. The team used models to conclude that 1.9 septillion kg of r-process material ejected at close to the speed of light could explain the delayed emission.

This means some magnetar flares can eject neutron-rich matter into space, where it goes through r-process nucleosynthesis to create heavy elements like gold. So far, physicists have believed that gold has predominantly been produced in mergers of neutron stars, which scientists study using space telescopes and gravitational wave detectors. Patel et al. also suggested that the universe may have had gold atoms sooner since the cosmos could have had magnetars before colliding neutron stars.

The authors also considered some alternative explanations, including noise in the measuring instruments and instruments misreading the flares' afterglow, and ruled them out by comparisons with other data and detailed simulations.

ARE ARTIFICIAL INTELLIGENCE MODELS SUSCEPTIBLE TO PRODUCING HARMFUL CONTENT?

Advanced AI models that showcase unparalleled capabilities in natural language processing, problem-solving, and multimodal understanding have some inherent vulnerabilities that expose critical security risks. While these language models' strength lie in their adaptability and efficiency across diverse applications, those very same attributes can be manipulated.

A new red teaming report by Enkrypt AI underscores this duality, demonstrating how sophisticated models like Mistral's Pixtral can be both groundbreaking tools and potential vectors for misuse without robust, continuous safety measures. It has revealed significant security



vulnerabilities in Mistral's Pixtral large language models (LLMs), raising serious concerns about the potential for misuse and highlighting a critical need for enhanced AI safety measures. The report details how easily the models can be manipulated to generate harmful content related to Child Sexual Exploitation Material (CSEM) and Chemical, Biological, Radiological, and Nuclear (CBRN) threats, at rates far exceeding those of leading competitors like OpenAI's GPT-4o and Anthropic's Claude 3.7 Sonnet.

The report focuses on two versions of the Pixtral model: Pixtral-Large 25.02, accessed via AWS Bedrock, and Pixtral-12B, accessed directly through the Mistral platform.

Enkrypt AI's researchers employed a sophisticated red teaming methodology, utilising adversarial datasets designed to mimic real-world tactics used to bypass content filters. This included "jailbreak" prompts — cleverly worded requests intended to circumvent safety protocols — and multimodal manipulation, combining text with images to test the models' responses in complex scenarios. All generated outputs were then reviewed by human evaluators to ensure accuracy and ethical oversight.

Propensity for dangerous output

The findings were stark: on average, 68% of prompts successfully elicited harmful content from the Pixtral models. Most alarmingly, the report states that Pixtral-Large is a staggering 60 times more vulnerable to producing CSEM content than GPT-4o or Claude 3.7 Sonnet. The models also demonstrated a significantly higher propensity for generating dangerous CBRN outputs — ranging from 18 to 40 times greater vulnerability compared to leading competitors.

The CBRN tests involved prompts designed to elicit information related to chemical warfare agents (CWAs), biological weapon knowledge, radiological materials capable of causing mass disruption, and even nuclear weapons infrastructure. While specific details of the successful prompts have been excluded from the public report due to their potential for misuse, one example cited in the document involved a prompt attempting to generate a script for convincing a minor to meet in person for sexual activities — a clear demonstration of the model's vulnerability to grooming-related exploitation.

The red teaming process also revealed that the models could provide detailed responses regarding the synthesis and handling of toxic chemicals, methods for dispersing radiological materials, and even techniques for chemically modifying VX, a highly dangerous nerve agent. This capacity highlights the potential for malicious actors to leverage these models for nefarious purposes.

Mistral has not yet issued a public statement addressing the report's findings, but Enkrypt AI indicated they are in communication with the company regarding the identified issues. The incident serves as a critical reminder of the challenges inherent in developing safe and responsible artificial intelligence, and the need for proactive measures to prevent misuse and protect vulnerable populations. The report's release is expected to fuel further debate about the regulation of advanced AI models and the ethical responsibilities of developers.

The red teaming practice

Companies deploy red teams to assess potential risks in their AI. In the context of AI safety, red teaming is a process analogous to penetration testing in cybersecurity. It involves simulating



adversarial attacks against an AI model to uncover vulnerabilities before they can be exploited by malicious actors.

This practice has gained significant traction within the AI development community as concerns over generative AI's potential for misuse has escalated. OpenAI, Google, and Anthropic have, in the past, deployed red teams to find out vulnerabilities in their own models, prompting adjustments to training data, safety filters, and alignment techniques.

The ChatGPT maker uses both internal and external red teams to test weaknesses in its AI models. For instance, the GPT-4.5 System Card details how the model exhibited limited ability in exploiting real-world cybersecurity vulnerabilities. While it could perform tasks related to identifying and exploiting vulnerabilities, its capabilities were not advanced enough to be considered a medium risk in this area. Specifically, the model struggled with complex cybersecurity challenges.

The red team assessed its capability by running a test set of over 100 curated, publicly available Capture The Flag (CTF) challenges that were categorised into three difficulty levels — High School CTFs, Collegiate CTFs, and Professional CTFs.

GPT-4.5's performance was measured by the percentage of challenges it could successfully solve within 12 attempts. The results were — High School: 53% completion rate; Collegiate: 16% completion rate; and Professional: 2% completion rate. While the score is "low," it was noted that these evaluations likely represent lower bounds on capability. That means improved prompting, scaffolding, or fine-tuning could significantly increase performance. Consequently, the potential for exploitation exists and needs monitoring.

Another example on how red teaming helped inform developers pertain to Google's Gemini model. A group of independent researchers released findings from a red team assessment of the search giant's AI model, highlighting its susceptibility to generating biased or harmful content when prompted with specific adversarial inputs. These assessments contributed directly to iterative improvements in the models' safety protocols.

A stark reminder

The rise of specialised firms like Enkrypt AI demonstrates the increasing need for external, independent security evaluations that will provide a crucial check on internal development processes. The growing body of red teaming reports is driving a significant shift in how AI models are developed and deployed. Previously, safety considerations were often an afterthought, addressed after the core functionality was established. Now, there's a greater emphasis on "security-first" development — integrating red teaming into the initial design phase and continuously throughout the model's lifecycle.

Enkrypt AI's report serves as a stark reminder that the development of safe and responsible AI is an ongoing process requiring continuous vigilance and proactive measures. The company recommends immediate implementation of robust mitigation strategies across the industry, emphasising the need for transparency, accountability, and collaboration to ensure AI benefits society without posing unacceptable risks. The future of generative AI hinges on embracing this security-first approach — a lesson underscored by the alarming findings regarding Mistral's Pixtral models.



HOW IS SHIPPING INDUSTRY TACKLING EMISSIONS?

The story so far:

After a decade of deliberations towards decarbonising the maritime industry, at its 83rd session, the Marine Environment Protection Committee (MEPC-83) of the International Maritime Organization (IMO) was faced with the challenge of coming to a consensus on a proposed emissions levy on global shipping. The session's objective was to adopt a Market-Based Measure (MBM) that balanced environmental effectiveness with economic fairness.

What were the proposals?

Five distinct proposals were tabled in the meeting. The first was by the International Chamber of Shipping which advocated for a fixed levy per every tonne of CO₂ emitted. Secondly, China proposed a market-driven approach where ships could trade compliance units and invest in alternative fuels. The European Union suggested a fixed Greenhouse Gas (GHG) levy, managed by an IMO-administered fund while India propositioned a 'bridging mechanism', which would target only under-compliant ships to bear the financial burden, while rewarding those using Zero or Near-Zero (ZNZ) fuels. Finally, Singapore also joined the fray by proposing an enhanced version of India's model, involving a GHG Fuel Standard (GFS) and a tiered system rewarding surplus emission units and requiring the purchase of remedial units for underperformance.

Even before the debate on MBMs could fully unfold in the IMO, geopolitical tensions took centre-stage. The U.S. Trump administration, which had already withdrawn from the Paris Agreement and stripped the agency that responds to disasters from their climate work related responsibilities, did not participate in the IMO deliberations. It warned of "reciprocal measures" if the EU-backed uniform carbon levy were passed.

What was decided?

The MEPC-83 of IMO voted 63 to 16 in favour of accepting Singapore's hybrid model based on India's proposal as the IMO's Net Zero Framework, making international shipping the first global industry to adopt a mandatory emissions levy framework. Having piloted a compromise formula amidst extremely divergent views, both India and Singapore have claimed credit for the successful outcome.

However, the decision of the MEPC-83 is not final yet. Despite the vote, the path to implementation is far from straightforward. The MEPC-83's decision, having approved the Net Zero Framework, now needs to amend Annex VI of the MARPOL convention, which governs air pollution from ships. The amendment will undergo a six-month circulation period among all contracting parties to MARPOL. For final adoption, it requires a two-thirds majority of votes from members present and voting; this means that if all 101 parties participate, at least 67 must support the measure. Even if adopted, the amendment could still be blocked, should one-third of the parties — provided they account for at least 50% of global shipping tonnage — formally object in writing.

Currently, with 63 votes in favour, 16 against, and 22 abstentions, the outcome remains uncertain. The process ahead is critical and could reshape the dynamics of global shipping regulation for decades to come.



What other interests were at play?

The wide range of positions expressed during the MEPC-83 underscores the enduring dominance of national interests in global climate diplomacy. Oil-exporting countries, led by Saudi Arabia, opposed any significant transition to green fuels, prioritising the protection of their fossil fuel markets. In contrast, small island nations and least developed countries advocated for steep carbon levies, seeking to redirect revenues into broader green development initiatives.

Moreover, China, along with other large shipping nations, pushed for minimal levies to preserve competitiveness while focusing on investments in cleaner fuels. Norway and other Scandinavian countries have been seeking recognition for their early and costly efforts in decarbonising shipping, proposing that these efforts be rewarded through surplus credit systems. Brazil has been advocating for a rapid shift to methanol as a primary marine fuel, while several nations, citing a lack of viable green technologies, hoped for delayed implementation.

Even after voting, scepticism has lingered among shipowners in traditional maritime powerhouses like Greece, who question the necessity and feasibility of a green levy altogether. The range of these responses illustrates the immense challenge the IMO faces in crafting a universally acceptable emissions framework.

Why does green shipping matter?

Shipping may seem invisible to most consumers, but it plays an outsized role in global emissions. The sector emits approximately one billion metric tonnes of GHG each year, representing about 2.8% of total global emissions. If ranked as a country, international shipping would be the sixth-largest emitter in the world, between Germany and Japan. Projections indicate that, without corrective action, emissions from shipping could rise by as much as 50 to 250% by 2050. Even though the sector contributes less than road transport emissions, they face heavier regulatory pressure because of their international nature.

Therefore, to align with the 13th UN Sustainable Development Goal as well as the Paris Agreement, the IMO began implementing emissions-reduction measures in 2011, followed by the Initial GHG Strategy in 2018 and the updated IMO GHG Strategy in 2023. It has also included a technical measure such as the Energy Efficiency Design Index in Annex VI of the MARPOL convention; an operational measure, the Ship Energy Efficiency Management Plan, for reduction of GHG emissions from ships; and introduced mandatory recording and reporting of fuel oil consumption.

Consistent with the 'Paris agreement temperature goals' it has also adopted 'levels of ambition' and 'guiding principles'. Between 2018 and 2023, it has agreed to fix a target for reducing carbon intensity (CO₂ emissions per transport work) by at least 40% by 2030 compared to 2008 levels, and by 70% by 2040, ultimately achieving net-zero by 2050. This is notably more concrete than the International Civil Aviation Organization, which has only pledged a "long-term aspirational goal" of net-zero emissions by 2050 without setting interim targets.

Is it an equitable distribution?

There has been a gradual erosion of the guiding principle of 'common but differentiated responsibilities and respective capabilities' (CBDR-RC) incorporated in the 2018 initial GHG strategy. The CBDR-RC is a core principle enshrined in climate agreements like UNFCCC, Kyoto Protocol and the Paris Agreement. It acknowledges that all nations must address climate change but recognise historical responsibility and unequal capacities. Developed nations, with their



longer industrial histories, are expected to bear greater burdens. However, recent IMO proceedings reflect an effort by wealthier nations to shift responsibility onto developing economies, despite stark differences in income and consumption.

How does India benefit?

While the carbon levy and GHG targets set by the IMO may pose short-term challenges for certain sectors of the Indian economy, India is likely to emerge as a long-term beneficiary of the new MBM framework. According to the United Nations Conference on Trade and Development, the impact of the MBM on India's maritime logistics costs will be modest in the near term — ranging from 4.98 to 7.29% on imports and 5.92 to 8.09% on exports by 2030. By 2050, these figures are projected to rise to about 33 to 35%. However, the actual impact on trade volumes is expected to be minimal.

India currently operates nearly 236 ships over 5,000 gross tonnage, with only 135 involved in international voyages. Since MBMs apply only to international shipping, India's coastal fleet remains unaffected. At present, India spends roughly \$400 million per year on fuel for its international fleet. The MBM is projected to increase this by approximately \$108 million by 2030 — a manageable rise given the scale of India's maritime economy.

Perhaps the most exciting implication of the MBM framework is the potential for India to become a global hub for clean energy exports. As the world's third-largest importer of fossil fuels, India is now investing heavily in green hydrogen through its National Hydrogen Mission. Industrial giants such as Reliance, Adani, and JSW are planning to scale up production, while three Indian ports are preparing to offer green hydrogen bunkering services.

Under the mission's guidelines, Indian green hydrogen must meet a well-to-wake greenhouse gas fuel intensity of no more than 2 kg CO₂e per kilogram of hydrogen, translating to about 16.7 grams of CO₂ equivalent per megajoule. This standard positions Indian hydrogen well within the IMO's reward thresholds, which are capped at 19.0 g CO₂e/MJ until 2034 and 14.0 g CO₂e/MJ thereafter. This alignment creates a significant opportunity for India to export green fuels globally and capitalise on international incentives.

Global shipping now stands at a transformative moment. Despite persistent disagreements and uncertain implementation pathways, the adoption of a MBM by the IMO represents a milestone in the journey toward decarbonisation. If successful, this framework could make shipping the first truly global sector to operate under binding climate goals, setting a powerful precedent for others to follow.

BRAZILIAN WINS WORLD FOOD PRIZE FOR RAISING YIELD USING BIOLOGICAL PROCESSES

A Brazilian scientist who pushed back against the use of chemical fertilizers and studied biological approaches to more robust food production has been honoured with this year's World Food Prize, the organisation announced on May 13.

Microbiologist Mariangela Hungria has been researching biological seed and soil treatments for 40 years and has worked with Brazilian farmers to implement her findings. Her accomplishment has now won her \$500,000 from the Iowa-based World Food Prize Foundation.



"I still cannot believe it. Everybody said, my whole life, it's improbable, you are going the wrong way, just go to things like chemicals and so on. And then, I received the most important prize in the world of agriculture," Ms. Hungria said in an interview.

Norman Borlaug, who received the Nobel Peace Prize in 1970 for his work to dramatically increase crop yields and reduce the threat of starvation in many countries, founded the World Food Prize. Since the first prize was handed out in 1987, 55 people have been honoured.

Ms. Hungria said she grew up wanting to alleviate hunger. Early in her career, she decided to focus on a process called biological nitrogen fixation, in which soil bacteria could be used to promote plant growth. At that time, farmers in Brazil and around the world were reluctant to reduce their use of nitrogen fertilisers, which dramatically increase crop production but lead to greenhouse gas emissions and pollute waterways.

Ms. Hungria studied how bacteria can interact with plant roots to naturally produce nitrogen. She then demonstrated her work on test plots and began working directly with farmers to convince them that they wouldn't have to sacrifice high crop yields if they switched to a biological process.

The work is credited for increasing yields of several crops, including wheat, corn, and beans, but it has been especially effective on soybeans. Brazil has since become the world's largest soybean producer, surpassing the U.S.

Although Ms. Hungria's research could be applied on farms in other countries, soybean production in the U.S. is different than it is in Brazil. American farmers typically rotate crops between growing corn and soybeans. Enough nitrate fertilizer applied to corn still remains in the soil when soybeans are planted, and little or no fertilizer needs to be applied, Hungria said.

Brazilian agricultural companies have faced fierce criticism for clearing forested land to create farmland, largely to grow soybeans. Much of that criticism is justified, Ms. Hungria said, but she added that her approach builds up the soil and makes further encroachment into forested areas less necessary.

"If you manage the crop well, the crop will enrich the soil with nitrogen," she said. Ms. Hungria will be awarded her prize at an annual October gathering in Iowa of agricultural researchers and officials from around the world.

Gebisa Ejeta, chair of the World Food Prize Laureate Selection Committee, credited Ms. Hungria for the transformative effects of her research in South America.

AN ATTEMPT AT UNDERSTANDING DOLPHIN LANGUAGE IS BEING MADE — WILL PEOPLE LISTEN?

This year, the Coller-Dolittle Prize — given for research into two-way inter-species communication — was awarded to the Sarasota Dolphin Research Program. It has used non-invasive methodologies to study the various vocalisations and body language of bottlenose dolphins for about 40 years. This data can be used to train AI models that can potentially uncover the layers of meaning in non-human language.

The dolphins in Hitchhiker's were smarter than human beings. And perhaps, for a given definition of intelligence, life can imitate art. For a long time, human beings have ignored the personhood of intelligent animals. Elephants, higher primates, dolphins and whales — there are several species



that have language and heritage, that laugh and cry and grieve, have a sense of family, self and community. Perhaps AI can translate their realities in a way humans can understand them, and learn from them. But then, given that people are so adept at treating people as things, what chance does a dolphin have?

ORIGINS OF MUSIC

How did human music originate?

The origins of human music are obscure because of the many contexts in which it could have arisen and for a variety of purposes. Archaeologists have found musical instruments among the remains of Egyptian and Indus civilisation sites and in similar settlements since the dawn of prehistory. Some theories also suggest human music co-originated with human language, although the evidence is iffy.

This said, scientists have been exploring music among humans' closest living relatives, the chimpanzees. Researchers reported on May 9 that Western and Eastern chimpanzees both have spontaneous drumming behaviour. They also said some individuals could produce drumming sequences with very stable inter-beat intervals, closely matching rhythms found in human music.

Per the researchers, the drumming behaviour they have observed suggests that precursors to human musical rhythm didn't emerge 'from scratch' but rather evolved from traits present in the common ancestor of humans and chimpanzees both.

SCIENTISTS HAVE FOUND A CRICKET EVOLVING RAPIDLY TO BEAT A NEW THREAT

Climate change is reshaping the world — and perhaps nowhere more so than in the wild. As ecosystems change, species are forced to move to new locations in search of the resources they need to live. Unlike some human-made borders that are visible as fences and walls, the wild at large has numerous borders invisible to humans crisscrossing each other. When climate change causes an animal to migrate, it may cross one of these borders — and there new challenges await.

Some newcomers quietly adapt to their new environs. Others go rogue and become invasive, throwing the lives of native species into chaos. These invasions are becoming more common, which means more and more native species are being forced to make a choice: evolve to survive or perish.

A love song vanishes

On the Hawaiian islands, Pacific field crickets (*Teleogryllus oceanicus*) evolved — and how. To avoid being hunted by an invasive parasitoid fly called *Ormia ochracea*, they have started remixing the songs they've been using to find mates. But according to a study published recently in *Current Biology*, these escape plans might not be foolproof, at least not yet.

About 30 years ago, as *O. ochracea* flies flew into Hawaii from tropical America, the sound of Pacific field crickets' love songs vanished from the islands. Using their acute sense of hearing, the flies were able to zero in on male crickets as they sang and lay their eggs inside the crickets' bodies. When the larvae hatched, they fed on the nutrients around them and eventually burrowed out, killing the crickets.



“About 20 years ago, we discovered a population on Kauai [in Hawaii] that had gone completely silent because a mutation on their wing erased the sound-producing structures in these crickets,” University of Denver professor Robin Tinghitella said. “Males still rubbed their wings together, but no sound came out. It was a pretty wild discovery. The mutation swept through the island because it protected crickets from flies.”

Recently, however, Tinghitella’s group discovered populations of Pacific field crickets that still sang — but the music was somewhat different: it contained some additional subdued purrs and rattles. It differed in both frequency and amplitude from the original music. The researchers found that it was still loud enough to attract females but quiet enough to evade *O. ochracea* flies.

To Tinghitella, the crickets’ new adaptation signalled a “rapid pace of evolutionary change.”

Step by step? No, thanks

“This got us wondering: could the flies be evolving to keep up?” she continued. “This kicked off a series of lab and field experiments to see if the neural and behavioural responses of flies were responding to changes in cricket songs.”

To test if the flies were evolving in sync with their prey, the researchers compared the sensitivity of Hawaiian flies to certain sounds and frequencies with that of lab-maintained native flies from Florida. The ancestral Floridian flies were most sensitive to sounds around 4-6 kHz, which is also the frequency most field crickets call at. On the other hand, the researchers found, the *O. ochracea* flies had broadened their hearing range, tuning into sounds from 6 to 20 kHz.

Next, they placed a live fly on a spherical treadmill with speakers on either side. When they played synthetic pre-recorded cricket songs, the Hawaiian flies were more responsive to the purrs and rattles of Pacific field crickets than their ancestral counterparts.

Despite the crickets’ efforts to stay under the radar, the flies could still find them.

“What we are seeing isn’t a classic incremental step-by-step co-evolution, where the cricket changes a little bit in one direction and then the fly carefully tracks that, and so on,” said Tinghitella. “Instead, the flies have become more responsive to a broad range of sounds that might allow them to track a variety of changes in cricket song.”

When the male crickets make new sounds, they aren’t changing the way they interact with flies alone. Female crickets have also become less picky in this time about male songs. “If the females had still preferred only the traditional song, males with the mutations [that cause purrs and rattles] would not have succeeded. They would have gone locally extinct,” Tinghitella said.

A new challenge

How much and how quickly a species can evolve depends on its resilience, generation time, the plasticity of its traits, and ecological pressure. For example, organisms with short generation times, like insects, reproduce rapidly, so they have more chances to evolve, potentially allowing them to respond faster to new threats. Likewise, more long-lived species may be more vulnerable. Even beyond these considerations, unexpected and synergistic pressures may still destabilise either type of species, Viraj Torsekar, an ecologist at GITAM Deemed to be University, Hyderabad, said.



The populations of insects are falling in many parts of the world. Their extinction rates are estimated to be eight-times higher than those of birds, mammals, or reptiles. Their vulnerability means even if conditions become more unfavourable than usual for a short period — e.g., a year with bad weather — populations are more liable to collapse than longer lived organisms that can better face a fluctuating threat, Cleo Bertelsmeier, professor in the department of ecology and evolution at the University of Lausanne, Switzerland, said.

As global warming, extreme weather, and biological invasions intensify, predicting how species with varying ecological needs will respond to compounding pressures is becoming increasingly challenging. Many researchers are looking at the genomic architecture of wild insect species to predict their ability to adapt.

According to Tinghitella, rapid evolution could explain why some invaders do so well or why some species manage to cope. To predict how these interactions are going to play out in the long-term, understanding how evolution happens in these situations is key.

EAST ASIANS BEGAN EVOLVING TO DRINK MILK BEFORE REARING CATTLE

Female mammals produce milk to nourish their young. Much of the nourishment comes from lactose, the major sugar in milk. The lactose is broken down in the infant's small intestine into the more simpler sugars, glucose, and galactose, which are readily absorbed by the small intestine. The break-down, or digestion, of lactose is mediated by an enzyme called lactase.

After weaning, a baby rapidly loses the ability to produce lactase. When adults consume milk, cheese, ice cream or other dairy products, many of them experience unpleasant effects like bloating, flatulence, and diarrhoea. This is because the undigested lactose passes into the large intestine, where it is utilised by the bacteria residing there. This produces hydrogen, carbon dioxide, and methane, and the unabsorbed sugars increase water flow into the bowels to produce diarrhoea. These are the hallmarks of lactose intolerance.

Yet millions of people around the world regularly indulge in milkshakes, cheese pizzas, and ice cream sundaes even as adults. This is because they carry genetic mutations that allow them to continue producing lactase even as adults. This trait is called lactase persistence.

A textbook example

The mutations that confer lactase persistence emerged independently in different populations. Their emergence in North European and African populations in particular appears to have coincided with the domestication of cattle, buffaloes, goats, sheep, and other livestock, which began about 11,000 years ago. The cultural shift from hunting/gathering to pastoralism gave continued access to meat, milk, and hides from herds of domesticated animals.

The coincidental emergence of lactase persistence mutations with livestock domestication was taken by many scientists at the time to be a “textbook example” of convergent evolution. That is, the independent evolution of similar traits in distantly related populations. Experts believed it was driven, in the words of a 2007 paper in *Nature Genetics*, by the “strong selective pressure resulting from shared cultural traits — animal domestication and adult milk consumption.”



A wrinkle in the textbook

Scientists may need to reevaluate this neat summation in the light of new findings reported by a team of researchers from Fudan University in Shanghai, China; the Max Planck Institute for Evolutionary Anthropology, in Leipzig, Germany; and the Université de Lyon in France. Their findings were published in the Proceedings of the National Academy of Sciences.

The researchers found a distinct evolutionary pathway for lactase persistence in East Asian populations, which includes the Chinese, the Japanese, and the Vietnamese. Unlike the gene-and-culture coevolution well-documented in African and European groups, the East Asian lactase persistence gene had come from the Neanderthals, an archaic group of humans that went extinct about 30,000 years ago.

When the researchers conducted population genetic analyses of the part of the genome containing the lactase gene, they found evidence of pre-agricultural selection pressures beginning more than 30,000 years ago. That is, the East Asian genomes began evolving towards lactase persistence several millennia before these populations began to domesticate livestock.

This early evolution likely targeted advantages related to the immune system rather than lactose digestion directly. The researchers found the East Asian (Neanderthal-derived) lactase gene showed the same expression pattern as the mutant responsible for lactase persistence in Europeans. This suggested it also conferred lactate persistence.

Neanderthals in our genome

About 7 million years ago, the evolutionary line leading to the contemporary Homo sapiens diverged from the one leading to our closest living cousins, the chimpanzees and bonobos. About 800,000 years ago, our line split once more: one population broke away and migrated to Eurasia, adapting to cold climes and eventually becoming the Neanderthals. The other stayed put in Africa and, by about 200,000 years ago, evolved into modern humans.

Modern humans migrated out of Africa into Eurasia 120,000 to 80,000 years ago, and came into contact with their Neanderthal cousins there. DNA evidence from skeletal remains dating to after the contact showed the two occasionally interbred as well. As a result, today, about 1-4% of the genome of individuals with Eurasian ancestry — i.e. Europeans, East Asians, Indians, Native Americans, and Oceanians — represents Neanderthal-derived DNA sequences. The lactase gene of East Asians was one such segment. On the other hand, those of African descent have close to 0% Neanderthal-derived sequences.

About 30,000 years ago the Neanderthals went extinct for reasons that are still not clear.

Bones to pick

Experts can distinguish Neanderthal skeletal remains from those of modern humans by the shape of the skull, inner ear bones, and pelvis width. Neanderthal bones have yielded DNA, which scientists have sequenced and compared with that of H. sapiens.

Two random humans share about 99.9% of their DNA sequence whereas humans and Neanderthals shared only about 99.7%. Thus, there are about 9.6 million points of difference between Neanderthal and human DNA sequences, in terms of the bases the DNA is made of. Based on these differences, if a DNA sequence is sufficiently long, one can tell whether it is from humans or Neanderthals.



The Allen Ancient DNA Resource (AADR) is a curated database of more than 10,000 genome sequences from the skeletal remains of ancient individuals who lived up to 20,000 years ago. The researchers who put this resource together have also identified, on every genome, more than a million sites where the DNA has been known to exhibit a different ordering of bases than “normal.”

About 67% of the ancient DNA sequences in AADR are from remains recovered in Europe and Russia, some 8% each are from East Asia and the Near East, about 7% are from the Americas, about 5% are from South and Central Asia, about 3% from Africa, and about 2% from Oceania.

A story upended

The researchers behind the new study searched AADR and found one modern human who lived around 14,000 years ago in the Amur area of China. This individual carried the Neanderthal-derived lactase gene. The gene occurred in roughly 10% of those humans who lived 8,000 to 3,000 years ago, and in about 20% of those who lived about 3,000 to 1,000 years ago. Its current frequency among East Asians is 28.9%.

Thus, the AADR data also supported the inference made from the population genetic analyses: that the lactase gene had already experienced selection and had reached a (relatively) high frequency among East Asians long before they began to domesticate animals.

Thus either the selection in East Asians, unlike that in Africans and North Europeans, was for reasons other than lactase persistence, or in all three geographies the selection was similarly not for lactase persistence.

Either way in the light of these findings the classic story of gene–culture coevolution has become more complicated and hence, as the researchers note, more interesting.

TOXIC ALGAE KILLING MARINE LIFE OFF AUSTRALIAN COAST

A vast bloom of toxic algae is killing more than 200 species of marine life off the southern coast of Australia, scientists and conservation groups say.

The algae — *Karenia mikimotoi* — appeared in waters around South Australia state in March, causing mass deaths in species including sharks, rays, crabs, and octopuses.

“There are carcasses littering beaches,” said Brad Martin, a manager of the non-profit fish conservation group Ozfish.

Beaches on wildlife-rich tourist draws such as Kangaroo Island, Yorke Peninsula, and Fleurieu Peninsula have been affected. The bloom stretches across 4,400 square kilometres (1,700 square miles), Mr. Martin said — an area larger than Japan or Germany.

Karenia mikimotoi has been detected around the world since the 1930s, where it has disrupted local tourism and fishery industries, causing millions of dollars worth of damage. But Mr. Martin said South Australia had not previously experienced a toxic algae bloom of this scale or duration.

The South Australian government said the event is thought to have been driven by a marine heatwave and relatively calm marine conditions.



Marine biologist Shauna Murray, who identified the algae species for the authorities, said it damages the gills of fish and prevents them from breathing. "It will probably take some time for the ecosystem to recuperate," said Ms. Murray.

While conditions usually ease towards the end of April, there had been no relief yet, South Australian Environment Minister Susan Close said this month.

LONGEVITY, BEYOND THE ETERNAL YOUTH FANTASY

In an age obsessed with aesthetic perfection, it is refreshing — and vital — to see a longevity initiative grounded in substance rather than superficiality. The ambitious \$101 million XPrize Healthspan, which will announce its semi-finalists this week, seeks to extend not merely the years of life but the quality of those years. Its aim is to rejuvenate the body's most vital systems — muscles, cognition, and immunity — by at least a decade for those aged between 50 and 80 years. Crucially, the winning solution must be accessible, scalable within a year, and affordable — a powerful antidote to the exclusivity that often shadows biomedical innovation.

That the vision of equitable longevity has moved beyond age-reversal fantasies is a welcome shift. Ageing has far too often been cast as a pathology to be hidden, delayed, or denied, a decline to be concealed behind the mask of youth. Longevity is framed through a superficial lens — wrinkle creams, biohacking fads, and fat-loss drugs — but beyond this fixation on appearance, ageing has a deeper import. A meaningful extension of life must necessarily centre on capability — mental clarity, mobility and resilience to disease. These are the pillars that sustain autonomy and self-worth in old age, without which additional years risk becoming a slow erosion of the self, an undignified hollowing out of all that makes a person whole.

As the global population ages, such innovations could radically reshape healthcare systems and reduce the burden on caregivers. According to the India Ageing Report 2023, for instance, the elderly population in the country is projected to surge to 347 million by 2050, accounting for 20.8 per cent of the population. By 2046, the number of elderly is expected to surpass the number of children under 15 years of age. This demographic shift will bring with it significant socio-economic challenges. But there is also now a glimmer of an opportunity in it: To reimagine old age not as a slow fading but as a phase of dignity and continued purpose.

DreamIAS