

*CURRENT  
AFFAIRS FOR  
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*DreamIAS*



## INTERNATIONAL

### DONALD TRUMP'S SUGGESTION THAT CANADA BECOME A US STATE IS TROLLING AS DIPLOMACY

There is a thin line between teasing and trolling, being a hard negotiator and just a plain old bully. Donald Trump, who is set to be US President for a second time, flirts with that line with ease and, his detractors would argue, brazenness. His supporters, on the other hand, contend that Trump's unconventional approach to diplomacy is part and parcel of the "art of the deal". So, when Trump threatens long-time ally Canada (along with Mexico) with a 25 per cent tariff hike on imports, it may well just be a tactic. But is suggesting that Canada become the "51st state" and calling Prime Minister Justin Trudeau the "Governor of Canada" a part of that strategy? And is it a bridge too far?

The logic behind Trump's jibe is simple: "We are subsidising Canada to the tune of over \$100 billion a year... If we are going to subsidise them, let them become a [US] state," Trump said earlier this year. Is it, then, just a question of dollars and cents? Attacking the Canadian PM and more importantly, the country as a whole may not be the best negotiating tactic — no one likes to be told they are dependent, especially when they are. But perhaps, the way to understand Trump's trolling is not only through the analytical lens of foreign policy or the cold rationality of economics.

When Trump was first elected in 2016, many of his detractors in the US threatened to "move to Canada": With its socialised medicine and liberal PM, it was presented as an American paradise of sorts. Perhaps, the belittling of the "neighbour to the north" — while it may serve a diplomatic end — is also a means to get even and get over some hurt sentiments.

### HOW WILL MARTIAL LAW FLIP-FLOP AFFECT S. KOREA?

#### The story so far:

For a brief while on December 3, South Korea, a country with a history of military rule, had fleeting visions of its past, as President Yoon Suk Yeol imposed emergency martial law. This would have curbed the activities of political parties, brought the media under the ambit of law, and required protesting workers to resume duties.

#### What followed the declaration?

Yielding to pressure, Mr. Yoon repealed the law within six hours after lawmakers braved Army troops to vote 190-0 against it at the 300-member strong Parliament. This included 18 members of Mr. Yoon's People's Power Party (PPP). The opposition filed an impeachment motion against the President. But on Saturday, lawmakers from the PPP staged a walkout when the National Assembly met to discuss impeaching the President, and therefore, the motion failed.

#### What is the history of the law?

South Korea's constitution states that martial law can be imposed to "cope with a military necessity, or to maintain the public safety and order, by mobilisation of the military forces in time of war, armed conflict or similar national emergency." The law can be repealed if overturned by a majority in the National Assembly. Between the end of the Second World War and South Korea's transition to democracy in 1987, martial law has been imposed 16 times.



Park Chung-hee, who came to power in 1961 through a military coup, had imposed martial law multiple times during his 17-year reign. Major General Chun Doo-hwan, who came after Park, oversaw one of the darkest chapters in the history of martial law when troops cracked down on a pro-democracy uprising in the city of Gwangju, killing at least 200 people in 1980.

#### **What led to the decision?**

At the time of Mr. Yoon's ascension to the President's chair in 2022 (with a razor-thin majority of 0.8 percentage-points), the National Assembly was already dominated by the opposition Democratic Party. A victory for them in this year's parliamentary elections landed Mr. Yoon in a precarious position, making him the first South Korean leader in decades without a majority in the National Assembly. This led to constant bickering, with the President vetoing Bills and accusing the opposition of filing 22 impeachment motions against his administration officials. Coupled with the latest argument over a Budget Bill, the stand-off culminated in Mr. Yoon declaring martial law to stop "shameless pro-North anti-state forces that plunder the freedom and happiness of our people", terming the Assembly a "monster that destroys the liberal democratic system".

#### **What has been Mr. Yoon's track-record?**

A prosecutor by profession, Mr. Yoon came to power succeeding Moon Jae-in from the Democratic Party. During his career, the 63-year-old has handled several high-profile cases, including the investigation and conviction of former President Park Geun-hye. In comparison to Mr. Moon, who struck a conciliatory tone with North Korea by meeting its leader Kim Jong-un, the Conservative Mr. Yoon has adopted a hawkish approach. He called for increased military drills and economic sanctions on Pyongyang, in moves perceived as an overture to bolster ties with the U.S.

On the domestic front, increasing home prices and rising unemployment have kept his administration busy. The country is home to an ageing population and has the world's lowest birthrate. The government's efficacy was first put to test on October 29, 2022, at the Halloween weekend stampede where 159 people were killed at a popular nightlife district in Seoul. The authorities' response to the incident came under sharp criticism. The second challenge came in the form of the doctors' protest which began in February 2024, when the government decided to admit more medical students to address staff shortages. The medical workers wanted the government to address their harsh working conditions and dismal pay before recruiting more students. Another blot on Mr. Yoon's career was the bribery charges levelled against his wife, Kim Keon Hee, who was caught on camera receiving a \$2,200 Dior pouch as a gift. These factors, clubbed with his anti-feminist policies and attacks against the media for spreading 'fake news', led the President's approval points to drop to 17% last month.

#### **What has been the aftermath?**

While Mr. Yoon apologised, senior aides to Mr. Yoon offered to resign en masse. Defence Minister Kim Yong-hyun, who is believed to have recommended martial law to Mr. Yoon, resigned from his post. The opposition's impeachment motion had the backing of citizens and labour unions who have gone on strike in Seoul. Allies of Mr. Yoon such as the leader of his PPP party, Han Dong-hoon, termed the martial law imposition wrong and suggested withdrawing President Yoon's constitutional powers. However, lawmakers from the PPP staged a walkout during the discussion on the impeachment motion. The National Assembly is empowered to impeach the President if more than two-thirds of the members support the motion. The opposition currently holds 192 seats in the 300-strong Parliament while Mr. Yoon's party has 108 members. The opposition



needed eight members of the PPP to break ranks and join its cause for impeachment to come through.

Under South Korean constitutional law, if a President is removed from office, his powers are suspended until the Constitutional Court makes a final decision. Once his or her termination is confirmed, the election for a new President must be held in 60 days.

## WHAT IS THE DELAY IN FORMING A GOVERNMENT IN AUSTRIA?

### The story so far:

The Austrian chancellor Karl Nehammer's ruling People's Party (OVP) has inched closer to heading Vienna's next coalition government. The party was the runner-up in the September 29 elections and its vote slump, compared with the 2019 polls, was the biggest loss any ruling party has sustained. The OVP's prospective coalition partner, the Social Democrats (SPO) put up their worst ever electoral showing since World War II. Conversely, the far-right, xenophobic, Eurosceptic, anti-Muslim and pro-Russian Freedom Party (FPO), emerged the largest entity, albeit without a majority.

### Why is the FPO being shunned?

All of Austria's mainstream parties have refused to form a government with the FPO. The only ground the ultra-right party has gained since the polls is the election of one of its members as the parliament's speaker. Among the reasons for parties' antipathy towards the FPO are the latter's backing for Russia in its full-scale aggression against Ukraine. The FPO has veered further to the extreme right under its current leader Herbert Kickl, who styles himself as the 'people's chancellor,' in a not so oblique reference to Adolf Hitler, and regards Hungary's autocratic President Viktor Orban as his role model. As interior minister in the short-lived 2017-2019 OVP-FPO coalition government, Mr. Kickl shut down mosques in a crackdown against the "Islamisation" of Austria. His infamous raids on the nation's intelligence services severely compromised collaboration with international agencies. He continues to advocate for the re-migration of citizens of foreign origin as part of the mission to create a homogenous Austrian society.

### Why is FPO not forming the govt.?

Departing from convention, the Austrian President Alexander Van der Bellen opted not to invite the FPO to form a government, even though it had emerged the largest party in the parliament's lower house. President Van der Bellen has previously stressed that the practice hitherto followed by the head of the state was a tradition, not a requirement under the Austrian constitution. As such, on October 9, he gathered the three largest parties in the new legislature in an effort to facilitate consultations on the prospects for a new government. With no signs of a resolution, he tasked chancellor Nehammer with the responsibility.

The President has indicated definite red lines that ought not to be crossed under his watch by any government. Most notable of these is Vienna's European Union (EU) membership, which the FPO has steadfastly opposed.

### What explains the FPO's appeal?

The FPO has participated in three federal governments since the 1980s. There was a minor ripple across Europe at the turn of the century, when the FPO's Jorg Haider joined a ruling alliance with



the OVP, as EU capitals threatened bilateral boycotts on the country. However, in a measure of the far-right's greater acceptability in Austria and across the EU, the reaction to the party's cohabitation in a coalition with the OVP between 2017-2019 was markedly muted. The FPÖ's growing appeal has much to do with popular disenchantment with decades of centrist coalitions, a Europe-wide phenomenon, which in the aftermath of the Holocaust, was seen as a bulwark against political extremism. In reality however, the OVP and SPÖ coalitions have over the years been tainted with divvying up key positions in government and business between themselves.

The prospective coalition among the OVP, SPÖ and the liberal NEOS will undoubtedly have its share of ideological differences to contend with. The longer they take to strike a deal, the greater the potential within the FPÖ to pressure its leader Mr. Kickl to step aside to allow the party to join a coalition with the OVP.

## PARADIGM SHIFT

The regime of Bashar al-Assad has fallen in Syria. The Islamist Hayat Tahrir al-Sham (HTS), a former arm of al-Qaeda that had rebranded itself, is now the most powerful force in the country. Between a secular dictatorship that collapsed like a house of cards and a surging group of militants with a menacing recent past lies the present and future of 23.5 million Syrians. Eight years ago, Mr. Assad seemed to be winning the civil war. He had recaptured most of the lost territories, with help from Russia, Iran and Hezbollah. A tense calm prevailed as militants holed themselves up in the tiny northwestern region of Idlib. In the southeast, the Kurds enjoyed limited autonomy, but bought peace with Damascus. Syria was readmitted into the Arab League. Gulf monarchs, who once funded the anti-Assad militancy, embraced him. But his victory was hollow, as he relied on external allies for security. His army, which fought years of civil war, was in bad shape. Under crippling U.S. sanctions, the government's finances were in a shambles. The country never recovered from the scars of the civil war. To tackle dissent, the regime turned up repression, widening the social schisms.

However, what made Mr. Assad's dramatic fall on December 8 possible were factors beyond his direct control. After the Israel-Hamas war broke out in 2023, Israel has carried out air strikes in Syria, which weakened its armed forces. Israel's war against Hezbollah substantially limited the Lebanese outfit's ability to continue to help Mr. Assad. Iran, which lost officers in Syria, also took a step back, while Russia has been preoccupied with the Ukraine war. The weakening and distraction of the alliance provided the HTS, backed by Türkiye, a golden opportunity. And it took just 12 days for the HTS, and other militias, to reach Damascus as the regime army melted away. With Mr. Assad gone, Syria has an opportunity to build a new future. But the key actors of change are far from promising. The HTS wants to turn Syria, a diverse country with Sunnis, Alawites, Christians, Shias and Druze, into an Islamic state. The Syrian National Army, a sidekick of the HTS, is a Turkish proxy. In the south, there are numerous local militias. It is to be seen whether the winners of the civil war are going to unite under a national flag or, as in the case of the post-Communist Afghanistan or post-Qadhafi Libya, going to start a new one. A desirable outcome would be the establishment of a transition government, a disarming of the militias and the laying of the foundations of an inclusive new republic. But given Syria's tumultuous history, societal fissures, and the ideological and programmatic characteristics of the militias, a likelier outcome would be more chaos and instability. That is the tragedy of Syria.





## SON'S ILLNESS PROMPTS HAITI GANG LEADER TO GO ON A KILLING SPREE OF 184 PEOPLE

Close to 200 people were killed in brutal weekend violence in Haiti's capital, the United Nations said on Monday, with reports that a gang boss orchestrated the slaughter of voodoo practitioners.

The killings were overseen by a "powerful gang leader" convinced that his son's illness was caused by followers of the religion, according to civil organisation the Committee for Peace and Development (CPD).

"He decided to cruelly punish all elderly people and voodoo practitioners who, in his imagination, would be capable of sending a bad spell on his son," a statement from the Haiti-based group said. "The gang's soldiers were responsible for identifying victims in their homes to take them to the chief's stronghold to be executed," it added.

"These latest killings bring the death toll just this year in Haiti to a staggering 5,000 people," UN rights commissioner Volker Turk told reporters in Geneva.

The massacre took place in the capital's western coastal neighbourhood of Cite Soleil.

The CPD said that most of the victims of the violence waged on Friday and Saturday were over 60, but that some young people who tried to rescue others were also among the casualties.

Voodoo was brought to Haiti by African slaves. It was banned during French colonial rule and only recognised as an official religion in 2003.



# DreamIAS



## NATION

### TWO TO TANGO

Amidst fast-deteriorating ties between India and Bangladesh, Indian Foreign Secretary Vikram Misri's one-day visit to Dhaka provided a much-needed outreach to the interim government led by Professor Muhammad Yunus. The bilateral, and once model, relationship, with Bangladesh, has been unravelling ever since Prime Minister Sheikh Hasina fled to India. These include India's concerns over attacks on minorities, particularly Hindus, Bangladesh's anger over 'unwanted Indian interference', and Ms. Hasina's continued stay in India as Bangladesh calls for her to stand trial over charges of police crackdowns and corruption. In particular, protests in India against Bangladesh's arrest of a Hindu monk for sedition, which led to an attack on their mission in Tripura, and marches against Indian missions and cultural centre in Dhaka, had fuelled anger in both capitals. After talks with Mr. Yunus, Bangladesh Foreign Affairs Adviser Touhid Hossain and Bangladesh Foreign Secretary Muhammad Jashim Uddin, Mr. Misri stressed New Delhi's "desire to work closely with the Interim Government of Bangladesh", which was well-received. Unlike the shrill rhetoric in Delhi, his measured comments acknowledged the concerns of both sides over the "regrettable incidents of attacks on cultural, religious, and diplomatic properties". Mr. Yunus is understood to have described the relationship between Bangladesh and India as "very solid" and "close", asking India to help "clear the clouds". He also said that Ms. Hasina's statements were creating "tensions" in Bangladesh, an issue that India must consider carefully. The two sides also picked up the threads of previous talks on border management, trade, and connectivity, cooperation in water, energy sectors, development cooperation, consular, cultural and people-to-people ties.

Given the largely positive optics of the visit, it would appear that there is an attempt to chart a new course in ties. While it is important for New Delhi to nudge its friends on issues of concern such as the attacks on minorities, as well as the need to restore a democratic and inclusive process at the earliest, the Modi government must also be prepared to hear the worries of its friends and neighbours on such issues that have a spillover effect in the region. At a time when changes in governments in Nepal, Sri Lanka and the Maldives have thrown up challenges to India, the violent change in Bangladesh, that saw the ouster of an India-friendly leader, was no doubt a blow. It is time, however, for India to engage with the new realities in Bangladesh, based on a strong understanding that a close, consultative partnership is in the enduring interests of both countries.

### PIL IN SC SEEKS REVIEW OF DOWRY LAW

A public interest litigation (PIL) filed in the Supreme Court, in the wake of suicide by a techie in Bengaluru, has sought the court's intervention to review and reform the existing dowry and domestic violence laws.

- The plea by advocate Vishal Tiwari said that 'The Dowry Prohibition Act' and Section 498A of IPC "was meant to protect the married women from the dowry demands and harassment for that but in our country these laws become weapon to settle unnecessary and illegal demands and to suppress the husbands family when any other nature of dispute arises between husband and wife."
- The plea said that because of cases of false implication of married men using these laws, the real incidents of cruelty against women are looked at with suspicion.



- Referring to the suicide of the techie Atul Subhash, the petition said this has triggered a nationwide debate on the misuse of dowry prohibition laws and also men's mental health.

**Do You Know:**

- IPC Section 498A was introduced in the year 1983 to protect married women from being subjected to cruelty by the husband or his relatives. A punishment extending to 3 years and fine has been prescribed. The expression "cruelty" has been defined in wide terms so as to include inflicting physical or mental harm to the body or health of the woman and indulging in acts of harassment with a view to coerce her or her relations to meet any unlawful demand for any property or valuable security. Harassment for dowry falls within the sweep of latter limb of the section. Creating a situation driving the woman to commit suicide is also one of the ingredients of "cruelty".
- The 243rd Report of the Law Commission which specifically dealt with Sec. 498-A strongly recommended that the offence remain non-bailable, however reiterated that it should be made compoundable as recommended by the Commission in its previous reports including the 237th Report.

**RESERVATION MUST NOT BE BASED ON RELIGION, SC TELLS WEST BENGAL**

Reservation cannot be based on religion, the Supreme Court observed Monday as it heard pleas challenging the Calcutta HC verdict nullifying the West Bengal government's decision to classify 77 communities, mostly Muslim, as Other Backward Class for reservation benefits.

- The observations by a bench of Justices B R Gavai and K V Viswanathan came as a larger question on the constitutionality of using religion as a yardstick for quota is pending before a Constitution Bench.
- The West Bengal government and other petitioners moved the SC after the Calcutta HC, on May 22, cancelled all OBC certificates issued by the state since 2010, saying "religion indeed appears to have been the sole criterion" for granting OBC status to the 77 communities.
- In its judgment delivered on May 22, the High Court noted that between March 5 and September 24, 2010, the West Bengal government issued several similarly-worded notifications, including "42 classes, of which 41 were from the Muslim community, as OBCs, entitling them to reservation and representation in Government Employment under Article 16(4) of the Constitution...".
- Also, on September 24 of that year, an order was issued sub-categorising the 108 identified OBCs in the state (66 pre-existing and 42 newly identified) into 56 "OBC-A (more Backward)" and 52 "OBC-B (Backward)" categories.

**Do You Know:**

- As with most cases where reservations have been challenged, the HC relied heavily on the Supreme Court's judgment in Indra Sawhney v Union of India (Mandal judgment).
- A nine-judge Bench had held in 1992 that OBCs cannot be identified and given reservation only on the basis of religion. The SC also held that all states must establish a Backward Classes Commission to identify and recommend classes of citizens for inclusion and exclusion in the state OBC list.





- In the present case, both the Commission and the government submitted that the Commission had identified the 77 classes based on applications received from citizens, and then recommended their inclusion to the government.
- The HC noted that the Commission's recommendation had been made with "lightning speed" after the then Chief Minister publicly announced a quota for Muslims (in February 2010), without using any "objective criteria" to determine the backwardness of these classes.
- The court also struck down portions of West Bengal's 2012 Act, including (i) the provision that allowed the state government to "sub-classify" OBC reservations into OBC-A and OBC-B categories for "more backward" and "backward" classes respectively, and (ii) the provision allowing the state to amend the Schedule of the 2012 Act to add to the list of OBCs.
- Sub-classification is meant to address the different levels of deprivation faced by different communities, which the court held could only be done by referring to material collected by the Commission.

## BENCH AND BIGOTRY

Political affiliations are seldom considered a disqualification to hold judicial office, but there is no doubt that open bigotry should be one. The controversial remarks of Justice Shekhar Kumar Yadav of the Allahabad High Court, including an unacceptable slur against the Muslim community, at an event organised by the Vishwa Hindu Parishad (VHP) cast a shadow on his impartiality as a judge, if not his suitability to remain in office. Justice Yadav observed ominously that "this is India and it will be run as per the wishes of its majority". It was clear from the context of a Hindu-Muslim dichotomy that he was speaking about, that he was not referring to a governing majority in a democracy, but the sort of numerical superiority that would give the larger group the final word on how the country is run. The judge also sought to compare Hindu and Muslim children and comment on how Hindus learn kindness and tolerance, while Muslims purportedly do not because they witness the slaughter of animals. He is previously known to have observed that the cow is the only animal that inhales and exhales oxygen and made remarks against conversion. It is a welcome development that the Supreme Court of India has taken note of reports highlighting Justice Yadav's remarks and asked for details from the High Court. It is too early to speculate whether there will be an in-house inquiry, or a response to calls for his removal, but it is quite certain that the judge's conduct and functioning will come under justified scrutiny.

Even though the event was a discussion on the need for a Uniform Civil Code, it was not an ideal stage for a meaningful debate. The VHP is an aggressive proponent of a Hindu majoritarian view, responsible for spearheading a violent movement for demolishing the Babri Masjid in Ayodhya and installing a Ram temple in its place, and an organisation that has been banned in the past for fomenting riots, discord and much bloodshed. It was quite obvious that the forum would be more inclined to assail minorities than extol the virtues of a uniform law for civil matters. Judges of constitutional courts are not expected to grace the platform provided by such groups. It is regrettable that the judge forgot the ethical principles that bind the higher judiciary. In 1997, the Supreme Court had adopted a 'Restatement of Values of Judicial Life', a set of guidelines under which the behaviours and conduct of members of the higher judiciary must reaffirm the people's faith in the institution's impartiality and any act that erodes such a perception should be avoided. While lapses from such principles are not rare, Justice Yadav presents a rather glaring example.



## THE CODE OF CONDUCT JUDGES NEED TO FOLLOW

In light of Justice Yadav's remarks, the All India Lawyers Union have written to the Chief Justice of India (CJI) Sanjiv Khanna, saying the judge's comments lean away from democracy and towards a "Hindutva Rashtra". The Campaign for Judicial Accountability and Reforms led by advocate Prashant Bhushan, in its letter to the CJI, has alleged that Justice Yadav's participation in a "right-wing event" and his communally-charged statements were a brazen violation of his oath of office. Supreme Court Bar Association president, senior advocate Kapil Sibal, has reportedly called for the impeachment of the High Court judge.

### On judicial ethics

Judiciary draws its power from two fountains, public acceptance of the authority of the judiciary and the integrity of the judiciary. Experience gained over time has led the judiciary to codify the best conventions of judicial conduct, both in and out of court. The 'Restatement of Values of Judicial Life' is the primary code of ethics governing judicial behaviour adopted by the Supreme Court on May 7, 1997.

The very first rule of the code is that the behaviour of a judge must "reaffirm the people's faith in the impartiality of the judiciary". It underscored that "any act of a judge of the Supreme Court or a High Court, whether in official or personal capacity, which erodes the credibility of this perception has to be avoided". Justice Yadav seemed to have missed the last rule of the code which mandated that "a judge must at all times be conscious that he is under the public gaze". The Bangalore Principles of Judicial Conduct 2002 presents a framework to regulate judicial conduct. It requires a judge to ensure that his or her conduct, both in and out of court, maintains and enhances the confidence of the public, the legal profession and litigants in the impartiality of the judge and of the judiciary. While the 2002 document recognises a judge's entitlement to freedom of expression, it mandates that he or she "shall always conduct himself or herself in such a manner as to preserve the dignity of the judicial office and the impartiality and independence of the judiciary". More importantly, the charter requires a judge to be "aware of and understand" the diversity in society and treat all equally.

### How is a judge impeached?

The Constitution mandates that judges of the Supreme Court and High Courts can be removed by an order of the President after a successful process of impeachment on the grounds of "proved misbehaviour or incapacity". The motion of removal of a constitutional court judge must be supported by a special majority of the total membership of the House and of at least two-thirds of the members of the House present and voting. Except on a removal motion, the Constitution prohibits the legislature from discussing allegations of misconduct of judges in any other context. However, the Supreme Court has also evolved an in-house procedure to give judges facing serious allegations a window to take voluntary retirement, sparing themselves and the judicial institution the public embarrassment of an impeachment.

The procedure was formally adopted in 1999, and was put out in the public domain by the Supreme Court in 2014. The procedure allows a complaint against a High Court judge to be addressed to the President, the CJI or the Chief Justice of the High Court concerned. If a complaint is received by the High Court Chief Justice, depending on the seriousness of the grievance, a response can be sought from the judge concerned. On receiving the response, and if a deeper



probe is called for, the Chief Justice could forward the complaint and the statement of the judge to the CJI.

The President, on receiving a complaint, refers it to the CJI. The CJI, either on receiving a complaint directly or referred to by the President, can forward it to the Chief Justice of the High Court concerned, who would follow the same procedure of collecting a statement from the judge concerned and returning it to the CJI if the allegations were serious enough to require an investigation. The CJI can then appoint a fact-finding committee of two Chief Justices from other High Courts and a High Court judge to inquire into the allegations.

If the committee reports sufficient material to remove the judge, the CJI can ask the latter to retire. In case, the judge refuses to do so, the CJI can intimate the President and PM about the allegations along with the committee report, clearing the way for impeachment.

## PLACES AND WORSHIP

A special Bench of the Supreme Court of India, headed by Chief Justice of India Sanjiv Khanna, will begin hearing on December 12 a batch of petitions that question the validity of the Places of Worship (Special Provisions) Act, 1991, a law that freezes the status of places of worship in the country as on the day of its independence and bars suits that seek to alter such status. It is no exaggeration to say these petitions pose a virulent challenge to the survival of secularism. The outcome may well decide the trajectory of communal relations and the future of secular thought in the country. The 1991 Act does have some exemptions: it did not apply to what was then the Babri Masjid-Ram Janmabhoomi dispute, which ended in favour of the Ram temple. Nor does it apply to monuments, sites and remains covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958. It will also not apply to any suit that has been finally settled or disposed of, any dispute that has been settled by the parties before the 1991 Act came into force, or to the conversion of any place that took place by acquiescence. The challenge has come in the backdrop of a renewed attempt through motivated litigation by some Hindu organisations and devotees to target mosques such as the Gyanvapi mosque in Varanasi, the Shahi Idgah mosque in Mathura and the Shahi Jama Masjid in Sambhal, among others. Any order that strikes down or dilutes the 1991 law is likely to have a malign influence on these proceedings.

The petitions highlight the demolition of temples by invaders in the past and contend that many mosques have been built on their ruins. The Places of Worship Act, they claim, legalises such depredations, and also violates the right of Hindus and other communities to reclaim their places of worship through legal proceedings. It also violates the right to practise and propagate religion and manage and administer places of worship. Ironically, they also contend that the Act goes against the principle of secularism, which would surely stand to be undermined if their attempts to reclaim these sites succeed. Fortunately, there are some clearly established principles in favour of the Act. In its Ayodhya judgment, a five-member Bench observed that the law “imposes a non-derogable obligation towards enforcing our commitment to secularism”. It also called it a “legislative intervention that preserves non-retrogression as an essential feature of our secular values”. For the present, it does not seem likely that the Court will depart from the Constitution’s secular vision and Parliament’s mandate against misusing judicial fora to remedy historical wrongs.



## THE MOSQUES WHICH FACE SURVEY PETITIONS

### The story so far:

During a hearing of the Gyanvapi petition in 2022, Justice D.Y. Chandrachud made an oral observation that Sections 3 and 4 of the Places of Worship Act, 1991 do not prohibit the “ascertainment of religious character” of any place of worship. His oral observation has had repercussions at the lower judiciary with a number of districts and sessions courts in Uttar Pradesh and Rajasthan admitting petitions seeking to “ascertain the religious character” of mosques and other places of worship built in medieval India and ordering their surveys. Among the places facing calls for survey are the Ajmer Dargah, Adhai Din ka Jhonpra, the Shahi Jama Masjid in Sambhal, the Teelewali Masjid in Lucknow, the Shamsi Jama Masjid in Badaun, the Atala Masjid in Jaunpur besides the better known cases of Gyanvapi Masjid, and Eidgah in Mathura.

### Are calls for surveys increasing?

Shortly after a civil judge in Sambhal ordered a survey of the town’s Jama Masjid on November 19, there has been a slew of petitions calling for surveys of mosques and dargahs. On November 24, there was a repeat survey of the Sambhal mosque which led to violence in which six people were killed. Following the violence, the Supreme Court asked the report of the advocate commissioner to be kept in a sealed cover, and directed the mosque’s committee to approach the Allahabad High Court to hear the case.

Around the same time, Ajmer’s West Civil Court admitted a petition claiming that the Ajmer dargah was originally a Sankat Mochan Mandir. The demand led to uproar as the dargah is frequented by people of all religions and the Prime Minister himself sends a chador for its annual Urs in January. Disturbed by these petitions, a number of retired bureaucrats and Army personnel wrote to the Prime Minister asking him to curtail what they called, an “ideological assault on India’s civilisational heritage”.

### What about Adhai Din ka Jhonpra?

The dargah petition triggered demand for the restoration of the 12th century mosque Adhai Din Ka Jhonpra to its alleged pre-Islamic heritage. The mosque, located a few minutes away from the dargah, is an Archaeological Survey of India (ASI) protected site. The demand came from Ajmer’s Deputy Mayor Neeraj Jain who reiterated claims that the Adhai Din Ka Jhonpra was originally a Sanskrit college and a temple before being demolished towards the end of 12th century. Earlier the demand for a Sanskrit college and a temple at the site was raised after a Jain monk visited the mosque along with some functionaries of the Vishwa Hindu Parishad. Soon after Rajasthan Assembly speaker Vasudev Devnani demanded an ASI survey at the historic site, arguing, “An ASI survey should immediately be done at Adhai Din Ka Jhonpra to find out whether the Jain delegates’ claim is true. It’s a subject to research whether it was occupied and converted into a mosque.”

The mosque was built by Qutubddin Aibak around the time he built the Quwwat-ul-Islam Masjid in the Qutub Minar complex in Delhi. Sultan Iltutmish beautified it in AD 1213 with a screen pierced by corbelled engrailed arches which appears in this country for the first time. A protected monument, its name stems from an Urs (fair) that used to be held here for two and a half days. Hence the expression Adhai Din or two and a half days. However, the claim of the site being a mosque has been disputed by author Har Bilas Sarada who argued in his book, Ajmer: Historical and Descriptive, that Seth Viramdeva Kala built a Jain temple here in celebration of the Jain festival





Panch Kalyan Mahotsava in 660 AD. The temple was destroyed by Afghans of Ghor in 1192, he claimed.

The ASI doesn't agree with the assertion. About the mosque, the ASI website states, "It was commenced by Qutubuddin Aibak in about 1200 AD with carved pillars used in colonnades... The pillared (prayer) chamber is divided into nine octagonal compartments and has two small minarets on top of the central arch. The three central arches carved with Kufic and Tughra inscriptions make it a splendid architectural masterpiece."

#### **What about the Shamsi Jama Masjid?**

The 800-year-old Shamsi Jama Masjid is the latest mosque to face contestation. A fast-track court is hearing the claims of Mukesh Patel of the Hindu Mahasabha who filed a claim against the mosque, insisting it was an ancient Neelkanth Mahadev temple. In response, the Shamsi Shahi mosque's intezamia committee argued the suit was non-maintainable. Incidentally, the mosque is built on an elevated area called Sotha Mohalla, and is said to be the highest structure in Badaun town. After Quwwatul Islam and Adhai Din ka jhonpra, it is the third oldest mosque in north India.

After Badaun, cries are being made about the historic Jama Masjid in Delhi too — that it's built at the site of a Vishnu temple. With the districts and sessions courts continuing to freely admit such petitions, the provisions of the Places of Worship Act 1991 which prohibit changing the character of places of worship as they stood on August 15, 1947, stand ignored. Meanwhile, the All India Muslim Personal Law Board appealed to the Supreme Court to take suo moto notice of such petitions and bar the lower level judiciary from entertaining them in the future.

### **'RIGHT OF DEITY TO BE WORSHIPPED': SC NOTICE TO KERALA TEMPLE**

The Supreme Court on Wednesday slammed the Devaswom administration of Sri Krishna temple in Kerala's Guruvayur for deciding not to conduct the age-old 'Udayasthamana Pooja' on Guruvayur Ekadashi day (December 11) citing crowd management and wondered how it could have decided so.

- A bench of Justices J K Maheshwari and Rajesh Bindal also questioned the 'thantri' (chief priest) for agreeing to change the ritual when he himself, in a news article published in 1996, had admitted that the rituals of the Guruvayur temple were streamlined by none other than Vedic philosopher Adi Shankaracharya himself and no deviation is permissible in that procedure.
- The court also issued notice to Guruvayur Devaswom administration in the matter
- The bench, however, expressed regret that it cannot do anything this time as the hearing was happening on the Ekadashi day itself and the pooja had to start.
- The court said that the temple website itself mentions the importance of the pooja and directed the management to follow it scrupulously.
- The appellants who belong to the family which have priestly rights in the temple had approached the SC after the Kerala High Court dismissed their petition.

#### **Do You Know:**

- The Udayasthamana Pooja encompasses a series of worship ceremonies performed in temples throughout the day, beginning at sunrise (udaya) and concluding at sunset (asthamana). Recently,





the temple administration decided to skip this ritual on Ekadasi, citing challenges with managing crowds and a desire to allocate more time for devotees to have darshan.

- Earlier, the Kerala High Court dismissed a case on the matter, stating that the Tantri held the ultimate authority in such decisions. However, the Supreme Court has now issued notices to the temple management, the Kerala government, and the Tantri, and is set to hear the case in four weeks.
- The conflict arose when the temple administration, with the support of the Tantri, decided to forgo the 'Udayasthamana Pooja' on 'Vrishchikam Ekadasi,' citing challenges in managing crowds and a need to provide more time for devotees to have darshan. Members of the temple's hereditary priestly family opposed this decision, arguing that it disrupted long-standing customs and traditions.
- The temple administration and the Tantri argued that the pooja is not an essential ritual but rather a form of offering (vazhipadu) that has been adjusted in the past to address practical needs. They emphasized that the decision was made in consultation with the Tantri, ensuring that it would not compromise the temple's rituals or traditions.
- The High Court noted that determining whether the performance of the pooja on 'Vrishchikam Ekadasi' is an integral part of the temple traditions (acharams) or merely an offering (vazhipadu) is a matter of factual dispute.

#### EXPLAINED: THE DURGADI FORT DISPUTE IN MAHARASHTRA'S KALYAN

On September 20, 1968, Shiv Sena founder Bal Thackeray unfurled a saffron flag at the Durgadi Fort in Kalyan, long a site of contention between local Hindu and Muslim communities. This was a pivotal moment in Maharashtra's political history, as it marked the Sena's very first prominent foray into Hindu revivalism.

Now, more than half a century later, the repercussions of the agitation headed by the Shiv Sena have come to a head. On Tuesday, a Kalyan civil court ruled in favour of the Maharashtra government, rejecting the Muslim community's claim to the disputed site at Durgadi Fort.

Here is a brief history of fort, and the controversy surrounding it.

#### **A 16th century fort with a mosque, temple**

The earliest references to the Durgadi Fort date to the 16th century when Kalyan, some 50 km northeast of present-day Mumbai, was a prominent trading port under the Bijapur-based Adil Shahi Sultanate.

The fort, spread out over roughly 70 acres, stands at the northeastern corner of the city, on an elevated ground next to the Ulhas river. According to historical documents compiled by the erstwhile British government, the fort has existed since 1570, with British accounts stating that it housed a "Musalman tomb, prayer place, and other buildings".

A detailed description from the Gazetteer of the Bombay Presidency: Thana (1892) painted a vivid picture of the fort's features:

"On the top of the mound, on the west crest which overhangs and is about 100 feet above the river, is the Prayer Wall or Idga, sixty-four feetlong, thirteen high, and seven thick, and near the east



crest of the mound a mosque, twenty-two feet long, twenty-two high, and twenty broad. About thirty yards from the mosque is a round cut stone well of great depth, eleven feet in diameter, with a wall two feet seven inches thick at the top," the gazetteer stated.

In 1760, the Marathas captured Kalyan, and subsequently made major modifications to the fort. Notably, they built a small wooden temple dedicated to the goddess Durgadevi inside the premises, and renamed the fort Durgadi Killa, a name that stands till date.

"In the citadel the Marathas built a small wooden temple of Durgadevi behind the mosque, and called the fort Durgadi Killa in honour of the goddess, a name which it still bears. They also changed the Jama mosque into Ramji's temple," the 1892 gazetteer said.

The British took control of Kalyan in 1818, and by the latter half of the 19th century, the Durgadevi temple had ceased to be a place of worship.

"At present there are, on the mound at the north-west corner of the fort, the prayer-place and the mosque-temple, which has ceased to be a place of worship, since 1876 when the image of the goddess was stolen," according to the gazetteer.

#### **Communal tension erupts in the 1960s**

The modern-day controversy over the Durgadi Fort began in the mid-1960s, when the Muslim community, particularly the local Kokni Muslims, claimed they had been offering Eid prayers at the fort for centuries. Moreover, they claimed that local Muslim Koknis possessed the land in question.

Tensions escalated when local Hindus questioned Muslim control over the land, and demanded the right to pray there as well.

In 1966, the Maharashtra government sought to assert control over the land, saying that it was the actual owner of the property. It planned to hand a part of the land over to the Kalyan Municipal Council to build a park. This move was met with resistance from the Muslim community, particularly the Majlis-e-Mushawarat Masajid-O-Awqaf Kalyan, which had been overseeing the upkeep of the eidgah and mosque in the fort.

The government's initial decision was reversed after public protests, and Muslims were allowed to continue offering prayers at the site. The Maharashtra government, while cancelling the order, stated that no claim of Muslims or Hindus over the land of the Durgadi Fort should be admitted, and that Muslims would have the right of offer Eid prayers twice a year at the walls of the eidgah, and use the open ground in front of it for the purpose of prayers.

In its petition to the court, the Muslim side claimed that in 1968, Hindus placed a red stone adorned with vermillion inside the mosque. Tensions escalated that same year when local Hindus decided to celebrate the Navratri festival within the fort premises, asserting that the structure, previously identified as a mosque, was in fact a temple dedicated to Goddess Durga. The situation became more charged when Bal Thackrey, still a nascent organisation at the time, visited the fort on September 20, and declared his intention to install an idol of the goddess in its premises.

The legal battle for control of the fort began in earnest in the early 1970s, when the Maharashtra government once again asserted ownership of the land. In February 1974, the state passed an order handing the land over to the Kalyan Municipal Corporation, a decision that was challenged by the Muslim side in 1976.



### A five-decade long legal battle

The case dragged on for decades, with both political and religious groups continuing to stake their claim. The dispute became a rallying point for various local leaders, including Shiv Sena's Anand Dighe, who made annual pilgrimages to the fort to assert Hindu control over the structure.

Despite the ongoing tensions, the Muslim community was allowed to continue offering Eid prayers twice a year at the fort after receiving clearance from the District Collector. At the same time, the Hindu side too was allowed to hold rituals at the fort during Navratri.

Muslims praying at the Eidgah at Durgadi Fort during Eid in 2022. An Eidgah is a space where Muslims gather to perform Eid prayers twice a year. (Express photo by Deepak Joshi) Muslims praying at the Eidgah at Durgadi Fort during Eid in 2022. An Eidgah is a space where Muslims gather to perform Eid prayers twice a year. (Express photo by Deepak Joshi)

After nearly five decades of legal wrangling, a Kalyan Civil Court recently ruled in favor of the Maharashtra government, affirming its ownership of the disputed land. The court rejected the claims made by the Majlis-e-Mushawarat Trust, stating that the suit was barred by the statute of limitations. The court noted that the Muslim community's possession of the land had been interrupted in 1968, and since the legal petition was filed only in 1976 — nine years after the interruption — the suit was deemed to be invalid under the Limitation Act.

Despite this ruling, the Muslim side has vowed to challenge the decision in a higher court. Sharfuddin Karte, a member of the Majlis-e-Mushawarat Kalyan, argued that the case had not been decided on its merits but rather on a technicality regarding the statute of limitations.

"After close to five decades the court has ruled that our claim has been barred only because the petition was filed nine years after our possession was discontinued. As of now it does not seem to have gone on the merits and the evidence that we had presented to show our claim on the said property. We will challenge this in the higher courts," Karte told The Indian Express.

On the other hand, Maharashtra government leader Sachin Kulkarni emphasised that the court had confirmed the state's ownership of the land, and its right to use it as it deemed fit.

Notably, the court order has not gone into the historicity of the religious structures inside the fort, and has not passed any order yet denying any side the right to pray at the place.

## BEYOND FAITH

The Akal Takht, the highest Sikh temporal seat, has enforced punishment for Shiromani Akali Dal (SAD) leader and former Punjab Deputy Chief Minister Sukhbir Singh Badal, and colleagues for the alleged mistakes they committed when they were in power from 2007 to 2017. The punishment has been both religious and political in nature, which is a disturbing collapse of the essential wall between the two spheres. Mr. Badal survived an assassination attempt while performing penance at the Golden Temple, the central place of worship for Sikhs, on December 4. The Akal Takht's punishments for religious misconduct are the accepted norm for practising Sikhs and, as such, are within the realm of faith and custom. However, Mr. Badal's actions that drew the scrutiny of the Akal Takht were not strictly about his faith, and at the very least, overlapped with his political role as Deputy Chief Minister and beyond. The religious authority also pushed for his ouster as SAD president, and issued directions to the party to set up a committee to initiate a membership drive and hold elections for office-bearers within six months. The SAD is a registered



political party regulated by the law of the country and the Election Commission of India. That it bends to religious writs is disconcerting for the polity.

India's legal framework and constitutional principles emphasise secularism, which is reflected in how political parties are regulated. The direct intervention of any religious body in political decisions and affairs of political parties could send the wrong signals on adherence to the Constitution's secular principles. The SAD has been going through a challenging phase following its poor electoral run in the 2022 Assembly and 2024 general elections. It has lost its traditional support base and needs to reimagine its politics to stay relevant in Punjab. The SAD's strategy to revive its fortunes is a return to its pre-1996 'panthic' (Sikh) agenda. But this is a tricky route. There are disturbing signs of a potential revival of extremism among Sikhs, which will do no good to the community or the country. There are global actors that want to reignite the embers of the long-dead 'Khalistan' movement. The assassination bid on Mr. Badal yet again revealed the existence of radical elements willing to resort to violence. The SAD has had a moderating effect on the Sikh community, offering its members a platform for their religious and secular concerns. An effective takeover of the party by the Akal Takht is harmful for both, and the larger polity.

#### SC GRANTS PERMANENT COMMISSION TO WOMAN ARMY OFFICER

The Supreme Court on Monday exercised its extraordinary powers under Article 142 of the Constitution to grant permanent commission to a woman Army officer with a distinguished service record who was wrongly excluded from the consideration when other similarly placed officers were given the benefit.

"Will it be fair to tell them that they will not be given relief even if they are similarly situated, since the judgment they seek to rely on was passed in the case of certain applicants alone who moved the court? We think that would be a very unfair scenario," Justice Viswanathan, who authored the judgment, observed.

It said that accepting the stand of the respondents in this case would result in the court putting its imprimatur on an "unreasonable stand" adopted by the authorities.

The court delivered its verdict on an appeal filed by a woman officer, who is posted as Lieutenant-Colonel in the Army Dental Corps at Agra, challenging a January 2022 order of the Armed Forces Tribunal Regional Bench, Lucknow.

#### SARTORIAL PREFERENCES OF WOMEN SHOULD NOT BE SUBJECT TO MORAL POLICING, SAYS HC

A Division Bench of the Kerala High Court has observed that sartorial preferences that a woman makes is her own choice that cannot be subjected to moral policing or assessment, particularly by courts.

The Bench of Justice Devan Ramachandran and M.B. Snehalatha made the observation recently while allowing an appeal filed by a woman against a Family Court's verdict granting custody of her children to her estranged husband.

#### Disagrees with findings

The Family Court had observed that the mother was a woman of loose morals who used to wear revealing clothes, spend time with her male friends, and post her pictures in certain dating apps.





Disagreeing with the findings and reasoning of the Family Court, the High Court set it aside by saying “courts cannot be suspected to be guilty of even borderline misogyny or sexism and our constitutional mandate is that we decide matters as per its conscience and within its overriding umbra”.

#### Grants custody

The High Court granted custody of the children to the mother by also taking into account the children’s wish that they wanted to stay with her full-time and were open to meeting their father on holidays.

The Bench observed that “clothing is a form of self-expression, being part of an individual’s identity, or an expression of general aesthetics. It is unpardonable and impermissible in any civilised society to judge a woman solely on the basis of her dress, or to thus conclude upon her virtue or her modesty, which surely can only be construed as being clothed by rigid notions of patriarchy.”

“The sartorial preferences that a woman makes is that of her own choice, which cannot be subjected to moral policing or assessment, particularly by courts...”

#### A WIDE AISLE

In a move that is unprecedented in India’s parliamentary history, 60 Members of the Rajya Sabha have expressed a loss of confidence in the Chairman, Jagdeep Dhankhar, who is also the Vice-President of India. These Members of Parliament, from the Opposition, have given notice for a resolution seeking his removal from office. The resolution is unlikely to face a vote, and will be defeated if it does. But that is beside the point. What is real and damaging for democracy is the trust deficit between the Chair and the Opposition members. Mr. Dhankhar’s rulings and his public statements have been cited by the Opposition as proof of his partisanship. Mr. Dhankhar’s decision to allow Bharatiya Janata Party (BJP) MPs to speak on the subject of an adjournment motion that he himself had rejected on December 9 was the final trigger for the extreme step by the Opposition. These members also see, among other things, a pattern of the Leader of the Opposition in the Rajya Sabha, Mallikarjun Kharge, being disallowed to speak, and Mr. Dhankhar publicly amplifying views of the government and berating those of the Opposition. Most often, it is career politicians who are elected, through a partisan contest, to supposedly apolitical positions such as President, Vice-President and Speaker of the Lok Sabha. Once in office, they largely stay above the fray. Hence, the notice for a no-confidence motion against the Rajya Sabha Chairman marks an unfortunate turn for democracy.

It is no coincidence that all this comes against the backdrop of a constant campaign by the BJP to shrink the Opposition space. Criticism of the government is portrayed as an anti-national act, and institutions and individuals are often targeted through insinuations. There is little engagement between the BJP and the Opposition. If Parliament merely becomes yet another platform for political diatribe, it will erode rather than reinforce democracy. The message from parliamentary proceedings to the citizenry should be that the government is sensitive to their voices. The government’s defence of Mr. Dhankhar included a reference to his caste, and condemnation of the principal Opposition party, with the insinuation that it was anti-India. While the government gets its way by virtue of its majority, the Opposition must have its say. When Parliament is held hostage to hostility between the government and the Opposition, the Chair is expected to mediate and find a way forward. This role of the Chair is possible only when its occupant is neutral and seen as





such. Regardless of the merit of the grievances, the Chairman could take a proactive approach to reassure his critics that he is above the political fray for the sake of institutional integrity.

#### NEHRU ON NO-TRUST MOTION AGAINST FIRST SPEAKER: 'FRIVOLITY... IT'S VICIOUS'

The Opposition INDIA bloc submitted a notice Tuesday for bringing a resolution for removal of Vice-President of India Jagdeep Dhankar, who is also the ex-officio Chairperson of the Rajya Sabha, accusing him of being “explicitly partisan” in conducting the proceedings of the House and acting as an “impassioned spokesperson” of the government’s policies at public fora.

- While this is the first such move against the Rajya Sabha Chairman in India’s parliamentary history, the Lok Sabha has witnessed three no-confidence motions to remove the Speaker since Independence.
- The first motion was moved against India’s first Speaker G V Mavalankar on December 18, 1954 by Vigneshwar Missir, Socialist Party MP from Bihar, with Deputy Speaker A Ayyangar in the Chair. The motion was rejected by the House after an acrimonious two-hour debate.
- The second motion was moved on November 24, 1966, against the then Speaker Sardar Hukum Singh by socialist leader Madhu Limaye, with Deputy Speaker S V Krishnamoorthy Rao in the Chair. As fewer than 50 members rose to back it, the motion was not taken up.
- The third motion was moved on April 15, 1987, for the removal of Speaker Balram Jakhar by CPI (M) MP Somnath Chatterjee, with Deputy Speaker Thambi Durai in the Chair. This motion was also rejected by the House.
- The first move to impeach the presiding officer of a House of Parliament took place as early as 1954, when the Opposition members sought the removal of Lok Sabha Speaker Mavalankar.
- On December 18, 1954, the Lok Sabha took up the Opposition’s motion after the Deputy Speaker said that he was admitting it despite it not being properly worded because it pertained to an important matter.
- Prime Minister Jawaharlal Nehru requested that given the nature of the motion, the Opposition should be given more time to speak than the Treasury benches. “In this particular case, more time should be allowed to the Opposition than the government benches,” Nehru said.

#### Do You Know:

- As per Article 94 of the Constitution, the Lok Sabha Speaker can be removed by a resolution of the Lok Sabha passed by a majority of the then members of the House. At least 14 days’ notice has to be given of the intention to move such a resolution in writing to the Secretary General. The member who gave the notice moves the resolution on a date assigned after 14 days of the notice.
- The Chair — generally the Deputy Speaker, as the Speaker cannot preside over the House when a motion for his removal is taken up — places the motion before the House and asks whether leave be granted to take it up, adding that members who wish that the motion be taken up rise in their seats.
- If not less than 50 members rise accordingly, the Chair declares that leave is granted for the House to consider the resolution on a particular day. However, the removal of the Speaker takes



place on that day only if a majority of the then members vote for his removal — an uphill task given that the government of the day enjoys a majority in the Lok Sabha.

## HOW OILFIELDS AMENDMENT BILL AIMS TO DELINK PETROLEUM, MINERAL OIL PRODUCTION FROM MINING ACTIVITIES

To encourage domestic production of petroleum and other mineral oils, along with private investment in these sectors to reduce import dependence, the Rajya Sabha on Tuesday (December 3) passed the Oilfields (Regulation and Development) Amendment Bill, 2024.

The Bill amends the Oilfields (Regulation and Development) Act of 1948. It draws a clear line between the law governing the mining of “minerals” — defined under the Mines and Minerals (Development and Regulation) Act, 1957 — and the Oilfields Act. If passed by Parliament, the Oilfields Act in its amended form would be limited to governing petroleum and other “mineral oil” production.

- When the Oilfields Act was first passed it was known as the Mines and Minerals (Regulation and Development) Act, 1948. This sole legislation governed and regulated oilfields, mines and minerals until 1957, when the present-day Mines and Minerals Act came into force.
- To demarcate the spheres in which the two Acts would operate, the 1948 legislation was renamed the Oilfields (Regulation and Development) Act, 1948, and its language was amended to replace references to “minerals” with “mineral oils”. However, the Act does not define “mineral oil”, an oversight that the current Oilfields Bill aims to correct.
- The Bill defines mineral oils as “any naturally occurring hydrocarbon, whether in the form of natural gas or in a liquid, viscous or solid form, or a mixture thereof” and includes a long list of resources (such as crude oil, natural gas and petroleum) that would fall under this definition.
- However, it clarifies that the definition will not include “coal, lignite and helium occurring in association with petroleum or coal or shale”, likely because regulation of coal and lignite is governed by the Mines and Minerals Act.
- The original approach of replacing references to “minerals” with “mineral oils” has now been revived in the Oilfields Bill, which replaces references to “mining leases” with “petroleum leases”.
- Subsequently, the provisions relating to the grant of mining leases and the Centre’s power to make rules on them would instead govern the granting and regulation of petroleum leases.
- The Bill also includes several provisions for encouraging investment from private players to spur domestic production of petroleum and other mineral oils.
- Several opposition members raised concerns about how the Bill would affect the rights of states, given that Indian states have the power to tax mining activities.

### Do You Know:

- On July 25 this year, a nine-judge bench of the Supreme Court held that states had the exclusive power to tax mining activities and collect royalties from mining leaseholders. This power, the court held, stems from Entry 50 of the State List in the Indian Constitution, which gives states the power to impose taxes on “mineral rights”.



- However, by reframing the Oilfields Act as providing petroleum leases instead of mining leases, and limiting the operation to mineral oils instead of minerals, it could be argued that the law would fall under Entry 53 of the Union List. It gives Parliament the power to create laws regarding the “Regulation and development of oilfields and mineral oil resources; petroleum and petroleum products; other liquids and substances declared by Parliament by law to be dangerously inflammable”.

## LS PASSES BILL TO AMEND DISASTER MGMT. LAW, OPP SAYS INFRINGES ON STATES' RIGHTS

The Lok Sabha passed the Disaster Management (Amendment) Bill, 2024 Thursday through a voice vote, which seeks to amend the existing Disaster Management Act, 2005.

- The Bill, introduced in Lok Sabha on August 1 this year, proposes creation of disaster databases at national and state level; constitution of Urban Disaster Management Authority for state capital and large cities having municipal corporation, and constitution of State Disaster Response Force by the state governments.
- MoS for Home, Nityanand Rai, said the Bill is aimed at bringing clarity and uniformity in the role of various institutions at national, state and district level.
- Urging the Opposition members to pass the Bill unanimously, he said, “Disaster is not for any party, it is not for any person, it is not for any area. When a disaster hits, it hits the country as a whole.”
- Opposing the Bill, DMK member Kanimozhi said, “This Bill needs more deliberations, debate, and discussion before it is brought to this House.” Observing that disaster management is a state subject, she said, “Like most of the Bills passed by the NDA, this Bill is also detrimental to the rights of the states. Cooperative federalism — which you keep talking about — has become confrontational federalism in reality.”
- “The Bill fails to ensure disaster relief as a ‘justiciable right’. Tamil Nadu has had to go to the Supreme Court for aid after it was affected very badly by the cyclone Michaung,” she said.
- Supporting the Bill, TDP member Kesineni Sivanath (Chinni) said it is a timely legislation to address the increasing frequency of natural disasters.

### Do You Know:

According to the PRS,

- The Disaster Management (Amendment) Bill, 2024 was introduced in Lok Sabha on August 1, 2024.

—The Bill amends the Disaster Management Act, 2005.

—The Act establishes: (i) National Disaster Management Authority (NDMA), (ii) State Disaster Management Authority (SDMA), and (iii) District Disaster Management Authority.

—These authorities are responsible for disaster management at the national, state, and district level, respectively.



- The Act provides for constitution of a National Executive Committee and a State Executive Committee to assist NDMA and SDMA in performing their functions.
  - A key function of these Committees is preparing national and state disaster management plans, respectively.
  - NDMA and SDMA approve the respective plans and coordinate their implementation.
  - The Bill instead provides that NDMA and SDMA will prepare disaster management plans.
- The Bill empowers the state government to constitute a separate Urban Disaster Management Authority for state capitals and cities with a municipal corporation. The Urban Authority will comprise the Municipal Commissioner as the chairperson, the District Collector as the vice chairperson, and other members specified by the state government.
- The Act provides for constitution of a National Disaster Response Force for specialist response to disaster situations.
- The Bill empowers the state government to constitute a State Disaster Response Force (SDRF). The state government will define the functions of SDRF and prescribe the terms of service for its members.
- The Bill provides statutory status to existing bodies such as the National Crisis Management Committee (NCMC) and the High Level Committee (HLC). The NCMC will function as the nodal body for dealing with major disasters with serious or national ramifications. The HLC will provide financial assistance to state governments during disasters.
- The Act provides that the central government will provide NDMA with officers, consultants, and employees, as it considers necessary.

## MILES TO GO

A year is too short a time to assess a government's performance, but it is still long enough to ascertain its commitment to fulfil its promises. The first Congress government in Telangana led by Chief Minister A. Revanth Reddy rode on the back of six guarantees, with a focus on widespread corruption allegations against Mr. Reddy's predecessor, K. Chandrashekar Rao, who was perceived as being inaccessible and lording over a family-run fiefdom. The guarantees were directed at women, farmers, youth, and the elderly, aiming to enhance disposable incomes, social securities, and to provide employment. They range from providing ₹2,500 a month for women who are heads of below-poverty-line families, to doubling retirement pension for the disabled, and the poor among the elderly. A year on, some of these measures implemented include free public transport for women and increased medical insurance cover per family of up to ₹10 lakh, as well as fiscally expensive decisions such as 200 units of free power per household and writing off farmers' loans up to ₹2 lakh.

Some of the unfulfilled measures include raising input support for farmers from ₹10,000 annually — provided by the predecessor Bharat Rashtira Samithi (BRS) government — to ₹15,000, and filling two lakh government job vacancies. The government has cited a fiscal crisis caused by the Chandrashekar Rao government as the reason for this. Days after Mr. Reddy was sworn in on December 7, 2023, his government released a "white paper on the State's finances", which detailed a "more than ten times" jump in Telangana's debt from ₹72,658 crore to over ₹6.71 lakh crore





under the 10 year-long reign of the BRS, and that debt servicing alone constituted more than a third of the State's budget, leaving "very little fiscal space" to implement the Congress guaranteed welfare measures. Since Mr. Reddy rode to power on the popular sentiment of familial corruption, judicial commissions have been set up to probe financial malfeasance in projects ranging from the Kaleshwaram Lift Irrigation Scheme to the power purchase agreement with Chhattisgarh. Mr. Reddy has also accused the Bharatiya Janata Party-led Union government of giving the State short-shrift in tax devolutions and the implementation of centrally funded projects. One promise that Mr. Reddy has worked on is the conduct of a caste census. While it has run into controversy, with complaints of a duplication of information provided to the earlier government, the outcome of the survey and the changes to reservations in government jobs and employment are being keenly watched. Mr. Reddy's hurdles are daunting, but what appears to be lacking is a transparent plan and a candid admission on what to expect, given the situation, over the next four years.

## WELCOME SPOTLIGHT

Hearing a case by petitioners aggrieved with the unremitting hostilities in Manipur, the Supreme Court of India has directed the Manipur government to disclose details of destroyed and encroached properties following the ethnic violence a year and a half ago. The Court had also, a few months ago, extended the working tenure of the Justice Gita Mittal-led Committee supervising the investigations related to the violence and also humanitarian assistance and relief in the State. Ideally, these steps should not have been under the aegis of the Court and, instead, under the remit of the executive governments — in this case, the State and the Union Home Ministry. But the violent imagery of sexual violence, the wanton destruction of property, including places of worship, and the continuing hostility between the State's two ethnic groups had forced the Court's hand into foraying into a supervisory role through the Justice Mittal Committee. It has also become an imperative for the higher judiciary, first, because of the remarkable reticence of the Union government in answering questions from civil society and the political Opposition related to the situation in the State, and second, due to the lack of accountability by the misfiring State government that has been ineffective in bridging the ethnic gap. Even political representatives from the same parties have been split on ethnic lines and there seems little convergence in the political demands being made by the opposite camps.

There is also the rise of non-state actors, armed with sophisticated weapons — many of which are looted from the State armouries — exercising their illegal writ on the political process. They have also been engaged in violent acts in places such as Jiribam, which did not see any ethnic conflagrations earlier. Manipur's tragic descent into ethnic hostilities receives national attention only when the scale of the violence is horrifying and reaches unconscionable levels. Despite the government averring that it is taking steps to restore the rule of law and addressing the political differences, a return to the status quo ante before May 2023 seems far away. The Court's renewed attention is, therefore, welcome, but shorn of meaningful steps to reverse the spiral of hostilities, this exercise would remain incomplete. The government's attorneys have also sought to retain a veil of secrecy over the committee's functioning and findings using the tired rhetoric of "national security". The Court should not pay heed to this ploy which seems more a case of seeking to divert attention than helping to find meaningful solutions to the conflict. Across the world, conflict resolution has focused on mechanisms such as "truth and reconciliation" exercises which have privileged accountability and normative actions, something that remains absent in Manipur. The Committee's findings may provide the necessary push in the right direction.





## DEATH BY WATER

As policymakers prioritise universal access to potable water, the death of three persons last week in Chennai due to suspected consumption of contaminated piped water is a reminder that coverage is not the only problem: even urban centres with a long history of piped supply are still not assured of potable water that is free from dangerous contamination. The incident, which involved drinking water supplied through the State agency in suburban Pallavaram, also sent 34 people to hospital with complaints of diarrhoea. The laboratory test reports of local water samples are yet to be made public, and it may be too early to blame the agency. Nonetheless, the remarks of State Minister T.M. Anbarasan, accusing the affected people of not maintaining hygiene in their surroundings, come across as insensitive and irresponsible. Irrespective of the cause, it is concerning that severe contamination of water continues to occur with greater periodicity in cities in India. In the past six months, large-scale outbreaks of health episodes due to consumption of water containing E.coli have been reported in cities including Bengaluru, Kochi, Noida and Vizianagaram. This exposes the challenge of catering to the basic needs of people, who are increasingly shifting to cities and living in congested environs, putting the water and drainage infrastructure under strain.

Governments face a challenge in providing safe drinking water in a tropical country such as India. Data from the Jal Shakti Ministry show that arsenic has been detected in groundwater in parts of 230 districts in 25 States and fluoride in 469 districts in 27 States. In 2022, according to the World Health Organization, at least 1.7 billion people, globally, used a drinking water source contaminated with faeces. Worldwide, an estimated one million people die annually from diarrhoea caused by unsafe drinking water, sanitation and hand hygiene. In 2010, the United Nations General Assembly had explicitly recognised the human right to water and sanitation. Towards this end, addressing the issue of chemical pollution of groundwater is also non-negotiable. Tamil Nadu Chief Minister M.K. Stalin is cognisant of this. Ahead of the last Assembly elections, he had unveiled his 10-year vision statement for seven priority areas to facilitate development of Tamil Nadu. This included promises to increase the annual per capita drinking water supply from nine lakh litres to 10 lakh litres; reduce wastage of water from 50% to 15%; and increase distribution of recycled water from 5% to 20%. Now, he needs to walk the talk, especially in terms of supplying safe drinking water.

## WHO IS 'TELANGANA THALLI', WHY REVANTH GOVT FACING FLAK OVER HER STATUE

Tempers are on the rise again in Telangana politics as the A Revanth Reddy-led Congress government prepares to unveil the newly designed statue of "Telangana Thalli (mother of Telangana)" at the state secretariat on Monday, even as a Bharat Rashtra Samithi (BRS) worker has moved the Telangana High Court against its installation.

- 'Telangana Thalli' is a symbolic figure for the people of Telangana, the statue was first designed by B Venkataramana, a resident of Nirmal district, and installed at the BRS (then the TRS) headquarters in Hyderabad in 2003.
- Venkataramana claimed he drew inspiration from the statehood agitation led by former Telangana CM K Chandrashekar Rao, popularly known as KCR. The BRS chief felicitated him in 2015, a year after the state of Telangana was formed.
- The Telangana Thalli was an important part of the statehood agitation and was compared to the Telugu Thalli, also known as "Andhra Mata". During the agitation, the pictures of Telangana Thalli

3<sup>RD</sup> FLOOR AND 4<sup>TH</sup> FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



adorned almost all protest groups and the Goddess was often cited to drill home the point of statehood.

- The statue earlier had a crown and held maize in one hand, reflecting the prosperity of the region. On her other hand was a Bathukamma pot, the cultural symbol of Telangana's biggest festival.
- The Telangana Thalli was dressed in a pink silk saree meant to represent the famous silks of Gadwal and Pochampalli while the toe rings, symbolic of married women, signified the filigree ornaments of Karimnagar. She wore a gold waistband.
- The new statue does not have a crown and the Bathukamma pot too has been done away with, giving way to an open palm. The colour of the saree has been changed to green. The waistband has also been omitted from the new design.

**Do You Know:**

- Regionalism is an ambiguous concept that has both positive and negative connotations. In a positive sense, it denotes people's appreciation for their culture, language, region, etc. with a view to maintain an independent identity. In a negative sense, it implies excessive attachment to one's region, which may pose a threat to unity and integrity of the nation.
- In both cases, regionalism reflects a shared sense of identity among people in a specific geographical area. It often originates among groups in particular areas due to distinct ethnic, linguistic, economic and cultural consciousness. Sanjib Baruah argues that, like nations, regions are 'contested constructs'. Both the nation and the region are territorial projects, which can create potential tensions between the two.
- The roots of regionalism in India can be traced back to the colonial period. While British rule imposed unity on colonised India, it also deepened regional disparities across the country. The British exploited these regional disparities to advance their "divide and rule" strategy.
- Later on, the creation of the states of Jharkhand, Chhattisgarh, and Uttarakhand in 2000, the formation of Telangana state separated from Andhra Pradesh in 2014, and the revocation of statehood from Jammu and Kashmir are some of the recent chapters in the trajectory of regional movements in India.
- The phenomenon of regionalism in India emerged primarily from the heterogeneous character of the nation. Regional demands for autonomy stem from various factors, including feelings of neglect towards particular areas, unequal distribution of resources, and the importance of cultural, ethnic, religious or linguistic identity. Additionally, ideologies and manipulation of popular sentiments in favour of a specific region or identity can sustain regionalist aspirations.

#### THE SIGNIFICANCE OF ANI VERSUS OPENAI

In the evolving landscape of digital news dissemination, there is a symbiotic yet contentious relationship between news publishers and technology companies. Publishers depend on these platforms for hosting content and traffic referrals, which they monetise through advertising. Technology platforms, such as Meta, act as intermediaries, driving traffic to news websites and taking a share of the advertising revenue.



The latest frontier of this struggle over the distribution of money between platforms and publishers is the field of Generative AI (GenAI). GenAI platforms utilise vast datasets drawn from the open Web to train their models. Some major news publishers, such as The Atlantic, are entering into contractual agreements to license their content to AI firms. Others, such as The New York Times, have taken legal action against AI firms for the use of copyrighted material as training data, and are seeking compensation. Recently, Asian News International (ANI) sued OpenAI for unauthorised use and storage of its copyrighted work to train the company's Large Language Model (LLM).

### Claims and defence

In the lawsuit, ANI first claimed that OpenAI used its copyrighted content for LLM training without authorisation. ANI formally notified OpenAI of the copyright infringement. In October, OpenAI blocked ANI by applying its opt-out policy, which allows websites to opt out of automated use of their text by AI scanners. It operates on the principles of fair use and exceptions for text and data mining (TDM) for scientific research. Fair use is a legal principle that permits limited use of copyrighted material without the owner's permission, depending on the purpose and character of the use, the type of copyrighted work, the portion used, and its effect on the market for the copyrighted work.

However, ANI argued that opting out is ineffective because other websites and news organisations republish its content widely, which allows OpenAI's crawlers to scrape its content through these third-party sites. So, ANI went to court.

Second, ANI accused OpenAI of generating responses that were either verbatim or substantially similar to ANI's copyrighted content. OpenAI defended its stance on verbatim reproduction by arguing that copyright does not protect ideas or facts, only their expression. It contended that its models never deliver information to users in the same expression as its sources and that the language was modified sufficiently to claim copyright exceptions.

Third, ANI highlighted the issue of fabricated responses, where ChatGPT misleadingly attributed fabricated interviews or news stories to the agency. OpenAI stated that it resolved every instance of false attribution flagged by ANI and pledged to rectify similar issues in the future.

In response to these claims, ANI is seeking an interim injunction to restrain OpenAI from storing, publishing, or reproducing its work. ANI is also requesting an order that prohibits OpenAI from accessing its content anywhere, including through its subscribers.

### Implications

A lawsuit of this nature is a first in India. However, OpenAI asserts that there is no basis for legal action within the country, as no reproduction of content took place in India. The AI platform stated that it has no offices and servers in India, and so the AI model's training and data processing occurs outside India.

ANI's claims and OpenAI's defence highlight two significant issues that AI faces: a balance between copyright infringement and fair use, and territoriality in data storage. The first issue has been persistent since the rise of the Internet. The dispute between AI platforms and content owners reproduces this old wine in new bottles. Fair use, TDM, and the ex-post opt-out option are rooted in two principles: permissionless innovation and free inquiry. The first principle advocates that experimentation with new technologies and business models should be allowed by default. Unless



a compelling case proves that a new invention will cause serious harm to society, innovation should proceed unimpeded, with any arising issues addressed later. The second principle treats facts and data as a commons and advances public knowledge by allowing anyone to share data for scientific purposes.

In India, the law of 'fair use' outlines an exhaustive list of exceptions to copyright protection that do not directly or indirectly reference AI training models. Consequently, whether AI model training falls under fair use in India remains a grey area. Moreover, the absence of TDM provisions in Indian law raises questions about the country's approach to fostering innovation in AI while creating a balance with copyright infringement. Given India's lack of AI-inclusive provisions, policymakers should adopt a permissionless innovation approach to stimulate AI development while protecting the private rights of content creators.

The issue of territoriality in data storage poses major challenges to data sovereignty, which requires that data be regulated by the laws of its country of origin. OpenAI's defence illustrates the complexities of applying territorial laws to cloud-based services and distributed AI models. While these services and models use data generated by Indian users or organisations, the data is dispersed across multiple servers or cloud environments making it challenging to extend traditional concepts of territoriality over data.

This lawsuit against OpenAI in India will set a precedent for determining AI developers' legal accountability for content generated by their platforms.

## WHAT IS THE EXTENT OF THE GLOBAL SHARE OF SOLAR ENERGY?

### **The story so far:**

On November 5, the World Solar Report 2024 by the International Solar Alliance (ISA) was released. From 1.22 GW in 2000, the world's solar capacity has surged to 1,419 GW in 2023, charting a CAGR of about 36%. Today, solar capacity represents three-quarters of all renewable capacity additions worldwide.

### **What are new solar technologies?**

Quantum dot solar cells have achieved a record-breaking efficiency of 18.1%, offering a promising approach to enhance solar energy capture and power atmospheric water harvesting technologies. Researchers are creating self-healing solar panels to extend the lifespan and reduce the maintenance of existing solar cell technologies. Solar-powered phyto-mining uses solar energy to power the extraction of valuable metals from soil-using plants, offering a sustainable alternative to traditional mining practices. Solar paver blocks integrated with building infrastructure and BIPV (Building Integrated PV), like transparent solar panels, allow light transmission and visibility. The development of these alternative technologies will reduce reliance on critical materials like lithium and rare earth elements. The solar sector is also prioritising recycling panels and implementing circular economy practices to minimise environmental impact.

### **Have reducing costs helped?**

The 2024 World Solar Report shows that the average auction prices for utility-scale solar photovoltaic (PV) projects have consistently decreased across all regions. Utility-scale solar PV costs averaged \$40/MWh in 2024. India topped the global charts in solar PV capacity granted through auctions, securing a notable auction price of \$34/MWh. Investment in solar PV





technology within the power sector is expected to surpass the \$500 billion mark by 2024, outstripping the combined investment in all other generation forms.

#### **What about the global market?**

As of 2023, China dominates solar PV as 43% (609 GW) of the cumulative capacity of solar panels installed globally is from China. The U.S. contributes 10% (137.73 GW). Japan, Germany, and India each captured a 5-6% share. Emerging solar markets like Brazil, Australia, Italy, and Spain each contributed about 2%. Solar PV manufacturing has nearly doubled in capacity for wafers, cells, and modules in 2023. China maintained the highest share in component manufacturing in 2023, with 97% in wafers, 89% in cells, and 83% in module installation capacity.

#### **Has solar impacted other industries?**

Employment in the solar PV sector rose to 7.1 million jobs in 2023, up from 4.9 million in 2022 worldwide, indicating a significant increase from the previous year and underscoring the sector's role in job creation and economic development. Solar-powered irrigation systems are transforming agriculture. The global solar pump market is expected to grow at a CAGR of 5.8% from 2021 to 2027, driven by declining costs of solar PV technology, cost competitiveness of solar-powered pumps, especially when compared to diesel-powered water pumping, and increased awareness among farmers. Beyond crop farming, agrivoltaics systems are being used in livestock management, with solar panels installed in pastures to provide shade for animals while simultaneously generating electricity. One of the key factors driving the adoption of solar systems has been the introduction of pay-as-you-go business models, allowing users to pay for their systems in small, regular instalments.

Technological advancements have made solar energy more affordable, while new applications are further driving adoption. We must promote technology and finance transfer, especially to the least developed and small island developing countries, to ensure no one is left behind.

### **DAYS AFTER ASKING RTI APPLICANT TO PROVE NATIONALITY, W.B. COLLEGE SAYS IT WILL PROVIDE INFORMATION**

Days after asking Sabir Ahamed — recognised for his work towards promoting communal harmony in West Bengal — to prove his citizenship in response to his RTI application, the Calcutta National Medical College and Hospital on Monday said that he had “rightly pointed out that a mere declaration of citizenship is typically sufficient” and that it would give him the necessary information.

The development comes in the wake of an uproar on social media over the issue.

Mr. Ahamed — a researcher at the Amartya Sen-founded Pratichi Trust and the convener of Know Your Neighbour, an initiative aimed at promoting communal harmony — had filed an RTI inquiry with the college on November 13, seeking details about the representation of disadvantaged communities at the institution.

The college replied: “... you have not declared in the said application that you are a citizen of India. Therefore, we are unable to answer your queries until you provide proof of your Indian citizenship.” To Mr. Ahamed's subsequent communication, in which he had shared a copy of his Aadhaar card, the college stated: “It is worthwhile to mention that according to the Citizenship Act, 1955, Aadhaar card is not the authentic proof of your Indian citizenship.”





After the news of the college asking Mr. Ahamed to prove his citizenship began doing the rounds, the institution on Monday wrote to him, saying that it would provide the information and that “the reason for seeking such declaration was to ensure the earnestness of the application as it involves compiling large tracts of data and not to question the status of the applicant”.

## ENDS WITHOUT MEANS

The Draft UGC (Minimum Standards of Instruction for the Grant of Undergraduate Degree and Postgraduate Degree) Regulations, 2024 propose significant changes to India’s higher education landscape. These include bi-annual admissions to undergraduate (UG) and postgraduate (PG) courses, enabling students from any stream to pursue any discipline in UG and PG if they pass a relevant national qualifying examination, and allowing for the extension or acceleration of courses. Students can pursue multiple degrees simultaneously. Higher educational institutions will have the autonomy to determine student attendance requirements. According to the UGC Chairman, M. Jagadesh Kumar, these changes will remove rigidity, ensuring that global standards are met. While the intent is laudable, one provision further centralises examinations as a qualifying criterion, which may limit flexibility. The draft rules align with the National Education Policy (NEP) 2020, which emphasises hybrid learning models and skill-based education. The draft rules also support the implementation of the National Credit Framework, providing students greater academic flexibility.

However, while the goals of these reforms are clear, the question is whether there are resources to implement such sweeping changes. Hurdles exist as systemic issues such as insufficient faculty strength, underfunded institutions, and a lack of adequately trained or motivated teachers. Moreover, the regulatory framework, such as on class strength requirements, governing affiliated colleges where a majority of the students study, is ill-equipped to support these new rules that may be implemented more easily in autonomous institutions. Since education is on the concurrent list, State governments often show initial compliance with new regulations only to backtrack. The inertia within academic bodies and administrative procedures further complicates the effective adoption of changes such as the ‘academic bank of credits’. This initiative allows students to register at one institution, take courses from another, and complete apprenticeships in a company, with the degree being awarded by the first institution. While such flexibility is groundbreaking, it faces considerable resistance from traditional academic structures. Moreover, the success of these reforms hinges on a substantial increase in investment in education. Unfortunately, this year’s Budget allocates 15% less funding to higher education compared to the previous year’s revised estimates. While the draft UGC rules offer a promising vision, their success will depend on addressing existing systemic challenges and ensuring that there are adequate resources in place.

## PM POSHAN: CENTRE TO BEAR ADDITIONAL COST OF ₹425.62 CR. DUE TO FOOD INFLATION

The Centre has announced that it will bear the additional cost of ₹425.62 crore on account of inflation in food material cost under the Centrally sponsored PM POSHAN Scheme in the financial year 2024-25.

Under the scheme, one hot cooked meal is served to 11.7 crore students studying in Balvatika and Classes 1 to 8 in 10.24 lakh government and government-aided schools.

On the basis of the inflation index provided by the Labour Bureau, the Education Ministry has enhanced the material cost of pulses, vegetables and oil by 13.7%.

**3<sup>RD</sup> FLOOR AND 4<sup>TH</sup> FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR**



“The material cost is enhanced from ₹5.45 to ₹6.19 for primary and Balvatika classes and from ₹8.17 to ₹9.29 for upper primary classes with effect from December 1,” said a release from the Ministry. The material cost could not be revised during 2023-24; therefore, the inflation value of items under PM POSHAN basket for both 2022-23 (6.45%) and 2023-24 (6.74%) has been considered for enhancement of cost.

Each Balvatika and primary school student is eligible for 20 grams of pulses, 50 grams of vegetables and five grams of oil. Similarly, each upper primary student is eligible for 30 grams of pulses, 50 grams of vegetables and seven grams of oil.

#### State contribution

The new rates will be applicable across all the States and Union Territories.

“These rates of material cost are the minimum mandatory rates; however, States and UTs are free to contribute more than their prescribed share, as some States and UTs have been contributing more than their minimum mandatory share from their own resources for providing meals with augmented nutrition under the PM POSHAN Scheme,” the statement said.

The Centre also provides about 26 lakh tonnes of foodgrains through the Food Corporation of India for which it bears 100% cost, including subsidy of approximately ₹9,000 crore a year and 100% transportation cost from FCI depots to schools.

“The per meal cost after adding all components including foodgrains cost under the scheme comes to approximately ₹11.54 for Balvatika and primary classes and ₹16.74 for upper primary classes,” the statement said.

## DIGNITY AT THE END

Harmala Gupta Writes: Dying with dignity is one of the most vexing challenges we face today. The recent passage of a bill in the House of Commons in Britain highlights this concern. A cry has been raised by a section of its citizenry, which is resonating across the globe, asking for assisted dying for themselves and for their loved ones in the face of unbearable suffering.

- Recent discussions in the UK Parliament have highlighted the growing demand for assisted dying for individuals facing unbearable suffering. Oregon’s data (since legalizing assisted dying in 1997) shows that two-thirds of those opting for it have terminal cancer, with reasons including loss of dignity, fear of burdening others, and inadequate pain relief.

- Research shows adolescent and young adult male cancer survivors (15-39 years) have the highest suicide rates, which have tripled in recent years.

- In the UK, hospices face closures due to reliance on charity funding despite being pioneers of palliative care. Calls have been made for increased government investment in accessible, affordable, and compassionate palliative care.

- Palliative care addresses physical, psychological, social, and financial needs, allowing patients to live and die with dignity. At Can Support, patients with terminal cancer who initially considered suicide often opted to live well with appropriate care.

- Only 4% of Indians needing palliative care have access to it, largely provided by underfunded NGOs. Hurdles include restrictive laws for accessing essential medications like oral morphine. A



Supreme Court case highlighted the plight of families unable to sustain care for patients in a vegetative state due to financial burdens.

- Palliative care must be integrated into the public healthcare system, particularly as non-communicable diseases rise and the population ages. Advance medical directives (living wills) should be legally enforceable to ensure patient dignity.
- India's stratified society could lead to potential misuse of assisted dying laws, disproportionately affecting marginalized populations. Experiences from Canada, where Medical Assistance in Dying (MAID) has expanded, highlight risks of deteriorating healthcare for vulnerable groups. Universal access to palliative and hospice care is essential to prevent suffering and reduce the need for assisted dying.
- Emphasis on foresight, commitment, and compassion to implement palliative care effectively. The debate reflects a broader question of whether societies prioritize alleviating suffering with care or resort to assisted dying as a solution.

**Do You Know:**

- Palliative care and hospice care both focus on the comfort, care, and quality of life of individuals with a serious illness. Hospice care is a specific type of palliative care that is provided in the final weeks or months of life. Although these two forms of care are similar in some ways, they can differ as to when and where care is received, and which treatment options are available. Learn more about these two types of care to determine which may be most appropriate for you or a loved one.
- There is a misconception that palliative care means the patient will die soon. But it is not care only for bed-ridden patients. It is an important protocol that is included along with treatments to slow, stop or cure cancer or chronic infections (HIV, drug-resistant TB and leprosy), chronic cardiac ailments, renal and liver failure and neurological conditions (stroke, sclerosis). The therapies and care are focussed on providing relief from the symptoms and stress of the illness. The goal is to improve the quality of life for both the patient and the family.
- The care involves focussing on providing relief from symptoms and stress of the illness. Symptoms may include pain, depression, shortness of breath, fatigue, constipation, nausea, loss of appetite, difficulty sleeping and anxiety.
- Some cancer patients, feels Dr Arora, may need institutional care at the end stage of their illness and instead of admitting them to busy, acute care hospitals, they require a care unit that combines the skills of a hospital with the hospitality and warmth of a home. This system, she adds, needs to adjust to the needs of the patients and their caregivers. "The patient receives the care of the oncologist, radiotherapist and palliative care therapists. This team effort gives the patient confidence, peace and hope," shares Dr Arora.

**COMPLAINTS FILED AGAINST MARKETING PITCH OF NUTRACEUTICALS DEVELOPED BY CMFRI**

Campaign Against Pseudo Science Using Law and Ethics (CAPSULE) Kerala, a wing of the Kerala Sasthra Sahitya Parishad, has filed complaints with the Food Safety and Standards Authority of India (FSSAI) against the online marketing claims and sale of three nutraceuticals products, which have been developed by the Indian Council of Agricultural Research-Central Marine Fisheries Research Institute (ICAR-CMFRI).



Nutraceuticals are products derived from food sources with additional health benefits besides basic nutritional value. The complaint said the product, Algamin Tension-Ease capsules, promises to boost heart health, manage mild to moderate hypertension, control high cholesterol and circulatory instability, and relieve anxiety and stress. The manufacturer claims it reduces blood pressure and hypertension, regulates optimal blood flow, and has no side effects.

The product Algamin Diabet-Ease capsules is being advertised claiming that it helps to improve digestive health and weakness due to diabetes, can lower blood sugar levels, and maximises insulin utilisation in the body. Both of them are manufactured by Kochi-based Ayur Research Centre for Pioneer Pharmaceuticals Limited and marketed by GoWell International Traders Private Limited. According to the CMFRI, they contain 100% natural marine bioactive ingredients from selected seaweeds, which are commonly available in the Indian coastal waters.

#### **'No human trials held'**

GreenRex capsules, manufactured by Elixir Extracts Private Limited, Muvattupuzha, Ernakulam, and marketed by Emineotech Private Limited, Chavara, Kollam, claim to treat non-alcoholic fatty liver disease.

The complaint pointed out, quoting official documents, that these products have not been subjected to human trials and there are concerns about their safety and efficacy. Also, they violate the Food Safety and Standards (Advertising and Claims) Regulations, 2018, Food Safety and Standards Act, 2006, Consumer Protection Act, 2019, Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954, and the Drugs and Cosmetics Act, 1940. CAPSULE Kerala functionaries urged the FSSAI to conduct an investigation and take action to curb misleading claims and ensure compliance with FSSAI regulations and other applicable laws.

## THE ROW OVER TUNGSTEN MINING NEAR MADURAI

### **The story so far:**

The Ministry of Mines recently announced it had granted tungsten mining rights to Hindustan Zinc Limited, a subsidiary of Vedanta Limited, through an auction on November 7. One of the areas chosen was a band in Melur in Madurai district. Following protests, the State government of Tamil Nadu said that it would soon pass a resolution to reject it.

### **What does the Ministry say about mining?**

The Union government, through a statement on November 7, stated that the Ministry of Mines had successfully concluded the auction of eight critical mineral blocks, launched under Tranche IV of the auction of critical and strategic mineral blocks. It attributed the success of the auction to the Mines and Minerals (Development and Regulation) Act, 1957, which leveraged the Union government's authority to grant mineral concessions for key minerals listed in Part D of the First Schedule. Following the issuance of the Notice Inviting Tender (NIT) on June 24 for 21 mineral blocks, 10 mineral blocks advanced to the second round of e-auction. They contained deposits of strategic minerals such as phosphorite, graphite and vanadium, essential for high-tech and green energy applications.

As the Nayakkarpatti tungsten block is one among eight blocks selected for mining, the Mineral Exploration and Consultancy Ltd. of the Ministry of Mines in its report noted that the 2,015.51





hectares earmarked for tungsten mining was found to be rich in scheelite — an important ore of tungsten. The water source for mining in the area was listed as the Periyar canal.

#### **Why is there opposition?**

The public, environmental activists and politicians have staunchly opposed the move to start tungsten mining in the biodiversity-rich heritage area at Melur. Though the Ministry claimed that it had taken inputs from the Tamil Nadu government, which reportedly showed no opposition before the auction, Chief Minister M.K. Stalin urged Prime Minister Narendra Modi to cancel the mining rights awarded to the private firm before announcing that the State government would pass a resolution to cancel mining rights. The earmarked area for mining comprises Melur, Terkutteru, Muthuvelpatti, Kulanipatti, Kidaripatti, Etimagalam, Arittapatti, Vallalappatti, Sillippyapatti, Chettiyarpatti, and Nayakkarpatti.

Locals and environmental activists fear that mining would destroy its rich flora and fauna in addition to distorting its cultural significance. The major argument raised by opposing voices is the location's significance as a biodiversity heritage site, declared by the Tamil Nadu government through a notification in November 2022, to protect the site comprising 139.63 hectares in Arittapatti village (Melur block) and 53.8 hectares in Meenakshipuram village (Madurai East taluk) from quarrying and other developmental activities.

Though the Ministry had explained that out of the total area of 20.16 sq.km, only 1.93 sq.km within Arittapatti and Meenakshipuram villages had been notified as a biodiversity heritage site, activists are sceptical about the impact of mining on the environment and cultural sites like temples and Jain beds located around the area.

R.S. Mugilan, an environmental activist known for his protest against projects like Sterlite, Kudankulam Nuclear Power Plant, hydrocarbon Project in Neduvasal, and Neutrino project, said, "Vedanta — the company that won the auction for tungsten mining, is known for pollution practices at its copper smelting unit in Thoothukudi." Highlighting issues from the climate change perspective, Poovulagin Nanbargal, an environmental organisation based in Tamil Nadu, notes that the tailings (the left-over materials from the processing of mined ore) when stored after the mining extraction, would release heavy metals like copper, cadmium, zinc, lead, arsenic, and would be detrimental to humans and the environment.

#### **Is there a Centre-State rift?**

Though the State government says it vehemently opposed the mining of tungsten block in Melur, the Union government alleges: "Since February 2024, when the block was first put to auction till the declaration of result of the auction of November 11, there was no communication from any quarter including the State government regarding any opposition to the auction. Nor did the State government request the Union government to drop the block from auction." However, the State Minister for Water Resources pointed out that repeated conversations were held with the Union government over mining. He clarified: "When the Union government sought the details of the land, we had pointed out that there was a biodiversity heritage site at the proposed area. Without taking into account such factors, the Union government has awarded the rights to the company."





## INDIA USED 114 MG OF ANTIBIOTICS FOR EVERY KG OF MEAT IN 2020

For humanity, antibiotics are a huge blessing. Antibiotics have saved millions of lives from bacterial infections. However, there is growing concern that these bacteria will become resistant to the drugs we use against them.

When we think about antimicrobial resistance, we often focus on what drugs humans take. We might not even consider the use of antibiotics in livestock, but they also pose a threat.

In fact, much more antibiotics are given to livestock than to humans. Researchers previously estimated that, in the 2010s, around 70% of antibiotics used globally were given to farm animals. While there hasn't been an update of these figures in the last few years, it's likely that more antibiotics are still used in livestock than humans.

Overusing antibiotics in livestock increases the risk of disease in animals and humans in several ways. First, antibiotics are often used as a cheap substitute for basic animal welfare practices, such as giving animals enough space, keeping their living environments clean, and ensuring that barns are well-ventilated. A failure to maintain hygienic conditions on farms increases the risk of disease for both livestock and humans.

Second, the overuse of antibiotics can also increase the risk of bacteria that are resistant to treatment. That threatens the health of the animals but can also be a risk for humans for crossover diseases.

Finally, humans can be exposed to resistant pathogens by eating contaminated meat and dairy products.

One of the key challenges in understanding the extent and risks of antibiotic resistance in livestock is the lack of transparent data sharing from countries. Of course, comparing the total amount of antibiotics given to cows, sheep, pigs, and chickens would be unfair. Cows are bigger than chickens, so we would expect them to need more antibiotics for the same impact. So, researchers compare antibiotic use in units adjusted for the size of animals — usually as the number of milligrams used per kilogramme of meat product.

Chickens tend to receive the least antibiotics. You can see this in Chart 1: they receive about seven times less than sheep and five times less than pigs. Cows also receive less than pigs and sheep.

Antibiotic use is measured in milligrams per kg of animal product. Sheep have the highest usage at 243 mg, followed by pigs at 173 mg, cattle at 60 mg, and chickens at 35 mg.

One of the reasons why antibiotics are used in lower quantities in chickens is that they are killed at a much younger age. Fast-growing breeds reach their “slaughter weight” at around 42 days, so they are often slaughtered when they are just 40 to 50 days old. Since their lifespan is shorter, they consume fewer antibiotics. Pigs are usually slaughtered when they are around five to six months. The fact that intensive livestock get far more antibiotics than animals raised outdoors is one reason why cows tend to get less antibiotics than pigs.

Of course, the exact amount of antibiotics given varies across countries. Researchers Ranya Mulchandani and colleagues estimated antibiotic use across the world based on the best available data, as well as extrapolations for those countries that don't release data.



Map 2 shows antibiotic usage in livestock per kg of meat in 2020. Asia, Oceania, and most of the Americas use a lot of antibiotics. Europe and Africa, in blue, tend to use less than 50 mg per kg. For instance, India used 114 mg of antibiotics in livestock per kg of meat in 2020, compared to 4 mg in Norway — 30 times less. Of the 190 countries for which the data was collected, India ranked 30th in terms of antibiotic usage in animals. There are a few reasons why these differences are so large.

The first one is affordability and access: farmers in Africa, for example, have less access, just like they have less access to other farming inputs, such as fertilizers.

Another reason is the differences in regulatory and industry norms regarding antibiotic use. Antibiotic use has dropped significantly in Europe, partly due to regulation.

Finally, the most popular types of livestock make a difference. As we saw earlier, sheep and pigs tend to receive far more antibiotics than cattle or chickens, even after adjusting for their size. That means countries that raise many pigs would tend to use more antibiotics. More than half of Thailand's meat supply is in the form of pig meat. In China, it is two-thirds. That's more than the global average of one-third.

Some countries have reduced antibiotic use a lot. Antibiotics can play an important role in preventing disease and illness in animals. This is no different from humans. So, removing them completely is not necessarily the best option.

The key is to use them more effectively: changing farming practices to reduce antibiotic use where it's in excess or using antibiotics in smaller quantities when it is needed. Many antibiotics given today are not used to prevent disease but to promote growth and produce meat more efficiently.

We know countries can reduce antibiotic use while maintaining healthy livestock sectors because some countries have already achieved rapid reductions. Between 2011 and 2022, sales of veterinary antibiotics fell by more than half across several European countries. The use of antibiotics considered critically important in human medicine also fell by half, with some specific drugs falling by 80% to 90%.

#### ANDAMAN POLICE SEEK CLUES FROM STARLINK OVER METH SEIZURE

The Andaman police have sent a legal notice to Starlink, a company owned by Elon Musk that offers satellite broadband services, seeking details of who purchased its Internet device that helped in sea navigation of smugglers who were caught with \$4.2 billion worth of meth in the biggest such Indian seizure.

Two people with direct knowledge of the notice said Starlink had been asked for the purchaser's name and payment method, registration details and where the Internet device was used when smugglers travelled in international waters from Myanmar to India.

The police seized more than 6,000 kg of meth in late November on a Myanmar boat carrying sacks of the suspected contraband, and found that the Starlink Mini Internet device had been used.

Starlink and the Andaman police did not respond to a request for comment. The police estimated that the seized meth had a retail market value of 360 billion rupees.

The incident has set off alarm bells as it is the first time Starlink's device has been used to navigate and reach Indian waters in a major drug haul.



The investigation comes just as the Musk-owned company is trying to address any potential security concerns before it is given a green light to launch its satellite broadband services in India.

Starlink recently won a lobbying battle after a bitter face-off with billionaire Mukesh Ambani over how exactly New Delhi should allocate satellite spectrum to companies.

## FROM COCAINE STUFFED IN CHILDREN'S BOOKS TO CURRENCY IN 'LEHENGAS': HOW SMUGGLING IS EVOLVING

Over the past year, lehengas, broomsticks, hair wigs, thermocol balls — seemingly unrelated items — have been used to smuggle illicit cash and drugs such as heroin and cocaine into India, according to a new report by the Directorate of Revenue Intelligence (DRI), the country's apex anti-smuggling agency.

- The 'Smuggling in India' report highlighted inventive methods of smuggling and maps key geographic routes. The DRI also reported a sharp rise in seizures of cocaine, methamphetamine, contraband cigarettes, and illicit foreign currency.
- In addition to traditional land and maritime routes linking India to two major narcotics hubs — the Death Crescent (Afghanistan, Iran, and Pakistan) and the Death Triangle (Myanmar, Laos, and Thailand) — new smuggling routes have also emerged.
- Cocaine from South America increasingly arrives via foreign nationals transiting through African countries by air. Meanwhile, free trade warehousing zones in West Asia, particularly Dubai, have become key transit hubs for smuggling contraband cigarettes from Southeast Asia into India.
- Cocaine is a drug derived from the leaves of the coca plant native to western South America. In recent years, air travel has emerged as a preferred route to smuggle cocaine from South American countries into India, according to DRI.
- The modus operandi for cocaine smuggling into India typically follows three patterns – a foreign national travelling by air with cocaine concealed in their bodies, an Indian “mule” travelling to and from Africa, or courier consignments.
- After foreign nationals, major seizures of cocaine were linked to Indian mules traveling to Africa, collecting cocaine (often unknowingly), and coming back to India.
- “Indian nationals being used as mules have also become a common occurrence, with many being deceived by lottery schemes or job offers that sometimes involve carrying contraband unknowingly,” the report said.
- Following air travel, the most prevalent route for cocaine trafficking is through courier services. At times, smugglers have also attempted to export drugs under the guise of chemicals and medicines.

### Do You Know:

- Seizures of drugs such as cocaine and methamphetamine, contraband cigarettes, and illicit foreign currency by the DRI have seen a sharp rise over the past year.
- According to DRI's latest Smuggling in India report, the agency conducted 47 cocaine seizures worth Rs 975 crore in FY24—more than double the number recorded in the previous financial



year. The quantity of cocaine smuggled into India, primarily through airports, increased by 9 per cent to 107 kg during the same period.

- Illicit foreign currency seizures have also surged. DRI officials seized Rs 13.8 crore in foreign currency during the first half of FY25, surpassing the Rs 12.4 crore confiscated in all of FY24.

## CENTRE WANTS STATES TO MAKE SNAKEBITES NOTIFIABLE DISEASE: WHY, WHAT THIS MEANS

The Union Health Ministry has urged states to make snakebites a notifiable disease — a disease that is legally required to be reported to the government by both private and public hospitals.

Snakebites are a major public health challenge in the country. Some three to four million cases of snakebites are reported every year, and an estimated 58,000 persons die because of them annually, according to the 2020 Indian Million Death Study, a largescale study that examined the causes of premature death in India.

Earlier this year, the government launched the National Action Plan for Prevention and Control of Snakebite Envenoming (NAPSE) with the aim of halving snakebite deaths by 2030. NAPSE recommended that snakebites should be made a notifiable disease.

### Which types of diseases are considered notifiable?

Usually, infections that are likely to cause an outbreak, lead to deaths, and those that need to be investigated quickly to take appropriate public health measures, are declared as notifiable diseases.

While the list of notifiable diseases differs from state to state — state governments are responsible for bringing out the notification — most of them consider infections such as tuberculosis, HIV, cholera, malaria, dengue, and hepatitis among others to be notifiable.

### Do You Know:

- Snakebites can lead to acute medical emergencies that require immediate care. They can cause severe paralysis that can prevent breathing, can lead to a fatal haemorrhage, and damage different tissues.
- There are more than 310 species of snakes in India — 66 of them are venomous and 42 are mildly venomous. Twenty-three snake species are considered to be of medical importance as their venom can kill. However, almost 90% of snakebites in the country are caused by the 'Big Four' — the Indian cobra, common krait, Russell's viper, and saw-scaled viper.
- Making snakebites notifiable is expected to lead to proper surveillance, and to help determine the precise numbers of snakebite cases and deaths across India.
- The government can then use this information to effectively manage, prevent, and control cases of snakebites. Adequate antivenoms can be provided to various regions, and proper training can be imparted in areas where snakebites are frequent.





## VETERAN LEADER AND ICON OF BRAND BENGALURU IS NO MORE

Somanahalli Mallaiah Krishna, or S.M. Krishna, 92, who passed away on Tuesday, was a charismatic leader with a modern outlook, who created a niche for himself in the country's political landscape with his administrative skills and a unique vision of development.

He held several prominent positions throughout his career as External Affairs Minister, Maharashtra Governor, Chief Minister of Karnataka, Speaker of the Karnataka Assembly and Minister in the Karnataka government.

He not only laid a strong foundation for the growth of IT and BT industries in Karnataka but also managed to get them on board with the government to build 'Brand Bengaluru' at the international level. He earned the reputation of being a reformist icon with a focus on development at a time when populism and caste politics dominated the scene.

Born into a farming family in Somanahalli of Mandya district, Mr. Krishna went on to do a post-graduate programme in law in the U.S. by obtaining a Fulbright Scholarship. This turned out to be a platform for launching his political career as he entered the Legislative Assembly from Maddur in 1962 by trouncing a veteran and influential politician, H. K. Veeranna Gowda, soon after his return from the U.S.

In his nearly five-decade political career, Mr. Krishna has served as a member of the Lok Sabha, Rajya Sabha, Legislative Assembly and Legislative Council, besides holding organisational posts such as Karnataka Pradesh Congress Committee president.

During his term as Chief Minister (1999 to 2004), he faced a series of challenges, including kidnapping of the Kannada matinee idol Raj Kumar by forest brigand Veerappan, a severe three-year drought and the row over sharing of Cauvery water with Tamil Nadu.

While he is credited with managing them well, his party lost the Assembly polls held amidst a drought in 2004. This resulted in the Congress high command shifting him to Maharashtra as Governor and later making him the External Affairs Minister. Many political leaders feel that Mr. Krishna would have been in the race for the Prime Minister's post if his party had managed to win 2004 Assembly elections. This is acknowledged by Krishna in his biography titled Smrithivaahini.

With his suave personality and focus on building 'Brand Bengaluru', Mr. Krishna endeared himself particularly to the aspiring class, especially the upwardly mobile city dwellers. Yet he also took up several important schemes for rural areas, including rejuvenation of tanks under Jalasamvardhane project to replenish groundwater, Yashaswini health insurance scheme for members of co-operative bodies, mid-day meal scheme for government school students, digitisation of land records and housing schemes for poor.

He also brought the Karnataka Lokayukta institution into the limelight by appointing N. Venkatachala as Lokayukta who went aggressively against "corrupt" officials.

Years after he was removed from the post as External Affairs Minister, Mr. Krishna severed his nearly five-decade ties with the Congress and joined the BJP almost at the fag end of his political career. He had to witness a personal tragedy too at the twilight of his life as his son-in-law and founder of Café Coffee Day V.G. Siddarth ended his life after his firm was caught in financial crisis. However, Mr. Krishna took this in his stride. His grandson is married to the daughter of Deputy





Chief Minister D.K. Shivakumar, who was his protege. Mr. Krishna maintained dignity by retiring from active politics in the last few years.

#### **Long association with The Hindu**

Mr. Krishna had an association with The Hindu right from his childhood. "Ours was the only house (in Somanahalli) to get The Hindu in those days," Mr. Krishna has stated in his autobiography Smrutivaahini. Though his father S.C. Mallaiah never had college education, he was able to read and understand The Hindu, he says in the book.

### DEEPENING INDIA'S STEPS AS A KEY SPACE-FARING NATION

India has set ambitious goals for its space programme in the next two decades. These goals hinge on powerful, reusable rockets such as the Indian Space Research Organisation (ISRO)'s upcoming Next Generation Launch Vehicle (NGLV). In addition to the NGLV, India must tap into its private sector to develop more such rockets in order to secure strategic autonomy in its access to outer space.

#### **ISRO's road map**

From an infant space programme in the 1960s, India has grown into a powerful space-faring nation. Preparations for the Gaganyaan mission are underway. Gaganyaan will take an Indian crew to space for the first time, demonstrating Indian human-spaceflight capability. By the end of the next decade, India aims to have a more sustained presence in space by having its own space station in orbit around earth. It also aims to expand its human-spaceflight capabilities to the moon.

Realising these objectives effects a road map that consists of multiple uncrewed missions to the moon, mastering human-centric technologies for space travel and developing powerful new rockets. These rockets have to carry heavier payloads to support humans in space. They should also be financially viable as it will take many test flights to reach the safety and the reliability standards for human-spaceflight to the moon. ISRO is fulfilling these requirements with its upcoming NGLV, which has been recently approved for development by the Union Cabinet.

The significance of the NGLV lies in its heavy lift capability and reusability. The NGLV will triple the payload capacity of the LVM3 (Geosynchronous Satellite Launch Vehicle Mk III), which is India's most powerful rocket. This comes with numerous benefits. Heavy lift rockets ease restrictions related to weight and volume. It frees up the focus of engineers and scientists that would otherwise have to be spent on miniaturisation or weight reduction. It greatly increases the potential of space-related missions. The possibilities increase exponentially.

In contrast to all of India's existing rockets which are expendable as they are built for one-time use, a major part of the NGLV will be reusable. Reusability requires that the rocket keep some of its fuel for controlled descent back to the earth's surface. This reduces the capacity of the rocket to carry heavier loads but offers massive cost savings. Reusability has become necessary for rockets to remain competitive.

#### **The immediate need**

The NGLV's development phase will last for the next eight years. In the meantime, the need for heavy lift capability is already felt. India's next uncrewed moon mission is slated to use not one,



but two rockets. Two LVM3s will carry the requisite modules. They will then be assembled in space to form one composite vehicle that will go to the moon.

In another instance, GSAT-N2, a communication satellite built by ISRO, was launched on SpaceX's Falcon 9 rocket. It weighed 4,700 kg while the maximum weight that an LVM3 can carry to the Geostationary Transfer Orbit (GTO) is 4,000 kg. A reusable Falcon 9 from SpaceX, a U.S. company, can carry up to 5,500 kg to the Geostationary Transfer Orbit (GTO). Foregoing reusability, an expendable Falcon 9's capacity increases to 8,300 kg. Even this figure is dwarfed in comparison to SpaceX's Falcon Heavy and Starship rockets.

The Starship, which completed its sixth test flight recently, has already achieved significant milestones surrounding heavy lift and reusability. Its mind-boggling capacity to lift over 21,000 kg to the GTO (1,00,000 kg to the Low Earth Orbit) while remaining reusable, shows that the Starship is already past the level of advancement that the NGLV hopes to achieve at the end of its eight-year development phase.

#### **Leveraging the private industrial base**

This is no surprise given ISRO's wider scope, capability and focus. However, it also raises questions about why India is not exploring more paths to produce multiple reusable, heavy lift rockets.

In parallel to developing the NGLV, the Department of Space can give out contracts to the private industry in India to design and develop reusable, heavy lift rockets of their own. Space is an emergent sector with massive potential for commercialisation.

There is likely to be strong private sector interest in India to take up these contracts with the right incentives. Even with a lack of existing faculty in rocket technology among Indian corporations, they can explore foreign collaboration. For instance, various rocket engines are already sold commercially.

A milestone-based funding mechanism where the Department of Space pays private players after they meet certain objectives at every stage is a great way to ensure accountability and reduce cost overruns. In the best case, India may end up with multiple NGLV-like rockets alongside the NGLV, resulting in much-needed redundancy and greater launch frequency. In the worst case, there may be delays but that is accompanied by positive spillovers of innovation, technical capability and infrastructure which will ultimately yield positive outcomes.

The entire gamut of space activities, which ranges from using satellite data for development to extending Indian presence to the moon and Mars, hinges on a resilient supply of space transportation services. India must foster a strong ecosystem for the growth of a specialised industrial base that can cater to India's needs and ambitions in outer space.

### **STUDY BRINGS INDIAN STAR TORTOISE TO EVIDENCE-BASED CONSERVATION**

Researchers have identified two genetically distinct groups of the species. The genetic divergences showed up as differences in physical features that could inform strategies on where and how to release and conserve rescued tortoises, Subhasree Sahoo, a Ph.D. student and first author of the study, says



The Indian star tortoise (*Geochelone elegans*) is a sight to behold, with its obsidian shell and the striking sun-yellow star patterns adorning it. These tortoises are hardy herbivores and are popular as exotic house pets — but they shouldn't be. It's illegal to own one in India but also unethical since they are vulnerable in the wild.

Endemic to the subcontinent, Indian star tortoises reside in arid pockets of northwest India (bordering Pakistan), South India, and Sri Lanka. However, members of the species have also been found in people's homes as far afield as Canada and the U.S. The increasing demand for them as pets has entangled them in one of the largest global wildlife trafficking networks.

The Indian star tortoise is listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and in Schedule I of the Wildlife (Protection) Act 1972, which provides the highest level of protection to animals in Indian law. Despite this, officials have already seized hundreds of tortoises being smuggled through the Chennai and Singapore airports and across the India-Bangladesh border this year.

Wildlife biologist Sneha Dharwadkar, co-founder of an NGO called Freshwater Turtles and Tortoises of India, is worried that unscientific releases of the seized tortoises could worsen their fate. "We can no longer simply take confiscated tortoises and release them in nearby forests," Dharwadkar wrote in an email.

To find an alternative, researchers from the Wildlife Institute of India and Panjab University explored the diversity and natural distribution in India by sequencing the genomes of Indian star tortoise in zoos, wildlife reserves, and protected areas.

The study identified two genetically distinct groups of Indian star tortoises: northwestern and southern.

The genetic divergences showed up as differences in physical features that could inform strategies on where and how to release and conserve rescued tortoises, Subhasree Sahoo, a PhD student at the Wildlife Institute of India, Dehradun, and first author of the study, said.

#### **Same but different**

Millions of years ago, *Geochelone*, the group that includes the Indian star tortoise, spread across the Indian subcontinent after the latter split from the Gondwana supercontinent and collided with Eurasia.

Over time, parts of the subcontinent became arid and encouraged the growth of savannahs and open grasslands in northwestern and peninsular India, which are now the tortoises' natural habitats.

But the creation and expansion of savannahs came at the expense of humid forests: the increasingly seasonal nature of the monsoons restricted them to parts of southwest India and Sri Lanka. This separation of humid and dry areas paralleled the splitting of the tortoises into northern and southern groups about 2 million years ago.

To find genetic evidence of this split, the researchers of the new study collected tortoise tissue samples from 14 locations.



## RUNAWAY TIGRESS FROM ODISHA PUTS OFFICIALS ON ALERT ACROSS W.B., JHARKHAND

A three-year-old tigress translocated from Maharashtra to Odisha's Similipal Tiger Reserve (STR) last month is keeping the forest officials of three States on their toes. Defying State boundaries and conservation plans, the tigress, Zeenat, first wandered into neighbouring Jharkhand and is now likely headed to West Bengal — last spotted at a location 20 km from both Odisha and West Bengal.

The Odisha government has initiated an inter-State coordination with Jharkhand to bring back Zeenat, who was brought from Tadoba-Andhari Tiger Reserve in Maharashtra on November 14 to boost the genetic diversity of the big cat population in Similipal. However, officials may soon have to extend their efforts to collaborate with West Bengal, where forest officers have been put on high alert, with Zeenat already near the Bengal border, close to Jhargram. Jhargram Divisional Forest Officer Umar Imam said that he is in constant touch with his counterparts in Jharkhand.

Zeenat was released into the wild in Odisha after 10 days of acclimatisation in the core area of Similipal North on November 24. The wandering tigress was in the process of establishing her territory, officials said.

"She was traced 35 km from Similipal and 20 km from the State border. It was tracked in the Chakulia range under the Jamshedpur forest division of Jharkhand. Efforts are under way to ensure the tigress does not move further deep and instead returns to STR. We are closely coordinating with our counterparts in Jharkhand to achieve this," Regional Chief Conservator of Forests (RCCF), Baripada, and Field Director of STR, Prakash Chand Gogineni informed.

Forest Department officials in Odisha kept track of Zeenat's movements, as the tigress was fitted with a radio collar capable of transmitting satellite signals to pinpoint her location, along with emitting VHF signals. A dedicated tracking team from Odisha, supported by field staff from the Jharkhand forest department, is monitoring her closely.

When asked if the department would resort to tranquillisation in the event of its failure to bring the tigress back naturally, Mr. Gogineni said the decision would be taken at a higher level.

## HAS THE GOVERNMENT CLARIFIED ITS STANCE ON ONOS?

### The story so far:

On November 25, the Indian government announced the launch of its 'One Nation, One Subscription' (ONOS) plan to improve access to research journals for the country's public education and research institutes. The announcement was accompanied with scant details and broached widespread criticism from the research community, especially over what was perceived to be its disproportionate expense and lack of support for open-access publishing. On December 11, government officials conducted a press conference in New Delhi that addressed many of these concerns.

### What is ONOS's purpose?

When scientists conclude an experiment, they write up their methods and findings and publish it as a paper in a journal. The journal collects, reviews, edits, publishes, and archives these papers as a service to other scholars and the people at large. In exchange, journals levy a fee. Subscription-based journals charge readers a fee to read papers. Some forms of Open-Access (OA) journals,





called 'gold' OA, charge researchers to publish their paper. Institutes in India had subscribed to subscription journals through 10 or so consortia within the country. ONOS will replace these consortia as a single window through which all government-funded institutes in the country will be able to access more than 13,000 journals published by 30 major international publishers.

#### **Why did ONOS provoke criticism?**

At the time of announcement, a Ministry of Education press release didn't specify which journals would be part of ONOS, how ONOS would be implemented, how its allocation of ₹6,000 crore (for three calendar years) would be spent, and how ONOS would support efforts to make research OA. Experts on the topic also asked whether the allocation for foreign journals could have been used to support domestic publishing efforts instead.

Also it wasn't clear whether ONOS would help scientists pay to publish in gold OA journals or whether these payments — called article processing charges (APCs) — could be discounted.

#### **What was revealed on December 11?**

The press conference was attended by officials from the office of the Principal Scientific Advisor (PSA), the Department of Science & Technology, and the Department of Higher Education.

The package: Students and staff at all public institutes will be able to access all papers in the journals participating in ONOS irrespective of their discipline. Negotiations are underway to bring in more journals.

Phases: Remya Haridasan, a scientist at the PSA's office, said the government would implement ONOS in three phases: (i) merge all the consortia and work to facilitate journal access in all public institutes; (ii) expand to include private institutions; (iii) create "universal access" to all citizens "through designated access points at public libraries".

Open access: In a pilot, ONOS would set aside ₹150 crore a year to pay for APCs. The government has also negotiated APC discounts for researchers to publish in certain OA journals. The officials said they are aware of transformative OA models and that ONOS would encompass them as it progressed. As of today, they said, around 65% of papers published by Indian scientists were in subscription-based journals.

Domestic efforts: Officials at the press conference acknowledged the need to support domestic publishers. They said there were five repositories in the country — servers where researchers could deposit digital copies of their papers and where others could freely access them — but that scientists were using them to a less-than-ideal degree. They added that other efforts need to take place, such as "enhancement, promotion, and support of Indian journals" and changes in how institutes evaluate the work of researchers, especially to reduce dependence on journal titles and increase focus on the merit of each person's work.

### **IN D GUKESH'S WORLD CHAMPIONSHIP WIN LIES INDIAN CHESS'S IMMENSE POSSIBILITIES**

The wait was only 12 years since Viswanathan Anand last won the World Championship. But it was a dozen, long winters of painfully watching Krishnan Sasikiran and Pentala Harikrishna trying to match the five-time world winner's feats. What Dommaraju Gukesh achieved with his World Championship triumph at Singapore was to drag India out of its wait in the wings, and send out



warning signals to the traditional chess powerhouses Russia, USA, Uzbekistan and China — Indians are here to play for the big wins. Gukesh started his journey early at 18. But he is far too mature to keep harping on being the youngest. What a world title at 18, and in a fighting match against a stubborn title holder Ding Liren means, is that he has years ahead in which to absorb inevitable setbacks, develop his bold game without worrying about results, and even look to surpass Vishy Anand's five titles.

Indian chess has been throbbing with possibilities in the recent years. For some years it has been apparent to contestants from other countries that if Gukesh doesn't get you, R Praggnanandhaa will, and if Pragg misses somehow, then Arjun Erigaisi will swoop in. India's depth shone at the Chess Olympiad, and like Garry Kasparov declared, Vishy's kids are running riot. Gukesh stole the early march with his composed approach and fierce appetite for victory. He declined draws twice and pushed to extract winning advantages, even from seemingly stalemate situations. His accuracy with black (only 0.33 missed points compared to Ding's 0.56, as per chess expert Mehmet Ismail) meant he remained adventurous even when jaded GMs called a draw. His never-say-die-attitude forced Ding to err when a draw seemed imminent. The acknowledgment from some quarters might have been grudging — Vladimir Kramnik has doubted the quality of chess at the contest — but none can deny Gukesh whisked up some novel lines that boggled trained eyes.

In stating that Magnus Carlsen remains the greatest player and he would love to play him, Gukesh has sent out the most disarming of challenges. Carlsen operates at a higher level, but isn't keen to put in the doggedness needed for a classical event that goes on for three weeks. But his aura pervades the chess ecosystem. The Norwegian has, for long, made this into a wait for a challenger he deems worthy of battling, hoping Iranian-French Alireza Firouzja steps up. Gukesh didn't start out wanting to be a worthwhile opponent to Carlsen — he was just doing his own thing at 18. But he did it so well, he brought back the crown Carlsen had taken off Anand. He also hinted he was ready, for whenever Carlsen is.

## SHORT NEWS

### NOTRE DAME CATHEDRAL

— The Notre Dame cathedral in Paris witnessed its first Mass service in five years on December 8, a day after it was reopened to the world in a lavish ceremony featuring firefighters, world leaders, and artists.

— In 1160, Notre Dame was envisioned by Maurice de Sully, the Bishop of Paris, as a grand Gothic cathedral that would accommodate the city's growing population. Construction began three years later and is believed to have been completed by 1260.

— During the French Revolution, its spiritual significance took a dramatic turn, as it was repurposed into the "Temple of Reason" and later the "Temple of the Supreme Being."

— It was also the site of King Napoleon's coronation in 1804.

— It is the finest example of Gothic architecture, featuring soaring spires, intricate stained glass windows, and impressive flying buttresses.



## INDIA-UAE'S COMMON GOAL TO PRESERVE, PROMOTE STABILITY, SECURITY OF OUR REGIONS, SAYS JAISHANKAR

External Affairs Minister S Jaishankar Friday said India and UAE have common interest in preserving and promoting the stability, security and prosperity of both the region. He also said enhancing defence and security cooperation between the two nations will contribute to this goal.

## WORKING PAPER OF THE ECONOMIC ADVISORY COUNCIL TO THE PRIME MINISTER (EAC-PM)

— The female labour force participation rate (LFPR) increased in almost all states in India during 2017-18 to 2022-23, with rural areas seeing larger gains than urban areas, a new working paper released by the Economic Advisory Council to the Prime Minister (EAC-PM) stated.

— Rural female LFPR rose to 41.5 per cent (~69 per cent growth) from 24.6 per cent during 2017-18 to 2022-23, while urban LFPR rose to 25.4 per cent from 20.4 per cent.

— It pointed out that even after excluding all those who worked as unpaid family workers or helpers in household enterprises from 2004-05 until 2022-23, the overall trends for increase in female LFPR remain the same as before.

— Punjab and Haryana have recorded low female LFPR among the northern states. Among the eastern states, rural Bihar had the lowest LFPR in the country.

— Among the northeastern states, there has been improvement in female LFPR in rural areas with Nagaland and Arunachal Pradesh leading among the states of the region.

## BIMA SAKHI YOJANA

— Prime Minister Shri Narendra Modi has launched the 'Bima Sakhi Yojana' of the state-owned Life Insurance Corporation (LIC) in Panipat, Haryana.

— It is a Stipendiary Scheme, exclusively for Women, with a stipendiary period of 3 years.

## EPFO WORKS ON PLAN TO INTRODUCE ATM CARD FACILITY FOR WITHDRAWAL OF FUNDS

Retirement fund body Employees' Provident Fund Organisation (EPFO) is working towards rolling out a facility that will allow members to withdraw funds from their corpus through an ATM card. The ATM-card type withdrawal from the EPFO, which would be subject to a certain ceiling, is likely to be rolled out by the middle of next year, officials said. The move by the EPFO for an ATM-card type facility comes in the wake of concerns over a high rate of rejection of EPF final settlements in recent months.

## INDIA TO FORM ANTI-DRONE UNIT FOR SAFE BORDER: SHAH

Union Home Minister and Minister of Cooperation Amit Shah on Sunday said that India will establish a "comprehensive" anti-drone unit to protect the country from threats posed by drones.



He said that recognising the challenge, a laser-equipped anti-drone gun mount system has been developed through a “whole government approach” involving all border security forces, the Ministry of Defence, DRDO, and various research departments of the Indian government.

#### INS TUSHIL

— The Russian-manufactured multi-role stealth-guided missile frigate INS Tushil was commissioned on December 9 in the coastal city of Kaliningrad. It is an upgraded Krivak III class frigates of the Project 1135.6 of which, six are already in service

— INS Tushil has been constructed in Russia as part of an over USD 2.5-billion deal that New Delhi had inked with Moscow in 2016 for four stealth frigates for the Indian Navy.

— Under the deal, two ships were to be built in Russia, while the other two were to be manufactured in India.

#### MANAMA DIALOGUE

— It is a forum for ministers, policymakers, and decision-makers to debate the Middle East’s most pressing foreign-policy, defence and security challenges. The dialogue was held from 6-8 December and was attended by External Affairs Minister S Jaishankar.

— Held annually since 2004 in the Kingdom of Bahrain, the Dialogue is a central element of the Middle East’s security architecture.

— The theme of the 20th edition of the event was ‘Middle East leadership in shaping regional prosperity and security’.

#### DEVANUR MAHADEVA

— Celebrating the significance of social justice and literary excellence, the 2024 Vaikom Award was conferred upon Devanur Mahadeva, one of Kannada literature’s most celebrated voices and a lifelong advocate for the oppressed.

— The Vaikom Award, instituted in 2023 to honour individuals or organisations from across India who embody the values of equality and justice, recognises Mahadeva’s extensive work in advocating for Dalit rights, his literary achievements, and his ideological synthesis of Gandhi and Ambedkar’s philosophies.

— The award is linked to the Vaikom Satyagraha, between 1924 to 1925, aimed at challenging caste-based restrictions on access to the Vaikom Temple in Kerala.

— The Satyagraha, which marked a significant step in India’s struggle against untouchability and inspired subsequent temple entry movements across the country, was backed by Mahatma Gandhi, and E V Ramasamy, or ‘Periyar’, the Tamil social reformer.





## BUSINESS & ECONOMICS

### SWITZERLAND SUSPENDS MFN STATUS TO INDIA IN TAX AVOIDANCE AGREEMENT

In what could potentially impact Swiss investments in India and higher taxes on Indian companies operating in Switzerland starting January 1, 2025, Switzerland has suspended the Most-Favoured-Nation (MFN) clause in the Double Taxation Avoidance Agreement (DTAA) that India and Switzerland entered originally in 1994 and amended in 2010, a statement released by the Swiss government dated December 11 showed.

- This decision follows a ruling by the Indian Supreme Court last year, which determined that the DTAA cannot be enforced unless it is notified under the Income-Tax Act. As a result, Swiss companies such as Nestlé face higher taxes on dividends.
- The Supreme Court ruling effectively overturned a Delhi High Court order that had ensured companies and individuals were not subject to double taxation while working in or for foreign entities.
- Tax experts said that the move by the Swiss could “impact investments” in India as dividends would be subject to “higher withholding tax”. This poses risk to the \$100 billion investment commitment in India over a 15-year period by the four-nation European Free Trade Association (EFTA), an intergovernmental grouping of Iceland, Liechtenstein, Norway and Switzerland under a trade pact signed in March this year.
- The Swiss authorities said that the suspension was enforced due to a lack of “reciprocity” in the DTAA by the Indian government. They added that for dividends due on or after January 1, 2025, the residual tax rate in the source state would be limited to 10 per cent.
- The Supreme Court ruling had said that a country could claim benefits under a DTAA from the date of its treaty agreement and not from a later date when another country gained from entering a new treaty.
- The case addressed bilateral treaty issues, including whether a country could invoke the MFN clause when the third country in the DTAA was not an Organisation for Economic Co-operation and Development (OECD) member at the time of signing, and whether the MFN clause could automatically apply or required a notification to take effect.

#### Do You Know:

- Most Favoured Nation is a treatment accorded to a trade partner to ensure non-discriminatory trade between two countries vis-a-vis other trade partners. The importance of MFN is shown in the fact that it is the first clause in the General Agreement on Tariffs and Trade (GATT).
- Under WTO rules, a member country cannot discriminate between its trade partners. If a special status is granted to a trade partner, it must be extended to all members of the WTO.
- MFN status is extremely gainful to developing countries. The clear upsides are access to a wider market for trade goods, reduced cost of export items owing to highly reduced tariffs and trade barriers. These essentially lead to more competitive trade.



- MFN also cuts down bureaucratic hurdles and various kinds of tariffs are set at par for all imports. It then increases demands for the goods and giving a boost to the economy and export sector. It also heals the negative impact caused to the economy due to trade protectionism. This irks the domestic industry. However, in the long run, it makes them more competitive and robust.

#### INDIA-UK FTA TALKS SET TO RESTART BY JANUARY-END

The India-UK Free Trade Agreement (FTA) talks with the new UK government are set to commence by the end of January, a senior government official said on Thursday.

- The renewed push for trade deals with the UK and EU comes as India is focusing on countries where significant export gains are expected, rather than pursuing agreements with smaller countries that may offer more market access to the partner nation.
- To achieve the same, the commerce ministry is developing a new Standard Operating Procedure (SOP) aimed at optimising the processes for negotiating future trade agreements.
- This follows several trade agreements, including the pact with the UAE that took effect in February 2022 and the one with the Association of Southeast Asian Nations (ASEAN) signed in 2010, which have resulted in significantly higher imports compared to exports, raising concerns over potential breaches of rules of origin.
- With the Carbon Border Adjustment Mechanism (CBAM) continuing to be a sticking point in India-EU negotiations, the minister, as per the statement, asserted that any discussions on sustainability must respect the principle of 'Common but Differentiated Responsibilities (CBDR)', and the implementation of such measures should consider differing development paths.
- In 2022-23, India-UK bilateral trade had increased 16 per cent to US \$20.36 billion. India's exports were \$11.4 billion in 2022-23 compared with \$10.5 billion the previous year; and its imports stood at US \$8.96 billion during 2022-23 compared with US \$7 billion in 2021-22.

#### Do You Know:

- India and the UK launched talks for an FTA in January 2022 to boost economic ties between the two nations. There are 26 chapters in the agreement, which include goods, services, investments and intellectual property rights. The bilateral trade between India and the UK increased to USD 21.34 billion in 2023-24 from 20.36 billion in 2022-23.
- The CBAM or carbon tax (a kind of import duty) will come into effect from January 1, 2026, but domestic companies from seven carbon-intensive sectors, including steel, cement, fertiliser, aluminium and hydrocarbon products, would have to share data on carbon emissions with the EU from October 1, 2023.
- Like the EU, the UK is looking to impose a levy on metal imports based on carbon emissions. An EU-style carbon border adjustment mechanism (CBAM) will hurt India's exports to the UK even if India wins significant removal of tariffs. The UK's carbon tax could be harsh, as one of its aims is to reduce dependence on Russian energy imports.
- India had raised concerns about the application of a CBAM – a planned tax on the import of carbon-intensive goods such as steel, glass and fertiliser – at an earlier stage in the talks. The tax would affect Indian steelmakers looking to export to the UK.



- The EU is India's third largest trading partner, accounting for €88 billion worth of trade in goods in 2021 or 10.8% of total Indian trade. India is the EU's 10th largest trading partner, accounting for 2.1% of EU total trade in goods. Trade in services between the EU and India reached €30.4 billion in 2020.
- Economic think tank GTRI (Global Trade Research Initiative) has stated that as India aims to become the third-largest economy, it needs to align its treaties with global investment practices, address the negative perception caused by the mass treaty cancellations and reflect on its negotiation skills. It has said India has cancelled 77 of its over 80 BITs by 2016, as they didn't align with its interests.
- Rules of origin — the criteria that determine the national source of a product — have been among the most contentious issues for the FTA talks with the UK. These are important in trade negotiations since countries levy duties or impose restrictions on products based on the source of imports. In addition, India's commerce and tax officials are negotiating on the crucial aspects of duty cuts for alcohol/whisky from the UK that could have an impact on the local bottling industry, the official said, adding that the pace of negotiations has been decidedly kept slow for this reason.
- EFTA countries are not part of the European Union (EU). EFTA is an inter-governmental organisation for the promotion and intensification of free trade. It was founded as an alternative for states that did not wish to join the European Community. India's exports to EFTA countries during April-February 2022-23 stood at USD 1.67 billion as against USD 1.74 billion in 2021-22. Imports aggregated at USD 15 billion during the 11-month period as compared to USD 25.5 billion in 2021-22. The trade gap is in favour of the EFTA group.

#### S AFRICA, NAMIBIA, TURKEY BACK INDIA IN OPPOSING CHINA-LED WTO PACT: OFFICIAL

The China-led Investment Facilitation for Development (IFD) agreement has gained the support of 128 countries at the World Trade Organization (WTO) but India, along with South Africa, Namibia, and Turkey, will continue to oppose the initiative due to its potential to undermine the policy space of weaker nations, a central government official said on Tuesday ahead of the WTO General Council meeting in Geneva on December 16-17.

- "There is tremendous pressure and momentum from China. They have secured support from 128 out of 166 WTO members, including Pakistan. Four nations—India, South Africa, Namibia, and Turkey—are opposing it. The US is not opposing it but has opted to stay out of the agreement," the official said. Notably, Pakistan was initially not part of the IFD.
- This comes at a time when investment flows are increasingly shifting away from China due to a possible US-China trade war and a weakening consumer demand in China. These investments are increasingly moving to ASEAN countries as Chinese firms have increased their overseas assets to record levels.
- The official emphasised that India believes many nations supporting the IFD are under the wrong impression that it will benefit them. "For developing countries, this agreement will impact their policy space. While more members may join, India will continue to oppose it," the official said.
- The IFD claims to improve the global investment climate and foster international cooperation to facilitate foreign direct investment (FDI) flows among WTO members, particularly benefiting developing and least-developed countries, a WTO note said.

**Do You Know:**

- Proposed in 2017 by China and other nations reliant on Chinese investments, the agreement is supported by countries with substantial sovereign wealth funds. However, experts argue the pact could harm India's interests and restrict its policy space on FDIs.
- Separately, the official noted that India has advocated for a "per capita distribution of subsidies" criterion to address concerns about overfishing and overcapacity within the WTO framework.
- India informed the WTO that its annual fisheries subsidy amounts to \$35 per fisher, significantly lower than the \$76,000 provided by some European nations. India has submitted a document, 'Designing Disciplines for the Overcapacity and Overfishing Pillar: A Case for Intensity-Based Subsidies Approach', which will be discussed at the WTO General Council meeting in Geneva.
- The WTO is negotiating an agreement to discipline subsidies that contribute to overfishing and overcapacity. In 2022, member countries finalised a pact to curb subsidies for illegal, unreported, and unregulated fishing. "Adopting a per capita distribution of subsidies criterion could provide a more accurate and fair basis for managing overfishing and capacity issues, addressing both stock sustainability and livelihood concerns," India stated. It added annual aggregate fisheries subsidies cannot be an accurate measure, as they include both beneficial and subsistence subsidies linked to livelihoods, which do not contribute to overcapacity or overfishing.

**PRICE WORRIES**

From a 14-month high of 6.2% in October, consumer price inflation moderated to 5.5% last month. Much of this minor respite stems from a decline in the inflation rate of some food items. For vegetables, it cooled from a 57-month peak of 42.2% to just under 30%, while foodgrain prices rose at the slowest pace in 28 months, and pulses cooled to just over 5% after a prolonged spell of double-digit spikes. Despite these pockets of relief, overall food inflation remained sharp at over 9% for the third straight month, with edible oil prices firming up 13.3%, the highest in 30 months as a global price spike has coincided with an import duty hike by the Centre. It is no surprise coconut oil prices are up over 42%, even as items such as garlic (85.1%), potato (66.7%), cauliflower and cabbage (well over 40%), are pinching consumers. While recent conversations about the economy have focused on decelerating urban demand, the price rise trend is hitting rural consumers harder with close to 6% inflation in November as well as higher food prices.

Despite assertions by the government that food prices are volatile and should be ignored for monetary policy purposes when growth is stumbling, higher spends on meals are spilling into other items' prices. Manufacturing and services firms have reported intensifying cost pressures last month compelling them to hike prices at the highest pace in 12 years. The Reserve Bank of India (RBI), which had originally estimated October-December inflation to average 4.8%, raised it to 5.7% at its monetary policy review last week. This implies inflation this month — which will be the last data before the RBI's Monetary Policy Committee (MPC) meets next — could still be high at 5.4%. This would be well above the central bank's median target of 4% — the MPC now expects average inflation to attain that level only by the second quarter of 2025-26. The government, whose clamour for an interest rate cut was ignored by the MPC last week, may be hoping its new appointee at the helm of Mint Street, another Finance Ministry insider, may oblige with more urgent and bigger rate cuts to support growth. While some assert a rate cut in February's MPC meet is virtually cemented, going by current trends, the data may not back such a move as growth might recover a bit and inflation may cool a tad more, thus diminishing any urgency. That the





Centre would have presented its Budget 2025-26 by the next MPC meet, may help the rate cut case going forward, if it demonstrates fiscal prudence and steps to ease citizens' living costs.

## HOW RBI IS LEVERAGING AI TO CRACK DOWN ON 'MULE BANK ACCOUNTS'

The Reserve Bank of India (RBI) said on Friday (December 6) that it has created an artificial intelligence (AI) powered model that could reduce digital fraud by helping banks deal with the increasing problem of "mule" bank accounts. The model, called MuleHunter.AI, has been developed by the Reserve Bank Innovation Hub (RBIH), Bengaluru, a subsidiary of the central bank.

### What is a mule bank account?

A mule account is a bank account that is used by criminals for illegal activities, including the laundering of illicit funds. A mule account is typically bought over by the criminals from their original users, individuals who are often from lower income groups, or have low levels of technical literacy.

The related term "money mule" is used to describe the innocent victims who are used by the criminals to launder stolen or illegal money via their bank accounts. When such incidents are reported, the money mule becomes the target of police investigations, because it is their accounts that are involved, while the actual criminals remain undetectable.

"The Reserve Bank has been taking various measures in coordination with banks and other stakeholders to prevent and mitigate digital frauds in the financial sector. These include RBI guidelines to regulated entities for strengthening cybersecurity, cyber fraud prevention and transaction monitoring. Use of money mule accounts is a common method adopted by fraudsters to channel proceeds of frauds," the RBI said in a press release.

The RBI said MuleHunter.AI "enables detection of mule bank accounts in an efficient manner". The release said that a pilot with two large public sector banks had yielded encouraging results, and asked banks to collaborate with RBIH to further develop the MuleHunter.AI model "to deal with the issue of mule bank accounts being used for committing financial frauds".

### How big is the mule accounts problem in India?

Mule bank accounts are seen as a key element in the majority of online financial frauds in India. The Indian Express reported last month that the Centre had frozen around 4.5 lakh such bank accounts, which were typically used for laundering proceeds of cyber crime.

Of these 4.5 lakh mule accounts, around 40,000 were detected in various branches of SBI; 10,000 in Punjab National Bank (including Oriental Bank of Commerce and United Bank of India); 7,000 in Canara Bank (including Syndicate Bank); 6,000 in Kotak Mahindra Bank; and 5,000 in Airtel Payments Bank.

### And what has the government done to crack down on mule accounts?

On Friday, the Department of Financial Services (DFS) Secretary had a meeting with officials from the RBI, the Indian Cybercrime Coordination Centre (I4C), which is affiliated to the Union Home Ministry, the National Bank For Agriculture And Rural Development (NABARD), and public- and private-sector banks to discuss the growing challenge of digital financial fraud, especially mule accounts. Several such meetings have been held with various stakeholders in the recent past.



At Friday's meeting, banks were urged to adopt best practices, leverage cutting-edge tools, and foster inter-bank collaboration to address mule accounts effectively. They were directed to adopt advanced technologies, including AI/ ML solutions, for real-time detection of mule accounts, and to train bank staff on fraud detection and prevention.

They were also encouraged to explore and implement the RBI's new Mulehunter solution to step up the detection and monitoring of mule accounts.

In November 2023, former DFS Secretary Vivek Joshi had said there should be some restrictions on withdrawing money from bank accounts which may have suddenly become active after having lain dormant for some time.

"For instance, the balance would have been Rs 50, but suddenly Rs 50,000 would have come into the account. While it is not an issue when the money comes, there should be some restrictions at the time of withdrawal," Joshi had told reporters after a meeting on financial frauds.

The Reserve Bank is currently also running a hackathon on the theme "Zero Financial Frauds", which includes a specific problem statement on mule accounts, to encourage development of innovative solutions to tackle the problem.

#### WHY A FREE FALL IN THE RUPEE SEEMS UNLIKELY

India's foreign exchange reserves registered a \$1.51 billion weekly rise to touch \$658.09 billion on November 29. This reversed eight straight weeks of decline, from the all-time-high \$704.89 billion reached on September 27 (see chart).

The roughly two months since September 27 has witnessed not only a \$46.79 billion dip in forex reserves, but the rupee, too, weakening from 83.67 to 84.66 to the US dollar. September 27 was also when the BSE Sensex and NIFTY 50 benchmark stock market indices scaled peaks of 85,978.25 and 26,277.35 points respectively.

The period following those highs has been marked by foreign portfolio investors (FPI) pulling out money from India's equity and debt markets. Their net sales amounted to \$1.47 billion in October alone and another \$2.54 billion in November. As these outflows – basically dollars leaving the country – put pressure on the rupee, the Reserve Bank of India (RBI) had to support the domestic currency. It did so by selling dollars from the official forex chest. That has, in turn, led to a depletion in the reserves, which are under its sole custody.

FDI flows, forex reserves

#### Sources of forex reserve movements

A depletion or accretion in forex reserves is, however, caused not just by FPIs taking out or bringing in money into Indian markets.

Reserve movements are a function of the country's external balance of payments (BoP) transactions, both current and capital. Current account transactions basically cover exports and imports, of goods as well as services.

As far as trade in goods go, India has traditionally been more an importer than an exporter. In 2023-24, its merchandise exports, at \$441.48 billion, were way below imports, at \$683.55 billion,



translating into a deficit of \$242.07 billion. The accompanying table shows merchant trade deficits being run year after year, ranging from \$102.15 billion in 2020-21 to \$265.29 billion in 2022-23.

It's been the other way round, though, in services – what is called the “invisibles” account. This account has consistently posted a surplus, while more than doubling from \$98.03 billion in 2016-17 to \$218.78 billion in 2023-24. This has been largely courtesy of two major invisible receipts items: Exports of software services and remittances from Indians living abroad.

Net software exports increased from \$60.96 billion in 2011-12 to \$70.76 billion in 2016-17 and further to \$142.07 billion in 2023-24. Much of this was post the Covid pandemic, which spurred digitisation of business and government operations globally and gave an impetus to exports of Information Technology services from India.

Alongside software, there has been a jump in net exports of “business” and “financial” services, from \$(-)361 million and \$(-)424 million respectively in 2020-21, to \$29.24 billion and \$3.49 billion in 2023-24. This has probably had to do with the setting up of Global Capability Centres by multinational corporations in India, providing specialised solutions – from research and development to accountancy and customer support – to their parent offices and subsidiaries worldwide.

Private remittance transfers – dollars, dirhams, euros and pounds sent home by the Indian diaspora – fell from \$63.47 billion in 2011-12 to \$56.57 billion in 2016-17, before soaring to \$101.78 billion in 2022-23 and \$106.63 billion in 2023-24.

#### **Current account relief**

The net impact of expanding invisibles surpluses, together with widening merchandise trade deficits, has been to bring down the imbalances in India's overall external current account.

The current account deficit (CAD), which had climbed to \$78.16 billion in 2011-12 and \$88.16 billion in 2012-13, narrowed to \$23.29 billion in 2023-24. There have been years, like 2021-21, when the current account has even turned positive.

India is, in fact, one of the few countries with a CAD much lower than its merchandise trade deficit. China, in 2023, had a goods trade surplus of \$593.90 billion – from exports of \$3,179.19 billion and imports of \$2,585.30 billion. But it also, unlike India, had a \$340.91 billion invisibles deficit, reducing its aggregate current account surplus to \$252.99 billion.

A robust and structurally surplus invisibles account – primarily thanks to exports of software services and remittances from overseas Indians – has kept India's CAD at manageable levels. It has also attenuated the effects of structurally high goods trade deficits, perhaps reflecting the growing loss of competitiveness of the country's manufacturing and tangible production (as opposed to services) sectors.

#### **Capital account vulnerability**

India's BoP problems today stem mainly from the capital, and not current, account.

So long as CADs are modest, they can be financed through capital flows. In most years, net capital inflows have actually been higher than the CAD, with the excess being mopped up by the RBI and adding to the official forex reserves. Recent years have seen more accretions and depletions happening only in some, such as 2011-12, 2018-19 and 2022-23. The outstanding fiscal year-end



reserves with RBI have gone up from \$294.40 billion in 2011-12 to \$646.42 billion in 2023-24, and further to \$658.09 billion as on November 29, 2024.

Capital flows include those from foreign direct investment (FDI), FPIs, external commercial borrowings (ECB) and Non-Resident Indian (NRI) deposits.

Out of these, FDI flows are considered more stable, as they usually entail long-term investment in factories and physical assets, boosting the country's productive capacity and job creation. The other three sources are either fickle (FPI) or short-term (ECB and NRI deposits), while prone to sudden outflows and withdrawals (foreign banks can demand accelerated repayment or even recall of loans from borrowers in uncertain times).

According to the RBI's BoP data, FDI flows into India have dropped from \$56.01 billion in 2019-20, \$54.93 billion in 2020-21 and \$56.23 billion in 2021-22 to \$42.01 billion and \$26.47 billion in the following two fiscals. Net FPI flows, by contrast, hit a record \$44.08 billion in 2023-24.

The pressure on the rupee now from the capital account is different from the situation of 2011-12 and 2012-13. That was a time when India was also having large CADs. The drying up of capital flows – triggered by the US Federal Reserve's decision to gradually unwind ("taper") its bond purchases programme (read the printing of dollars) – only made things worse then, sending the rupee on free fall amid dwindling forex reserves.

This time, things don't seem that bad, notwithstanding stagnant FDI and volatile FDI flows, plus uncertainties from the next Donald Trump US administration. The CAD isn't as high as before and can be financed by some drawdown of reserves at worst.

#### WHY DOES RBI WANT A HEDGE AGAINST DOLLAR RELIANCE, BUT NOT PUSH FOR DE-DOLLARISATION?

Reserve Bank of India (RBI) Governor Shaktikanta Das said on Friday (December 6) that India is not pursuing "de-dollarisation", and that recent measures promoting transactions in domestic currencies are intended to de-risk Indian trade.

The clarification came days after US President-elect Donald Trump threatened "100 per cent tariffs" against BRICS countries if they sought to reduce reliance on the US dollar in international trade.

- Das said that BRICS (Brazil, Russia, India, China, South Africa) nations have discussed the possibility of a shared currency, but reached no decision. RBI decisions such as allowing Vostro accounts and entering local currency trade agreements are aimed at diversifying risk rather than reducing dependence on the dollar.
- A key reason India is not backing de-dollarisation is the rise of the Chinese yuan as a challenger to the US dollar. India has resisted using the yuan for Russian oil imports, even as the acceptance of the currency is growing in Russia. Following the Western sanctions on Russia, including freezing \$300 billion in Russian foreign holdings, the yuan became Russia's most traded currency last year.
- At the same time, India is wary of over-dependence on the dollar. The RBI has increased gold purchases and has begun moving its gold, held abroad, back into the country.





- Central banks, particularly in emerging market economies, have increased their gold holdings sharply so as to diversify away from a dollar-dominated financial system.
- Depleting dollar reserves amid surging oil prices has recently caused considerable social and political unrest in India's neighbourhood. Sri Lanka, Bangladesh, Nepal, and Pakistan witnessed sharp declines in their dollar reserves following the Ukraine war, which upset their trade relations with India. While India has managed to keep a robust reserve, the surging value of the dollar has become a concern.
- To partially de-risk its trade ties, India is pushing for trade with Russia and the UAE in domestic currencies that could help cut reliance on the US dollar. However, the domestic currency trade has not yet picked up as expected because of India's low foothold in goods and services trade internationally.

**Do You Know:**

- For the past 80 years, the US dollar has dominated as the global reserve currency. Dollar supremacy underpins the global financial system.
- Today, the dollar is the most widely held reserve currency, playing a role in an estimated \$6.6 trillion in daily transactions. Oil, despite efforts by OPEC+ and China to diversify pricing mechanisms, remains priced in dollars — just like most major commodities.
- However, discussions about 'de-dollarization' have gained traction in recent decades. Driven by US sanctions and a growing shift toward multipolarity, countries such as China and Russia are increasingly using the Chinese renminbi (RMB) in trade.
- The BRICS bloc — including Brazil, Russia, India, China, South Africa, and new members like Iran, Egypt, and Saudi Arabia — is even exploring the creation of a new common currency to reduce dependence on the dollar.
- According to the Center for Foreign Relations (CFR), a reserve currency is defined as "a foreign currency that a central bank or treasury holds as part of its country's formal foreign exchange reserves." Countries hold reserves for a number of reasons including to withstand economic shocks, pay for imports, service debts and regulate the value of their own currencies.

**GOVT VS RBI GOVERNOR TUSSLE: REPEAT OF THE SAME SCRIPT AT THE FAG END OF SHAKTIKANTA DAS' TENURE**

Shaktikanta Das' tenure at the helm of the Reserve Bank of India (RBI) comes to an end on December 10 amid some degree of friction with North Block towards the end of his second term as Governor. The trigger was the central bank's refusal to cut key policy rates despite growing calls on the need to tackle the slowdown in GDP growth. This tussle between the government and the Reserve Bank of India, though, is not something new or unusual.

Turf wars between the two sides have played out for years as successive Governors sought to protect the autonomy and independence of the central bank. The four predecessors of Governor Das — YV Reddy, D Subbarao, Raghuram Rajan and Urjit Patel — had escalating conflicts with the governments in Delhi on issues, including the issue of cutting rates to spur growth.

There was a repeat of this trend, with two union ministers recently calling for a cut in the repo rate ahead of the monetary policy review on December 8. Finance Minister Nirmala Sitharaman



batted for “affordable bank interest rates” to support industries to ramp up and build capacities. Union Minister for Commerce and Industry, Piyush Goyal, also urged the RBI to cut interest rates to boost economic growth and look through food prices while deciding on monetary policy. However, much against the wishes of the government, the RBI, which is keen to bring inflation under control, kept the Repo rate unchanged at 6.50 per cent.

YV Reddy, who was RBI Governor from 2003 to 2008, had run-ins with then Finance Minister P Chidambaram and had to even offer an “unconditional apology” to the minister after the then Prime Minister Manmohan Singh tried to sort things out between them. Reddy, who contemplated quitting twice during his tenure, said the government has powers to give directions. But, in giving directions also, unlike other statutes, consultation with the Governor is necessary in regard to the RBI before issuing the directions, according to Reddy.

A major area of disagreement between Reddy and Chidambaram related to the development of financial markets. Chidambaram was keen about the development of bond currency derivatives in an integrated manner. However, Reddy explained that there were other priorities for the financial sector reform. Reddy opposed the proposal made in February 2008 to write off loans to farmers amounting to Rs 60,000 crore.

A proposal to utilise India’s growing foreign exchange reserves (during 2004-05 to 07-08) was mooted by the Planning Commission first and then by the government. That put the government in conflict with the RBI which was opposed to the proposal saying that it was not unencumbered. It was sorted out only after the RBI insisted that the government provide a guarantee on lending by a government backed entity – IIFCL from part of the reserves.

After Reddy made a mention of Tobin tax on capital flows in a speech citing it as an empirical case, the government forced the Governor to clarify the same day that there was no intention to tax inflows.

With differences between him and the Finance Ministry surfacing on several occasions, D Subbarao wrote that he was “invariably discomfited and annoyed by this demand that the RBI should be a cheerleader for the government”. Subbarao was the RBI Governor during 2008-2013 when the global financial crisis rocked the financial system.

“Both Chidambaram and Pranab Mukherjee who were finance ministers during that period were vexed by the RBI’s anti-inflation stance, which they thought was stymieing growth,” Subbarao wrote in his recent book ‘Just A Mercenary? Notes from My Life and Career’

“I had run-ins with both Chidambaram and Mukherjee on the RBI’s policy stance. Both of them invariably pressed for softer rates although their styles were different,” Subbarao said, noting that Chidambaram typically argued his case like the lawyer that he so eminently is, while Mukherjee was the quintessential politician.

The formation of the Financial Stability and Development Council or FSDC headed by the finance minister was a flash point between the finance ministry and the RBI. The central bank’s rationale was that the primary responsibility of stability was with the RBI and the new arrangement could undermine its influence. The Government still went ahead with the proposal when Pranab Mukherjee was the finance minister.

The other major tussle which was played out in the open was on interest rates. Chidambaram as finance minister was pitching for lower interest rates at a time when inflation was still relatively



high. When the RBI didn't oblige, he went on to say that -if the government has to walk alone to face the challenge of growth, we will walk alone. That prompted Subbarao to respond a week before he completed his term that "I do hope that finance minister, Chidambaram will one day say that I am so frustrated by the Reserve Bank that I want to go for a walk even if I have to walk alone. But thank God the Reserve Bank exists".

Raghuram Rajan who was the RBI Governor between 2013 and 2016, recalled the words of his predecessor Subbarao about "frustrated by the Reserve Bank, so frustrated that I want to go for a walk, even if I have to walk alone. But thank God, the Reserve Bank exists." "I would go a little further. The Reserve Bank cannot just exist, its ability to say "No!" has to be protected," Rajan said.

In 2015 when the government incorporated a provision in the finance bill without consulting the RBI -to assign the responsibility of regulating the money markets to Sebi, the RBI protested fiercely. Rajan took his objections to the finance minister and the government, leading to the proposal being rolled back.

Rajan was apparently not very enthusiastic about demonetisation of the notes. During his tenure, the RBI sent a note outlining potential costs and benefits of demonetisation, as well as alternatives that could achieve similar aims. "If the government, on weighing the pros and cons, still decided to go ahead with demonetisation, the note outlined the preparation that would be needed, and the time that preparation would take. The RBI flagged what would happen if preparation was inadequate," he wrote.

Rajan was not given an extension by the government. Weeks after he left the Governor post, the government announced demonetisation of Rs 1000 and Rs 500 notes. Urjit Patel took charge as the 24th Governor on September 5, 2016, and was chosen by the BJP-led government. Under him, relations between the RBI and the government remained fractious. Citing "personal reasons", Patel quit as the RBI Governor on December 10, 2018.

Under Patel, there were significant differences between the RBI and the government after the central bank resisted the government's pressure to change policies on surplus transfer, liquidity window for finance companies and more powers for the RBI Central Board. The government had for the first time invoked a provision in the RBI law — Section 7 — to open a formal discussion with the Governor.

During the tenure of Urjit Patel, the feud erupted when the government reportedly sought to tap into the RBI's excess capital reserves. Then, it also wanted the central bank to relax lending norms to smaller businesses. Patel refused to buckle under pressure from the government on various issues and preferred to resign.

According to Patel, as the government's headroom for running higher fiscal deficits is exhausted, government banks are encouraged to (over) lend to pump-prime the economy and boost preferred sectors, he said in his book "Overdraft: Saving the Indian Saver". Almost inevitably, this leads to higher NPAs over time, which requires equity infusion from the government, and this eventually adds to the fiscal deficit and sovereign liabilities, he blamed the government.

On October 26, 2018, the slugfest between the RBI and the government came out in the open when then Deputy Governor Viral Acharya, in a stinging criticism, reminded the government about the need for an independent central bank and warned that "governments that do not respect central bank independence will sooner or later incur the wrath of financial markets, ignite economic fire, and come to rue the day they undermined an important regulatory institution".



## ON REFORMS IN MERCHANT SHIPPING

### The story so far:

The Government is preparing to introduce several significant bills aimed at driving much-needed reforms in the shipping industry. Key among them are the Merchant Shipping Bill, 2024 and the Coastal Shipping Bill, 2024, both of which promise to bring transformative changes to boost the sector.

### Why a new bill?

The Merchant Shipping Act, 1958, and the Coasting Vessels Act, 1838, which the new bills aim to repeal, have become outdated and fail to address the contemporary needs of the merchant marine sector. Significant regulatory gaps exist, particularly for vessels operating in the offshore sector which comprise nearly 50% of Indian-flagged vessels. Furthermore, maritime training was liberalised allowing private sector participation, yet there is no legal framework in the existing Act to regulate their activities effectively.

The Merchant Shipping Act, 1958, also restricts seafarers' welfare provisions to Indian-flagged ships, despite 85% of the 2,80,000 active Indian seafarers working on foreign-flagged vessels. Additionally, the Act lacks enabling provisions for implementing certain international conventions that India has signed or plans to ratify. Crucially, the outdated, license-era provisions of the Act have become a roadblock to modernising maritime administration, which needs to transition from being a mere regulator to a regulator-cum-facilitator, thereby promoting the 'ease of doing business.'

### What are the features of the Merchant Shipping Bill?

The Merchant Shipping Bill introduces significant changes to modernise India's maritime framework, drawing upon the best practices of leading maritime jurisdictions like the U.K., Norway, and Singapore. Some of the key reform measures include:

i) Ease of registration: the existing law restricts vessel registration to entities with 100% Indian ownership. The new Bill proposes significant reforms to attract foreign investment. It also reduces the ownership threshold for Indian citizens/entities from 100% to 51%, enabling more flexibility. It allows Limited Liability Partnerships (LLPs), Non-Resident Indians (NRIs), and Overseas Citizens of India (OCIs) to own and register Indian vessels. This is in line with the law of the U.S. where Green card holders are permitted to own American flagships or Singapore law where permanent residents can own ships of their flags. It also permits foreign entities to hold shares in Indian vessels while ensuring majority ownership remains with Indian entities, NRIs, or OCIs.

Additionally, the Bill allows the registration of vessels chartered by Indian entities under the bareboat charter-cum-demise, enabling entrepreneurs to acquire ownership of vessels at the end of the charter period. This provision, particularly beneficial for capital-deficient entrepreneurs, facilitates entry into the shipping industry without upfront investment.

India is the second largest ship recycling centre after Bangladesh, and the ship recycling industry practises the concept of cash purchase of the vessel before it is brought for demolition. Often it becomes difficult for cash buyers to register the vessels for their final voyage, as they no more remain 'seaworthy'. To address challenges faced by the ship recycling industry, the Bill introduces





provisions for temporary registration of vessels destined for demolition. This measure is expected to bolster activities at India's ship recycling hubs like Alang.

ii) Enlarging the scope of vessels: the existing Act regulates only mechanised ships (engine-fitted vessels) above a certain size, leaving smaller mechanised vessels and all non-mechanised vessels outside its ambit. This regulatory gap has allowed many vessels to operate without adequate oversight. India's offshore drilling sector gained prominence in 1974 when Sagar Samrat, a merchant vessel designed for exploratory offshore drilling, drilled the first well in Bombay High. Since then, the offshore sector has employed a diverse range of mechanised and non-mechanised vessels, such as accommodation barges, work barges, submersibles, and drones. However, these vessels remain either unregulated or inadequately regulated under the current framework, exposing the sector to operational and safety risks.

The new Bill seeks to address this issue by expanding the definition of 'vessels' to uniformly include a wide range of crafts, including submersibles, semi-submersibles, hydrofoils, non-displacement crafts, amphibious crafts, wing-in-ground crafts, pleasure crafts, barges, lighters, Mobile Offshore Drilling Units (MODUs), and Mobile Offshore Units (MOUs), whether mechanised or not. This definition is expected to enhance transparency and ensure comprehensive regulatory oversight in the offshore sector.

Furthermore, the 26/11 Mumbai attacks, which exploited gaps in maritime security, underscored the urgent need for stricter regulation of all categories of vessels. By empowering authorities to issue instructions to all types of vessels, the new Bill aims to strengthen coastal security, making India's coastline safer and more secure.

#### **What about marine pollution?**

The Government has recently undertaken several initiatives to minimise pollution from shipping activities. Some of the measures include reducing the sulphur content in marine fuel from 3.5% to less than 0.5%, banning the use of single-use plastics on Indian ships, and launching the online portal 'Swachh Sagar' to facilitate the proper disposal of ship-generated waste at Indian ports.

The International Maritime Organization (IMO) has adopted several conventions aimed at preventing and combating marine pollution, such as the Civil Liability Convention (CLC), the Convention on Limitation of Liability on Maritime Claims (LLMC), the Bunker Convention, the International Convention for the Prevention of Pollution from Ships (MARPOL), and the Wreck Removal Convention. The existing law, however, has either omitted or partially implemented these conventions. The new Bill fully incorporates these international conventions, aligning India's maritime regulatory framework with global standards. This comprehensive approach reinforces India's commitment to combating marine pollution and safeguarding the maritime environment for sustainable shipping practices.

#### **What are provisions for seafarers'?**

The remarkable growth in the number of Indian seafarers employed on foreign-flagged ships over the last 7-8 years stands out as one of the biggest success stories in Indian merchant shipping. The workforce has grown from 1,16,000 in 2015-16 to 2,85,000 today, with nearly 85% of these seafarers serving on foreign-flagged vessels.

However, the existing Act lacks provisions for the welfare and safety of this vast workforce working on foreign-flagged vessels. The proposed Bill addresses this gap by extending the scope of



welfare measures initiated by the Union government to include Indian seafarers working on foreign-flagged ships as well. Furthermore, it seeks to extend the protections and benefits outlined in the Maritime Labour Convention (MLC) to all Indian seafarers, ensuring better working conditions, safety standards, and support systems for those contributing to the global maritime industry.

#### **What about maritime training?**

Under Entry 25 of List 1 (Union List) of the Constitution, the Union Government is responsible for the education and training of the mercantile marine and the regulation of such education and training provided by States and other agencies. In the past, maritime training was primarily conducted by government-run institutions directly under the administrative control of the maritime regulator, the Director General of Shipping. Consequently, there was no need for a specific legal framework to regulate these institutions.

However, following economic liberalisation, maritime training was opened to the private sector. Today, over 160 maritime training institutes operate across the country, yet their activities are governed solely by rules, government orders, and notifications rather than an enabling legal framework. This regulatory gap has allowed unauthorised institutes to operate without obtaining proper approvals, making it challenging for the maritime administration to take action against offenders.

The proposed Bill seeks to address this significant anomaly by introducing clear legal provisions for regulating maritime training in line with the constitutional mandate. This step is expected to eliminate illegal maritime training institutes and associated fraudulent practices, which often exploit unsuspecting rural youth, while ensuring the delivery of high-quality, standardised maritime education nationwide.

#### **Is there a focus on coastal shipping?**

The Government has taken a significant step by distinguishing between the technical regulation of ships and the commercial utilisation of Indian coastal waters, removing provisions related to the latter from the Merchant Shipping Act. These aspects, including licensing, permissions for operations along the Indian coast and Exclusive Economic Zone (EEZ), creation of a coastal plan involving the Union and States, and the integration of inland and coastal shipping, have been incorporated into the proposed Coastal Shipping Bill, 2024. This focused approach aims to foster growth and development of the Indian coastal sector.

The move aligns with the Government's flagship 'Sagarmala' program, which emphasises the promotion of coastal shipping through initiatives like dedicated berths for coastal vessels and enhanced hinterland connectivity for coastal cargo movement. Infrastructure development and a robust regulatory framework must progress simultaneously, making the introduction of the Coastal Shipping Bill both timely and essential.

Maritime development, like any developmental initiative, should remain bipartisan and above party politics. By fostering investment, enhancing safety, combating marine pollution, and supporting seafarers' welfare, the proposed reforms promise to unlock the true potential of India's maritime sector.



## HOW RAILWAY (AMENDMENT) BILL COULD IMPACT THE NATIONAL TRANSPORTER

Amid heated arguments between the government and opposition inside Parliament, Lok Sabha on Wednesday (December 13) passed the The Railways (Amendment) Bill, 2024.

- The Bill seeks to repeal the Indian Railway Board Act, 1905 and incorporate its provisions into the Railways Act, 1989. And although the contents of the new legislation itself did not receive much criticism, many MPs expressed concerns about the Bill failing to address larger issues pertaining to the railways including safety, vacancies, and decentralisation of power at the zonal and division levels.
- The construction of India's railway network began as a branch of the Public Works Department before Independence. When the network expanded, Indian Railways Act, 1890, was enacted to enable proper functioning of different railway entities. Later, the railway organisation was separated from the Public Works Department and the Indian Railway Board Act, 1905 was then enacted to provide the Railway Board with certain powers or functions under the Indian Railways Act, 1890.
- While the Act of 1890 was repealed in 1989 when the Railways Act was enacted, the Railway Board Act, 1905 remained in existence, and Chairman & members of the board continued to be appointed under this law.
- The government said that the new Bill will simplify the law by integrating the Railway Board (1905 Act) into the Railway Act. They also said that this will reduce the need to refer to two laws. The Bill was introduced in Lok Sabha on August 9, 2024.

### Do You Know:

- The Bill amends Section 2 of the Railways Act, 1989, and inserts a new chapter IA which pertains to the Railway Board. It makes provision to provide certain powers to the Railway Board "as prescribed by the Central Government".
- It says that the Centre may invest the Railway Board, either absolutely or subject to any conditions, with all or any of the powers or functions of the Central Government under this Act with respect to all or any Railways.
- Along with this, the Chairman and members of the board appointed under the 1905 Act shall be deemed to have been appointed under this Act as well. The Railway Board is already in existence, and the Bill does not propose to create any new Board or body.

## FEMALE LABOUR FORCE PARTICIPATION RATE ROSE DURING 2017-18 TO 2022-23

Female labour force participation rate (LFPR) increased in almost all states in India during 2017-18 to 2022-23, with rural areas seeing larger gains than urban areas, a new working paper released by the Economic Advisory Council to the Prime Minister (EAC-PM) stated.

- The female labour force participation rate (LFPR) in India remains among the world's lowest. Female LFPR declined by 14.4 percentage points (compared to 8.1 percentage points for males) between 2000 and 2019. The trend reversed thereafter, with female LFPR rising by 8.3 percentage points (compared to 1.7 percentage points for male LFPR) between 2019 and 2022.



- There is a considerable gender gap — women’s LFPR (32.8%) in 2022 was 2.3 times lower than men’s (77.2%).
- India’s low LFPR is largely attributed to the low female LFPR, which was much lower than the world average of 47.3% in 2022, but higher than the South Asian average of 24.8%, as per ILO data.
- There has been a reversal of the slow transition towards non-farm employment after 2018-19. The share of agriculture in total employment fell to around 42% in 2019 from 60% in 2000.
- This shift was largely absorbed by construction and services, the share of which in total employment increased to 32% in 2019 from 23% in 2000.
- The share of manufacturing in employment has remained almost stagnant at 12-14%. Since 2018-19, this slow transition has stagnated or reversed with the rise in the share of agricultural employment.
- There has been a rise in youth employment, but the quality of work remains a concern, especially for qualified young workers.

**Do You Know:**

- According to India Employment Report 2024, there has been concerns about poor employment conditions: the slow transition to non-farm employment has reversed; women largely account for the increase in self-employment and unpaid family work; youth employment is of poorer quality than employment for adults; wages and earnings are stagnant or declining.
- The ‘employment condition index’ has improved between 2004-05 and 2021-22. But some states — Bihar, Odisha, Jharkhand, and UP — have remained at the bottom throughout this period, while some others — Delhi, Himachal Pradesh, Telangana, Uttarakhand, and Gujarat — have stayed at the top.
- The index is based on seven labour market outcome indicators: (i) percentage of workers employed in regular formal work; (ii) percentage of casual labourers; (iii) percentage of self-employed workers below the poverty line; (iv) work participation rate; (v) average monthly earnings of casual labourers; (vi) unemployment rate of secondary and above-educated youth; (vii) youth not in employment and education or training.
- Informal employment has risen — around half the jobs in the formal sector are of an informal nature. Self-employment and unpaid family work has also increased, especially for women. Almost 82% of the workforce is engaged in the informal sector, and nearly 90% is informally employed, the report said. Self-employment remains the primary source of employment — 55.8% in 2022. Casual and regular employment accounted for 22.7% and 21.5% respectively.
- The share of self-employment remained almost stable around 52% between 2000 and 2019, while regular employment increased by almost 10 percentage points, to 23.8% from 14.2%. This reversed by 2022, with self-employment increasing to 55.8%, while the share of regular employment declined to 21.5%. Casual employment consistently declined to 22.7% in 2022 from 33.3% in 2000.





- Regular employment is generally seen as providing better-quality jobs due to the regularity of employment and associated social security benefits, while casual work is linked with relatively poor-quality jobs due to its irregular nature and lower daily earnings.

## ILO REPORT ASKS NATIONS TO UPHOLD FREEDOM OF ASSOCIATION AT WORK

The Social Dialogue Report of the International Labour Organisation (ILO), released in Geneva on Wednesday, has recommended the governments to uphold fundamental principles and rights at work, especially freedom of association and the effective recognition of the right to collective bargaining.

The report, focusing on 'peak-level social dialogue' (PLSD), also asked the member countries to equip labour administrations and social partners with the necessary resources and technical capacities for effective participation in PLSD.

It found that countries' compliance with freedom of association and the effective recognition of the right to collective bargaining had deteriorated by 7% between 2015 and 2022. "This decline was driven by an increase in violations of the fundamental civil liberties and bargaining rights of employers, workers, and their representative organisations," the report said.

The report argues that social dialogue can enable countries to pursue economic development alongside social progress, while ensuring fair and inclusive low-carbon and digital transitions.

The report adds that PLSD involves processes that bring together representatives of governments, employers' and business membership organisations (EBMOs) and workers' organisations (the social partners) at the national and sectoral levels. "These processes are designed to facilitate negotiation, consultation and information exchange on issues relating to labour, economic and social policy. PLSD includes bipartite processes – where only the social partners engage, notably for reaching collective agreements – as well as tripartite processes, which also involve government representatives," the report said.

"This edition of the Social Dialogue Report is published amid economic and geopolitical instability," said ILO's Assistant Director-General for Governance, Rights and Dialogue Manuela Tomei. "In a context where technological advances, climate change and demographic shifts are deeply transforming labour markets, social dialogue remains a credible governance model for navigating complexity and identifying fair solutions."

## THE PLACE OF CHARITY IN AN UNEQUAL SOCIETY

Billionaire Warren Buffet, with a net worth of almost \$121 billion by some estimates, has maintained his pledge of giving away his wealth. In a recent message to shareholders of Berkshire Hathaway, he has mentioned a transfer of his wealth to foundations overseen by his children, a total amount of around 870 million dollars. In all, it is estimated that he has given away an amount of \$52 billion.

Mr. Buffet's recent message has captured the attention of mainstream discourse as it has outlined his social philosophy with regard to wealth and its place in society. Mr. Buffet believes that wealth should be used to equalise opportunities, that the luck that favoured certain individuals and helped them get rich should be extended after one's death in order to help those less fortunate. While it is not wrong to amass and accumulate wealth during one's lifetime, allowing it to build across generations is a problem for society. While it is no doubt commendable that Mr. Buffet

**3<sup>RD</sup> FLOOR AND 4<sup>TH</sup> FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR**



wishes to give away his fortune, one must also question the processes generating the concentration of such wealth in the first place, regardless of whether it is to be used for philanthropy or not. Inequality is not a question of luck, but of specific policy institutions determined by society. In a world of spiralling inequality, both private philanthropy and the problems it tries to solve are two sides of the same coin, emerging from the very same set of social processes.

### **On luck and equal opportunity**

Mr. Buffet's ideas with regard to wealth and welfare can be seen in the context of a philosophical idea called "luck egalitarianism", which states that no-one should have to suffer the consequences of inequality owing to bad luck or adverse situations. As Mr. Buffet repeatedly stresses in his letter, he credits much of his personal fortune to fortuitous circumstances, such as being born as a white male in the U.S. Opportunities were open to him that would not be open to women or African-Americans, and the growth of the U.S. over the years caused his wealth to grow significantly through the power of compound interest.

Some might accuse Mr. Buffet of false modesty, claiming that his fortune has been generated through his own diligent efforts and his understanding of markets. But there is truth in what he says. As Branko Milanovic has shown, a significant factor driving global inequality is the differences in income between countries. Where one is born determines how wealthy one might be relative to the global population. In that regard, Mr. Buffet does display a strong egalitarian zeal. If fortune played a huge role in the differences between Mr. Buffet and others, there is no moral justification for him to pass on his wealth to his descendants. The only moral response is to ensure his wealth can be used to boost the opportunities of those less fortunate. What matters is the equalising of opportunities, and allowing individuals a level playing field in the beginning, rather than trying to equalise final outcomes.

### **What about charity?**

However, there are some important questions that need to be addressed. The distribution of private wealth through charity may help to equalise well-being between individuals, but the process by which this wealth was generated and concentrated has led to the differences in opportunities in the first place. In the developed world, wealth distribution was largely equal during the post World War II period. Widespread deregulation and a turn towards neo-liberal economics saw an explosion of wealth inequality from the 1980s onwards, with the 'trickle-down' economics of Ronald Reagan and Margaret Thatcher leading to the concentration of gains for a tiny sliver of individuals and stagnant wages for the majority. In India as well, the liberalisation of the economy may have led to faster growth, but has dramatically increased inequality and skewed the distribution of opportunities.

Differences in opportunities are not merely a question of luck, but of specific policy choices and interventions. Bill Gates' and Jeff Bezos' wealth came from the monopolies they enjoyed in the marketplace; this is less luck than the failure of policy to ensure competitive market practices. McKenzie Bezos might be doing important work in giving away much of her wealth, but one must ask how it was that Amazon generated so much money for its owners while its workers suffered through stagnant wages and harmful working conditions. Mr. Buffet earned much of his wealth through the compounding of his initial equity holdings, but the widespread financialisation of the U.S. economy — concomitant with the reduction in the power of unions and stagnant wage growth — greatly aided this process.

In the face of rising inequality, societies face a choice: to either do nothing and hope that private charity increases, or devise policy to counter the negative effects of rising wealth concentration. Thomas Piketty advocates for a system of taxation and redistribution backed by the State to ensure equalisation of opportunities, rather than relying on private philanthropy. Interventionist thinkers and those on the left advocate for higher minimum wages and constraints on billionaire compensation. The use of state policy ensures that one does not have to rely on billionaire conscience to ameliorate the very processes that gave rise to their wealth in the first place.



# DreamIAS



## LIFE & SCIENCE

### HOW A DISTANT GALAXY GAVE A GLIMPSE OF MILKY WAY IN ITS INFANCY

NASA's James Webb Space Telescope (JWST) has spotted a distant galaxy which gives a peek at what the Milky Way might have looked like in its infancy. The galaxy, named Firefly Sparkle due to its gleaming star clusters resembling the bioluminescent bugs (a group of fireflies is called a "sparkle"), is located some 13 billion lightyears away, meaning it took light 13 billion years to travel from the galaxy to.

Given that the Big Bang — the cosmic event that initiated the cosmos — occurred approximately 13.8 billion years ago, Firefly Sparkle, as we observe it today, is an infant galaxy formed in the immediate aftermath of the beginning of everything. Researchers say that the galaxy, still in the process of assembling, is estimated to have formed 100-400 million years before its evolutionary stage observed by the JWST.

#### Like Milky Way

Firefly Sparkle has a mass equal to about 10 million stars the size of our sun, and comprises 10 densely packed star clusters embedded in a diffuse arc of stars. Its main visible portion spans about 1,000 light-years across. It has two other relatively smaller galaxies as neighbours, dubbed Firefly-Best Friend and Firefly-New Best Friend.

"The Milky Way began forming very early in the universe's history, likely around the same time as Firefly Sparkle," astronomer Lamiya Mowla, co-lead author of the study published on Wednesday in the journal Nature, told Reuters.

"This observation gives us a direct look at what galaxies like our Milky Way might have looked like in their infancy. Using simulations and statistical methods, we find that the Firefly Sparkle's mass is consistent with what we'd expect for a Milky Way ancestor at that early time. At this stage, the galaxy was about 10,000 times less massive than our current Milky Way, which is typical of galaxies at that epoch," Mowla said.

Study co-lead author Kartheik Iyer said that "the Milky Way continued to grow and evolve over billions of years through mergers with other galaxies and continued star formation, while we're seeing Firefly Sparkle in its initial formation stages".

#### Gravitational lensing

JWST is the most advanced telescope fashioned yet, and has given humans the ability to look across vast distances — and thus back in time, as light takes time to travel. But Firefly Sparkle is so small and so very far away that not even the JWST would have been able to observe it, were it not for a lucky cosmic coincidence.

Between the JWST and Firefly Sparkle were a cluster of galaxies which distorted spacetime such that the light from the faraway galaxy was stretched, and effectively amplified. Astronomers refer to this phenomenon as gravitational lensing.

"[Gravitational Lensing] takes the light coming from the Firefly and bends it and amplifies it so we can see it in glorious detail," Iyer told the BBC, saying that the cluster of galaxies effectively acted like a giant magnifying glass.





“In this study, the foreground galaxy cluster magnified the light from Firefly Sparkle by about 16-26 times, making it possible to see details that would otherwise be too faint to observe,” Iyer said.

## CLIMATE IMPACT OF EXPLORING SPACE PASSING BELOW THE RADAR

As the world becomes more reliant on space technology for vital functions like climate monitoring, the environmental consequences of space activities also become increasingly urgent and in need of more attention. The rapid growth of the number of satellites in orbit has led to concerns about interference with climate monitoring systems and the accumulation of orbital debris. With no specific international regulations addressing these challenges, it is crucial the world’s governments act quickly to ensure space exploration doesn’t drift into unsustainability.

### How rockets affect the environment

Every rocket launch releases carbon dioxide, black carbon, and water vapour into the atmosphere. Black carbon is of particular concern because it absorbs sunlight 500 times more effectively than carbon dioxide does, amplifying global warming. As commercial space ventures become more common, the cumulative impact of these emissions will worsen.

Rocket propellants, especially those using chlorine-based chemicals, deplete the ozone layer at high altitudes, increasing exposure to ultraviolet radiation on the ground as well as disrupting atmospheric circulation — both of which affect the global climate. According to a December 9 article in MIT Tech Review, when satellites “burn up in the atmosphere” once their missions end, they release “satellite ash in the middle layers of the earth’s atmosphere. This metallic ash can harm the atmosphere and potentially alter the climate.”

Next, like many other forms of manufacturing, the production of satellites demands energy-intensive processes involving metals and composite materials, whose extraction and preparation have large carbon footprints of their own. Satellites also use propulsion systems to adjust their location and orientation in orbit, and their emissions add to the overall count. Equally, the rise of space mining — e.g. extracting valuable (on the earth) minerals from asteroids — could lead to increased industrial activity both in space and on the ground. Such mining activities haven’t begun yet, but they are sure to be part of the future.

While space technology supports essential climate monitoring and disaster management, the environmental costs for the earth’s atmosphere and space are escalating, requiring urgent redressal.

### Dangers of orbital debris

Orbital debris, or space junk, refers to defunct satellites, spent rocket stages, and pieces of satellites produced when they break apart in low earth orbit (LEO). According to the European Space Agency, as of September 2024, there had been around 6,740 rocket launches since 1957 that placed 19,590 satellites in orbit. Around 13,230 are still in space, and of them 10,200 are still functional.

Since the space in earth’s orbit is a resource just like water bodies and land masses on the ground, the occupation of orbits by non-functional objects constitutes a form of pollution as well — with the added threat of risk magnification.



For example, space surveillance networks have catalogued around 36,860 space objects thus far, including those produced in the 650+ fragmentation events (break-ups, explosions, and collisions). The total mass of all space objects in orbit exceeds 13,000 tonnes. As this mass continues to increase, the collision risks to satellites increase as well. Most space junk can reach speeds of up to 29 km/hr. When moving so fast, even a minuscule piece of metal can smash through a satellite like a bullet, damaging critical components, including those used for communication, navigation, and to monitor climate parameters of merit.

Orbital debris also poses an indirect threat by interfering with scientists' ability to collect data about the earth — from tracking disasters to monitoring weather — from space, such as by interfering with radio waves. Such threats also obligate satellite operators to invest in shielding satellites and actively perform costly manoeuvres to avoid collisions; both requirements drive up mission cost.

The risks are even more significant for human-crewed missions. For example, the International Space Station frequently adjusts its orbit to avoid debris.

#### **Barriers to space sustainability**

Regulation is key to ensuring space remains accessible and space activities remain environmentally sustainable. Without clear guidelines, the unchecked growth of emissions and debris will harm the earth's climate and increase the barriers to future space exploration.

Space activities currently fall outside international sustainability instruments like the Paris Agreement, so governments need to establish standards for emissions from rockets and satellites to prevent them from becoming overlooked contributors to global warming.

Without regulations, the increasing number of satellites and debris will overcrowd LEO, rendering future missions more expensive, which in turn would subtract from space's identity as a shared global resource that needs to be equally accessible to everyone. International cooperation through bodies like the Committee on the Peaceful Use of Outer Space (COPUOS) is necessary to create enforceable standards in this context.

Governments can also ensure such frameworks align with the Outer Space Treaty's principles of responsible use of space while addressing the treaty's current lack of binding provisions. This unity is particularly crucial if countries are to address the environmental impacts of space activities.

#### **Achieving sustainability**

Achieving sustainability in space exploration requires innovative solutions, which also present challenges of their own. For example, reusable rockets like those developed by SpaceX and Blue Origin reduce manufacturing waste and lower costs by allowing engineers to reuse rocket components in multiple missions. But the reusable parts are often heavier, which increases fuel consumption. These also have limited applicability for high-orbit missions, and their wear and tear invokes costly refurbishments. Thus scaling this technology while maintaining efficiency remains a hurdle.

Second, transitioning to cleaner fuels like liquid hydrogen and/or biofuels can minimise harmful emissions during liftoffs. However, hydrogen is currently produced with non-renewable energy, negating its environmental benefits. Cryogenic fuels — which provide more thrust for the same mass — are more expensive and more complex to handle, keeping them out of reach of smaller



operators. Electric propulsion is another option, but its low thrust restricts its use to specific missions like in-orbit manoeuvres.

Third, designing satellites with biodegradable materials that naturally disintegrate during re-entry can prevent long-term debris accumulation. On the flip side, these materials currently lack the durability required for the extreme conditions of space. High development costs and limited adoption further slow progress. Autonomous debris removal (ADR) technologies such as robotic arms and laser systems also offer hope for cleaning up orbital debris, but again, they are currently expensive as well as need more legal clarity before they can begin to operate safely.

A global traffic system to monitor satellites and debris in real time could reduce collisions and optimise orbit use. Resistance to data sharing, including due to security and commercial concerns, and the lack of a unified international authority hinder its development, however.

None of these hurdles are permanent, of course. Moreover, whereas individual solutions face significant challenges, a combined approach may be more feasible.

For example, binding agreements through COPUOS can standardise emission limits, debris mitigation, and data-sharing practices; governments and private entities can prioritise funding for green technologies, ADR systems, and satellite biodegradability; and financial rewards, subsidies, or penalties can nudge private actors towards sustainable practices.

At the intersection of technological advancement and environmental responsibility, the choices we make today will define the future of space exploration.

#### WEBB CONFIRMS THE COSMOS IS EXPANDING AT UNEXPECTED RATE

Fresh corroboration of the perplexing observation that the universe is expanding more rapidly than expected has scientists pondering the cause — perhaps some unknown factor involving the mysterious cosmic components — dark energy and dark matter.

Two years of data from NASA's James Webb Space Telescope have now validated the Hubble Space Telescope's earlier finding that the rate of the universe's expansion is faster — by about 8% — than would be expected based on what astrophysicists know of the initial conditions in the cosmos and its evolution over billions of years. The discrepancy is called the Hubble Tension.

The observations by Webb, the most capable space telescope ever deployed, appear to rule out the notion that the data from its forerunner Hubble was somehow flawed due to instrument error.

"This is the largest sample of Webb Telescope data — its first two years in space — and it confirms the puzzling finding from the Hubble Space Telescope that we have been wrestling with for a decade — the universe is now expanding faster than our best theories can explain," said astrophysicist Adam Riess of Johns Hopkins University in Maryland, lead author of the study published on Monday (December 9, 2024) in the *Astrophysical Journal*.

"Yes, it appears there is something missing in our understanding of the universe," added Riess, a 2011 Nobel laureate in physics for the co-discovery of the universe's accelerating expansion. "Our understanding of the universe contains a lot of ignorance about two elements — dark matter and dark energy — and these make up 96% of the universe, so this is no small matter."



“The Webb results can be interpreted to suggest there may be a need to revise our model of the universe, although it is very difficult to pinpoint what this is at the moment,” said Siyang Li, a Johns Hopkins doctoral student in astronomy and astrophysics and a study co-author.

Dark matter, thought to comprise about 27% of the universe, is a hypothesised form of matter that is invisible but is inferred to exist based on its gravitational effects on ordinary matter - stars, planets, moons, all the stuff on Earth - which accounts for roughly 5% of the universe.

Dark energy, believed to comprise approximately 69% of the universe, is a hypothesised form of energy permeating vast swathes of space that counteracts gravity and drives the universe's accelerating expansion.

What might explain the anomalous expansion rate? “There are many hypotheses that involve dark matter, dark energy, dark radiation — for example, neutrinos (a type of ghostly subatomic particle) — or gravity itself having some exotic properties as possible explanations,” Riess said.

The researchers employed three different methods to measure a specific telltale metric — distances from the earth to galaxies where a type of pulsating star called Cepheids has been documented. The Webb and Hubble measurements were in harmony.

## MATHEMATICAL REALISM

### what is it?

Is mathematics a discovery or an invention? The answers to this question are an important part of the philosophy of mathematics. To answer it, philosophers would like to know whether mathematics is a natural part of this world that existed before humans discovered and comprehended it or if mathematics was invented by humans.

In this discussion, experts have developed many different ideas. A particularly popular one is mathematical realism: according to this view, mathematics is real irrespective of whether there is a human mind to comprehend it. In other words, it stipulates that human minds discovered mathematics rather than creating it.

There has been some support from evolution for this view. Insects called cicadas live underground but emerge every few years to eat food, reproduce, and then die. This year, three broods of cicadas emerged at the same time: one with a 13-year cycle, one with a 17-year cycle, and one with a seven-year cycle. It's the first such event in 1,547 years.

Seven, 13, and 17 are all prime numbers, and some scientists believe evolution opted for them to avoid predators that emerge from underground to hunt cicadas at periodic intervals. By keeping their emergence cycle to a prime number of years, cicadas have a better chance of avoiding the predators' more regular cycles.

There are many types of realism as well, including Platonic, mathematicism, and logicism. Other, alternative positions on the nature of mathematics include structuralism, fictionalism, and social constructivism.





## 'MOBILE PHONE ADDICTION LEADS TO SLEEP DEPRIVATION'

At a panel discussion titled “Stress and sleep: The twin burdens that deter us from achieving full potential”, which was organised as part of “Healthy India, Happy India”, a collaborative initiative of Naruvi Hospitals and The Hindu here, Maria Antony, specialist in child and adolescent mental health, said excessive usage of mobile phones is inimical to sleep.

“Mobile phone usage has become the new-age aliment for many people as they think smartphones are the only way of recreation,” she said. The hour-long discussion was moderated by Ramya Kannan, Chief of Bureau (Tamil Nadu), The Hindu.

M. Satish Kumar, specialist in respiratory medicine, said that the concept of sleep hygiene is to have a set pattern of activities, including going to bed at a regular time. “Getting up during sleep and feeling sleepy during the day is referred to as sleep fragmentation — it should be avoided for better sleep hygiene with less stress,” he said, urging people to keep a diary of sleep and wake times and naps taken.

Pulmonologist Prince James said snoring is the result of obstruction to the smooth flow of oxygen into the lungs. Obesity is one of the main causes of obstructive sleep apnea, a condition that can turn out to be dangerous.

Mary Kurien, an otorhinolaryngologist, spoke of the physiological causes that cause snoring among children and prevent them from getting adequate sleep. While some causes might resolve themselves as the children grow up, others might need intervention, she added.

## 'WORD OF THE YEAR' — DICTIONARIES FIGHT FOR RELEVANCE

There is a poem by Pulitzer Prize-winning American writer Carl Sandburg, Languages, that speaks of the ever-morphing nature of words: “Words wrapped round your tongue today/ And broken to shape of thought/ Between your teeth and lips speaking/ Now and today/ Shall be faded hieroglyphics...” Perhaps, it is this struggle of memory against forgetting that brings on the annual glut of “words of the year” by every dictionary worth its salt. Or, perhaps, it is a more existential crisis: In a visual culture where social media is the arbiter of taste, how does one stay relevant except by taking cues from it? The annual tradition of selecting a “Word of the Year” that began in the early 2000s, therefore, is both a commemoration of the zeitgeist of the year near past and a fight for relevance.

Take, for instance, the words that made the cut this year. From “brain rot” that was Oxford Dictionary’s chosen one to “enshittification” that made it to Australian dictionary Macquarie’s word of the year, to Cambridge dictionary’s “manifest” or Dictionary.com’s “demure”, they all reflect the concerns, anxieties and aspirations of the digital age. The first recorded use of the word “brain rot” was apparently in 1854 in Henry David Thoreau’s Walden, but what could be more representative of the mind-numbing ennui produced by the compulsive overconsumption of social media in contemporary times? Ditto for “manifest”, a ditsy mantra for the digital affirmation club that reinforces, one reel at a time, the power of self-actualisation.

If tech undergirded this year’s selection, clues to other concerns of the time came from the also rans. Oxford’s shortlist is representative in this regard: In a war-fraught world, the reality of “dynamic pricing” and the escape of “romantasy” both made its presence felt. But, if there’s one dictionary that could claim stake to a word universally validated this year, it has to be Merriam-



Webster. For a year that saw over 70 national elections around the world, many bitterly contested and highly divisive, their selection sums it all up: “Polarisation”.

#### SAURASHTRA FOSSILS SAY EARLY HUMANS DIDN'T STICK TO COAST AS THEY MIGRATED

Genetic studies have painted a neat picture of human evolution and migration around the world. By studying how frequently DNA in the mitochondria (the cellular structure responsible for producing energy) mutates, scientists have found that Homo sapiens evolved in Africa for millennia, then emigrated to different parts of the world.

Scientists mostly agree on this out-of-Africa theory of human evolution and migration, but they frequently disagree on when exactly our ancestors migrated and what routes they took to different parts of the globe.

Several genetic studies have supported the coastal dispersion idea: that migrating humans travelled along the coast, especially in the tropics, where the weather was warm and wet and food was plentiful. In 2005, the mitochondrial genomes from 260 Orang Asli people revealed early humans dispersed rapidly around 65,000 years ago on the coast of the Indian Ocean before reaching Australia. In 2020, the nuclear and mitochondrial DNA from the remains of a 2,700-year-old individual in Japan showed a strong “genetic affinity” with indigenous Taiwanese tribes. The authors of the study concluded the finding supported coastal migration. Human settlements in the Andaman archipelago have also been linked to coastal journeys.

But there’s a problem: archaeological evidence has disagreed with the coastal dispersion model. For example, “all Palaeolithic archaeological sites in India are inland,” Michael Petraglia, director of the Australian Research Centre for Human Evolution at Griffith University, said. Along with his team, Petraglia has studied several archaeological sites in the country. “There is not a shred of archaeological evidence along the entire Indian Ocean coastline to support this model.”

Instead, Petraglia deferred to the inland dispersal model: the idea that human ancestors took “more interior, terrestrial routes.”

A new study of archaeological sites in India’s Saurashtra peninsula, published in the journal Quaternary Environments and Humans in October, has mounted yet another challenge to the coastal dispersion model.

#### **Early humans in Saurashtra**

In the study, scientists from the Max Planck Institute for Geoanthropology and the Tübingen University, Germany; the Maharaja Sayajirao University of Baroda, Vadodara; and the University of the Philippines investigated the Bhadar and Aji river basins of the Saurashtra peninsula in Gujarat. They discovered artefacts of tools made by early human inhabitants — pieces of chert, jasper, chalcedony, bloodstone, and agate that were chipped again and again to achieve a desired shape and size.

The researchers used a method called relative dating to date these artefacts. In this method, archeologists first identify how deep in the earth an artefact was found. As older civilisations fall and newer ones replace them, the older artefacts become buried deeper. They are thus often found organised in layers. Based on the layer in which an artefact is found, researchers can figure out the layer’s age from older studies that used more precise dating methods (a.k.a., absolute dating).



In this way, the researchers estimated the artefacts found in the Aji and Bhadar river basins were 56,000 to 48,000 years old — around the Middle Palaeolithic age.

Among other things, this period is characterised by an advanced tool-making technique where humans flaked off small pieces from a larger oval piece of stone.

### **Coast v. hinterland**

In 2013, British archaeologist Paul Mellars suggested human ancestors moved from Africa to Australia through coastal routes in the Late Palaeolithic age 40,000–10,000 years ago. If this was true for Saurashtra, the team would have found artefacts indicative of the Late Palaeolithic, particularly sharper blade-like tools. But the researchers wrote in their paper that they found no such tools dating to the Late Palaeolithic. According to Petraglia, Mellars’s hypothesis “was not based on any convincing archaeological evidence on the coast.”

The researchers also drew on existing models of sea-level changes during the Middle Palaeolithic. From these models, they deduced “Saurashtra would have been a vast landmass connected to Kutch in the north, Makran in the northwest, and the Western Ghats in the southeast,” according to their paper. In other words, the sites the researchers studied would have been much farther from the coast in the Middle Palaeolithic.

Together with the fact that other Middle Palaeolithic sites have been found in “central and peninsular India,” the authors have suggested that human ancestors moved inland to disperse across the Indian subcontinent instead of sticking to the coast.

Petraglia also said that if the humans had indeed stayed on the coast, they would have depended on “marine resources like fish and shellfish” for food — whereas the current study found no such evidence.

Thus, it seems people arrived at the Saurashtra peninsula in the Middle Palaeolithic and explored the Indian landmass — both by dispersing away from the coast and using inland routes.

### **Beyond the debate**

According to Shanti Pappu, visiting professor of archaeology at Krea University, Andhra Pradesh, the study’s strength lies in providing new data from “an important region in Indian prehistory.” At the same time, she said “precise dating must be done to confirm” the age of these artefacts, which the researchers also said in their paper.

Pappu, who is also secretary of the Sharma Centre for Heritage Education, agreed there is mounting evidence disputing a purely coastal migration of human ancestors, but she also advised caution: “debates on coastal movements for this time period are difficult to prove or disprove, owing to the lack of securely dated sites on the land and the submergence of other sites” due to the later rise in sea levels.

Like Pappu, Gyaneshwar Chaubey, a professor of biological anthropology at the Banaras Hindu University, said that the study is a prompt to move beyond the “debate on dispersal.” “The current study highlights a broader expansion of Palaeolithic occupation in the Saurashtra region, encompassing coastal margins, hinterlands, and inland areas,” he said.



## TWO HOMININ SPECIES 'EXISTED' TOGETHER

### Q: Have different hominin species coexisted?

A: Yes, researchers recently reported a remarkable example of this possibility. More than a million years ago, in a place in modern-day Kenya, two distinct hominin species walked together. Researchers revealed this extraordinary piece of history when they found fossilised footprints near the lake dating to the Pleistocene Epoch. These 1.5-million-year-old tracks, described in a study published in *Science*, provide the first concrete proof of two hominin species coexisting.

Discovered in 2021, the footprints are of *Homo erectus*, a direct ancestor of modern humans, and *Paranthropus boisei*. Researchers have been able to shed light on the behaviours and interactions of these species as they navigated the tough African terrain. The tracks were found on soft sediments near the lake's shore. Footprints can capture the movement of ancient life in their natural environments.

According to Kevin Hatala, the study's lead author and a professor at Chatham University, Pennsylvania, footprints often reveal details bones can't.

The coexistence of *H. erectus* and *P. boisei* underscores the complexity of human evolution. Both species walked upright and on two feet but occupied different ecological niches. *H. erectus* hunted for meat, while *P. boisei* was adapted to a diet rich in tough vegetation.

The fossil record also suggests divergent fates for these species, and the researchers don't know why. *H. erectus* survived for nearly a million years more, but *P. boisei* went extinct a few lakh years after their lakeside sojourn.— Arkatapa Basu.

## WHY BIG CATS KILL THEIR YOUNG: MANY REASONS, NOT JUST ACCIDENT

A tigress killed her three newborn cubs in a zoo in West Bengal's Siliguri last week while carrying them in her mouth. Her teeth damaged the windpipes of two cubs and the skull of the third. A zoo official described the deaths as "accidental".

- Infanticide has been a recurrent theme in human history and mythology. The ancient Spartans abandoned weak and deformed newborns at the Apothetae (place of rejection) on the slope of Mount Taygetus in southern Greece, the philosopher Plutarch wrote.
- In Greek mythology, Cronus, the father of Zeus, devoured his newborns after it was prophesied that one of his children would dethrone him. (Zeus escaped because Rhea, Cronus's consort, gave him a rock disguised as the infant Zeus, which Cronus swallowed.)
- The myths of Oedipus and Perseus pivot on the abandonment of infants due to the perceived threats they posed to their father or grandfather.
- It is not uncommon in animals either. The male of the species is responsible for most infanticides in the wild. Upon taking over a rival's territory and females, male cats kill the predecessor's cubs, especially the males, to nip future competition and promote his bloodline.
- Far less common are instances of filial infanticide in which the mother kills her cubs.





- Like the Spartans, animals do not invest hard-earned resources in weak offspring. This is why mothers, both in the wild and in captivity, often reject or kill their cubs selectively to give the surviving ones a better chance.

**Do You Know:**

- Conception and delivery trigger specific hormones to induce maternal behaviour. A hormonal imbalance, say experts, can lead to aggression in cats towards their cubs. First-time mothers and mothers who were orphaned in their infancy sometimes struggle to rear cubs.
- An inexperienced mother can be over-anxious while grooming or restraining her cubs. They often risk infection to their cubs by seemingly innocuous acts like licking the severed umbilical cords vigorously. But inexperience can lead to deadlier consequences as well.
- Not all mothers get wiser with experience. After delivering a cub in June 2022, tigress Lee in Maharashtra's Gorewada Zoo groomed it by licking before lifting it by the tail to place it on dry grass. But while shifting it the second time, her canines dug into the cub's neck. In February 2018, the same tigress had caused fatal neck and head injuries to her four cubs.
- Even cats that are well accustomed to captivity display an acute insecurity while with cubs, and are often overcome by a desperate protection instinct.
- In October 2018, Indianapolis Zoo staff watched as the lioness Zuri attacked and killed the lion Nyack, her companion of eight years and the father of her three cubs. There are no explanations for Zuri's violent aggression — which spotlights the limits to our understanding of animal behaviour in human terms. Their unsentimental resource management, say experts, are often misunderstood.
- In the wild, a cat either eats her dead cubs to regain some of the energy she expended during pregnancy and feeding, or carries them away so the carrion does not invite predators to her surviving cubs. The same instincts are visible in captivity as well.

**MOTHS MAKE REPRODUCTIVE CHOICES BASED ON SOUNDS EMITTED BY PLANTS: NEW STUDY**

The analysis, 'Female Moths Incorporate Plant Acoustic Emissions into Their Oviposition Decision-Making Process', was published online last month. It has been carried out by a team of 17 researchers, all based in Israel.

Moths can hear sounds emitted by plants and rely on them to choose on which plant to lay their eggs, according to a new study.

The analysis, 'Female Moths Incorporate Plant Acoustic Emissions into Their Oviposition Decision-Making Process', was published online last month. It has been carried out by a team of 17 researchers, all based in Israel.

Rya Seltzer, an entomologist at Tel Aviv University in Israel and one of the authors of the study, told The New York Times, "This is new...Plants emit sounds, and insects are really listening to that. They are tuned to that specific sound, and they know the meaning, and they consider it."



Last year, a study revealed that some plants cry a mournful melody made of ultrasonic clicks or pops when dehydrated or under some other kind of stress. These sounds are undetectable to the human ear but can be heard by other animals, including insects.

#### **How was the new study carried out?**

After last year's discovery, Seltzer and her team began to examine if a moth species called the Egyptian cotton leafworm used clicks produced by stressed plants to decide where to lay their eggs — one of the most important decisions of their lives.

"All of her children are going to develop on that specific choice that she made, and she has to make a fast call and a very good call," Seltzer told The NYT.

The team first demonstrated that female leafworms choose healthy and thriving plants to lay their eggs as they are more likely to provide enough food for the newborn larvae, instead of on a dehydrated one. Once that was established they analysed the role of clicks in the crucial decision-making done by these moths.

For this, researchers used a hydrated tomato plant on one side of an experimental arena. On the other side, they kept another healthy and hydrated tomato plant but it emitted recorded sounds of distress.

#### **What were the findings of the study?**

The researchers found that the moths preferred to lay their eggs on the "silent" plant. This meant that the female moths were not only able to recognise signals that indicate the presence of a plant but also interpret them to decide where to lay their eggs, according to Seltzer.

Jodi Sedlock, a sensory ecologist at Lawrence University in Wisconsin, told The NYT, "They have done an incredibly good study... I think they provide very strong evidence that these moths, this species, is attending to those sounds emitted by plants." However, Sedlock added that "the reason that they are attending to them is not entirely clear yet."

Seltzer did admit that more research is required. The next step will be to see how moths might use these acoustic cues in combination with scents and other signals from a plant. (With inputs from The New York Times)

### **BEIJING'S WAR AGAINST AIR POLLUTION**

Beijing, with a yearly average air quality index (AQI) of 144, was as polluted in 2015 as Delhi is today (Delhi's average is 155 for 2024). But in the interim, Beijing has managed to cut its pollution level by one-third with the most significant fall spanning between 2013 and 2017 (Chart 1). To be sure, Beijing's pollution control programme dates back to 1998 which laid the foundation for this aggressive last phase of the programme, which was termed a "war against air pollution".

#### **Why discuss Beijing in the context of Delhi?**

Beijing is the capital of an emerging economy, as is Delhi. So, if Beijing could manage what it did at its stage of development, Delhi could and needs to, as well.

There are many similarities between Beijing in 2013 and Delhi today. Chart 2 compares the sources of pollution for the two cities.



For Delhi, we have used the winter months' data because that is the most updated emission inventory available. Moreover, much like Beijing, the regional contribution to pollutants by neighbouring areas/States of the national capital region (NCR) is also high, especially during the winter months. While local emissions need to be controlled, without a concerted collective effort by the entire NCR region, just as Beijing achieved, it would be difficult to win this battle against air pollution.

### **What did Beijing do?**

With rapid economic growth in Beijing, the ambient concentration of pollutants increased rapidly by the late 1990s. By 2017, Beijing's energy consumption had grown by 74% compared to 1998. Unfortunately, a rapid increase in urbanisation and energy consumption meant higher emissions of pollutants. Things were particularly made worse because the heating in Beijing's residential properties was heavily coal-dependent.

Beijing's 20-year anti-pollution programme can be divided into three phases — 1998-2008; 2009-12; 2013-17. One common theme that ran through the entire effort was not shock-and-awe but a careful and slowly built-up plan with people's participation, which was run autonomously by the local government of Beijing.

Sources of pollution in Beijing were broadly identified as energy structures and coal combustion (contributing 22% to PM<sub>2.5</sub>), transportation structures (31%), and construction and industrial structures (33%).

For the first source, three steps were taken — ultra-low emission renovation and clean energy alternatives in power plants, renovation of coal-fired boilers, and elimination of civil bulk coal consumption used for residential heating.

For transportation infrastructure, the government first retrofitted cars and public service vehicles with diesel particulate filters (DPF) and gradually tightened emission standards. Then it went for scrapping, through subsidies instead of decree, of 'yellow-labeled' vehicles (heavy pollutant-emitting vehicles). Subway and bus infrastructure was overhauled and expanded at a rapid rate, along with optimising the urban layout.

As for the industrial and construction activities, tightening environmental requirements, intensifying end-of-pipe (EOP) treatment, eliminating obsolete industrial capacity, creating a green construction management model, efficient washing facilities, and implementing video monitoring with penal action against violators of construction sites were some of the steps taken.

The last leg of the plan (2013-17) especially focused on the need for regional cooperation, with five adjoining provinces around Beijing coming together to chalk out a collective plan for reducing ambient pollution in the region. This cooperation had a remarkable effect in reducing the level of pollution.

### **What did Beijing achieve? And how?**

As a result of this meticulously planned strategy at multiple levels, sulphur dioxide, nitrogen oxide, volatile organic compounds (VOCs), and PM<sub>2.5</sub>, the four major pollutants targeted under the policy, fell by 83%, 43%, 42% and 59% respectively between 2013-17 (Chart 3). Since most activities produce multiple pollutants, albeit to differing degrees, targeting a source meant reducing all the associated pollutants.



Chart 4 shows how by targeting each source, multiple pollutants were controlled.

The single most important factor in Beijing achieving its goal, apart from planning to the last detail, was the financial investment that the government committed to.

Chart 5 shows a whopping six-time jump in investment within just four years. All the steps enumerated above required heavy investment and the government did not shy away from making and fulfilling those commitments.

#### **What can Delhi learn from the Beijing experience?**

There are ideas galore on controlling pollution, and Beijing is a perfect example to learn from. We list some here, there are more.

Firstly, since private transport is the biggest contributor to local pollution, an efficient and comfortable bus-metro integrated transport system needs to be in place. Delhi's DTC bus fleet is not only old but also grossly inadequate for a population of this city's size. The metro is an excellent means of transport but is quite expensive, with almost zero last-mile connectivity provided by the State. Old vehicles need to be scrapped at the earliest through a well-thought-out subsidy-for-scrap programme, instead of banning them. Exclusive cycling and walking lanes should be built throughout the city. Other ideas, such as cross-subsidisation through affordable public transport and expensive private transport (cars and motorcycles) using congestion or high parking charges, as well as separate fuel costs for the two modes of transport, could be experimented with. An urban layout is needed where places of work and residence are brought closer, alleviating the need for long-distance travel.

Secondly, Delhi's electricity is still supplied primarily through coal fired plants. The energy system needs a serious overhaul both from the sides of supply and demand. Subsidising solar roof tops and connecting it to the grid with electricity bill discounts could be one such step in this regard.

Thirdly, much like the Beijing plan, Delhi needs to coordinate with neighbouring regions, instead of being at loggerheads, to control other sources which originate in these regions. Such a step may work in their collective interests.

Last but not least, the people of Delhi need to fight for the right to clean air and hold the government accountable instead of normalising poor AQIs as being better than severe ones. Prolonged exposure to pollutants, even in the poor AQI zone (for a larger part of the year), may be as dangerous as a short period of severe AQI in October and November every year. This change in attitude itself may go a long way in building pressure on the governments.

Unfortunately, it is not the lack of ideas but political will which is stopping Delhi from acting. It is the same reel playing out every year. Air in the very harmful zone for weeks with schools closing down, the young and the elderly gasping for breath through the day is the new normal in the winter months in Delhi. And what does the government do? The Centre blames the State and vice versa while they have both been in office for a decade. Neither of them is serious or even vaguely interested in solving the problem. Schools, offices, and individuals look for solutions in the form of air purifiers, but private protection for a public bad is by definition exclusivist, with especially the disadvantaged, who contribute the least to the problem, getting a raw deal. Delhi deserves a better response. It is high time that the government, both at the Centre and the State, listened and acted.





## NINE YEARS AFTER BEING FINALISED, WHY THE PARIS AGREEMENT LOOKS MORE FRAGILE THAN EVER

The Paris Agreement was supposed to save the world from the worst impacts of climate change. But nine years after it was finalised — on December 12, 2015 — it is perhaps more fragile than ever, appearing increasingly ineffective and helpless in containing the rapidly worsening climate situation.

In these nine years, annual global emissions have grown 8% from about 49 billion tonnes of CO<sub>2</sub> equivalent to 53 billion tonnes. Average annual global temperatures have increased from 1.1 degree Celsius above the pre-industrial average to 1.45 degree Celsius above that level. And, latest assessments suggest that 2024 is almost certain to be the first year to breach the 1.5 degree Celsius threshold.

The main goal of the Paris Agreement — holding global annual average temperatures within 1.5 degree Celsius of pre-industrial averages, two degrees Celsius in the worst case scenario — seems more distant than ever. In a clear sign of growing frustration with the treaty, a number of developing countries, led by the small island nations, have begun exploring alternative approaches for a more effective fight against climate change. The International Court of Justice is currently hearing a case which seeks to define countries' obligations on climate change, and the consequences arising out of those obligations.

### Changing course

Before the Paris Agreement, came the Kyoto Protocol in 1997. In keeping with the principles of equity and differentiated responsibilities enshrined in the 1992 UN Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol placed the bulk of the obligations of fighting climate change on rich and developed countries, while asking developing nations to contribute according to their respective capabilities.

But unnerved with the rising economic power of China, and afraid of the constraints that climate obligations put on their own economies, developed countries worked hard to dismantle the Kyoto Protocol. Although their first attempt, made in 2009 at the Copenhagen conference, failed, developed countries managed to have their way six years later in Paris.

In the garb of getting everyone to contribute, the Paris Agreement severely weakened the fight against climate change. The Kyoto Protocol had assigned specific emissions reduction targets on developed countries, but placed virtually no responsibilities on the rest of the world. The Paris Agreement mandated everyone to take climate actions, but only in a “nationally-determined” manner, essentially freeing developed countries of their assigned responsibilities.

With every country only putting in a bare minimum effort to meet their Paris commitments, global climate action is now no longer aligned with the emission reductions required to keep global warming in check.

### Progressive weakening

But even the provisions contained in the Paris Agreement have been slowly deconstructed over the years to suit the interests of the developed world.



Nothing illustrates this better than the finance deal reached in Baku this year. Developed nations, under the legal obligation of UNFCCC, are supposed to provide finance and technology to developing countries to help fight climate change. Developed nations had themselves promised to raise \$100 billion annually for this purpose from 2020. The Paris Agreement has a provision for increasing this amount post 2025.

Several assessments have shown that developing countries need trillions of dollars a year for climate action. However, in Baku, developed countries agreed to raise the \$100 billion amount to just \$300 billion a year, and that too only from 2035. The lack of adequate finance almost crushes any hopes of more ambitious climate action from developing countries.

#### **Dwindling trust**

With Donald Trump returning to power next year, the United States is almost certain to exit the Paris Agreement once again. In general, the trust in the Paris Agreement is dwindling, particularly amongst the countries that are most threatened by climate impacts.

This is why Vanuatu, a small island nation north-east of Australia, galvanised similarly-placed nations to get a resolution passed by the UN General Assembly last year seeking advice from the ICJ on what countries' climate obligations were.

The ICJ was asked to make its assessment not just on the existing climate-specific legal arrangements represented by the UNFCCC, and its two treaties, Kyoto Protocol and Paris Agreement, but also in light of other international laws like the universal declaration on human rights.

### **EXPRESS VIEW: ANOTHER YEAR, A HOTTER PLANET**

It's all but certain that 2024 will be the warmest year on record. Latest data from the EU's Copernicus Climate Change Service (C3S) show that last November was the 16th month in a 17-month period when the average global temperature rise was more than 1.5 degrees Celsius above the pre-Industrial Revolution period. The Paris Pact commits its 196 signatories to keep global heating to below 1.5 degrees to limit the impact of climate disasters. The world came close to breaching that threshold last year. With the temperature rise in the first 11 months of 2024 exceeding 1.6 degrees, C3S warns that there will be a default on the Paris benchmark this year. That does not yet mean a contravention of the landmark climate treaty — its implementation is measured over at least a decade. But reversing temperature trends will require sustained action on several fronts.

Meteorologists had anticipated global temperatures to come down a tad this year after the planet heated to a record level in 2023. Their forecasts were hinged on the cooling effects of the La Nina, which was initially expected to set in around July and then in October. La Nina can only be confirmed if the Oceanic Niño Index consistently drops to at least -0.5 degrees. This threshold has not been met so far this year, leaving scientists perplexed — the US National Oceanic and Atmospheric Administration has admitted to being “spooked”. Only twice in the past 75 years has La Nina set in later than October. Experts reckon that the La Nina will be weak even if it arrives mid-winter. The Australian Bureau of Meteorology estimates that it could even be delayed till February 2025. From affecting crop cycles and energy use to having a bearing on local pollution to increasing the vagaries of extreme weather events, the behaviour of this oceanic phenomenon poses a new climate-related challenge. Policymakers will have to prepare for the economic



ramifications and scientists and Met bodies will have to work together to refine forecasting models.

Close on the heels of C3S's announcement on November temperatures, the Swiss Re Institute — the academic wing of the eponymous insurance major — released a report on the economic costs of extreme weather events. It estimated that climate vagaries cost the world \$320 billion this year, 25 per cent more than the average over the past decade. Meteorological extremes do not necessarily have to develop into disaster risks. Mitigation of GHG emissions and adaptation to weather vagaries hold the key to a climate-resilient world. If the record of post-Paris CoPs is any indication, national governments and global policymaking agencies have their task cut out.

### FIRST ICE-FREE DAY IN THE ARCTIC COULD COME BY 2030, SAYS NEW STUDY: WHY DOES IT MATTER?

The Arctic Ocean may see its first ice-free day — when its waters have less than one million square kilometres of sea ice — by 2030, or sooner than previously expected, according to a new study. The scenario is unlikely to happen but it is possible, and its plausibility is increasing as humans continue to emit heat-trapping greenhouse gases (GHGs) at unprecedented levels, the analysis said.

The study, 'The first ice-free day in the Arctic Ocean could occur before 2030', was published in the journal Nature Communications. It was carried out by Céline Heuzé from the University of Gothenburg (Sweden), and Alexandra Jahn from the University of Colorado Boulder (USA).

Arctic sea ice has been shrinking for decades. In the last 40 years, the sea ice extent has been decreasing by 12.6% each decade, a pace of decline that is unmatched by any point in at least the last 1,500 years, according to a 2023 report in the MIT Climate Portal.

**ARCTIC SEA ICE DROP** Arctic sea ice is now shrinking at a rate of 12.2% per decade, compared to its average extent during the period from 1981 to 2010.

#### **What did the study say?**

For the study, the researchers used 11 different climate models to run 366 simulations of climate change and Arctic sea ice concentrations from 2023 to 2100. The majority of simulations predicted that the first ice-free day in the Arctic would be witnessed within seven to 20 years even if humans drastically cut GHG emissions in the following years.

Nine of the simulations found that an ice-free day can occur within three to six years. However, for this to happen certain right conditions will have to line up. For instance, there has to be unusually warm fall, winter, and spring. Stormy weather could also lead to rapid melting as it can break up the sea, helping it dissolve faster into the ocean. If these conditions occur together and persist for a few years, the first ice-free day will occur by September 2027.

Although there is uncertainty over when exactly the first ice-free day will occur, there is consensus among scientists that it will definitely take place at some point. The only way to thwart the first ice-free day is to dramatically reduce GHG emissions, which is unlikely to happen anytime soon. In 2023, the globally averaged surface concentrations of carbon dioxide, methane, and nitrous oxide reached new highs, according to a report by the World Meteorological Organization (WMO).



The study also said that the first ice-free day occurs within the next few years, it may be followed by several more. The climate model simulations predicted that the ice-free period can last between 11 and 53 days. This means that the Arctic can also witness the first ice-free month.

#### **What happens if the Arctic becomes ice-free?**

The loss of sea ice in the Arctic would have far-reaching consequences. For example, it would exacerbate climate change. This could happen due to something called the Albedo effect, or how much sunlight (solar energy) a surface reflects. Sea ice keeps temperatures down in the polar regions, as its bright, white surface reflects more sunlight back to space than liquid water. Once it vanishes, the Arctic will become even warmer, triggering more extreme weather events in the mid-latitudes, according to scientists.

Another fallout will be the rise of sea levels which is already worsening. In the past 10 years, the global sea level has been rising 1.5 times faster compared to the 1990s. Currently, the mean sea level is rising at a rate of 3.6 mm annually.

If the Greenland ice sheet, located between the Atlantic and the Arctic Ocean, entirely melts away, global sea levels could rise six meters. This could severely impact coastal communities across the world.

The disappearance of sea ice will present unprecedented challenges to ecosystems dependent on it. "Loss of ice and melting permafrost spells trouble for polar bears, walruses, arctic foxes, snowy owls, reindeer, and many other species. As they are affected, so too are the other species that depend on them, in addition to people," according to a report by the World Wildlife Fund (WWF).

Some of the fallouts are already unfolding. For instance, due to sea ice melting, several species are being forced to move to land as a base for hunting. Marine animals have been moving further north in search of colder water.

Ella Gilbert, climate scientist at the British Antarctic Survey, told the Financial Times, "Climate change is happening fast, especially in the polar regions... The Arctic is warming four times faster than the rest of the planet, threatening important ecosystems, infrastructure and livelihoods for people living there."

#### **Do You Know:**

- The loss of sea ice in the Arctic would have far-reaching consequences. For example, it would exacerbate climate change. This could happen due to something called the Albedo effect, or how much sunlight (solar energy) a surface reflects. Sea ice keeps temperatures down in the polar regions, as its bright, white surface reflects more sunlight back to space than liquid water. Once it vanishes, the Arctic will become even warmer, triggering more extreme weather events in the mid-latitudes, according to scientists.

### **WHY CAN'T THE WORLD AGREE ON A PLASTIC BAN?**

#### **The story so far:**

The 5th Intergovernmental Negotiating Committee (INC-5) on plastic pollution was a conclave of delegations from about 170 countries mandated to establish a legally binding treaty to end plastic pollution, informally called the Global Plastics Treaty. Despite a week of meetings, the INC-5 failed to meet its mandate.





### **What is the Global Plastics Treaty?**

The United Nations Environment Assembly (UNEA) resolved in March 2022 to ‘end plastic pollution, including in the marine environment.’ To that end, INC committees were constituted and tasked with negotiating a treaty before the end of 2024. Over the last two years, countries met five times, and attempted to bridge divergent views on how to end plastic pollution. Several countries are enthusiastic about ways and means to encourage recycling and prohibit certain plastics that lead to littering — India for instance has banned single-use plastic since 2022 — but many of them are reluctant to limit plastic production. Several countries are either petro-states or those that have significant industries that manufacture plastic polymers. Before the latest, and what was expected to be the last round of negotiations, began in Busan, South Korea, the Chair of the INC-5, Luis Vayas Valdivieso, circulated a draft text called a ‘non paper.’ This was roughly a synthesis of the views of all countries on managing plastic production but in the end, it turned out that despite long negotiations, the chasm between countries who viewed addressing plastic pollution as a waste management problem, and those that saw it as unachievable without cutting its production at source, was one that was too wide to bridge.

### **How bad is the problem of plastic pollution?**

According to a United Nations Environment Programme (UNEP) factsheet, plastic waste generation nearly trebled from between 1970 and 1990. In the early 2000s, the amount of plastic waste generated rose more in a single decade than it had in the previous 40 years. Currently, the world produces about 400 million tonnes of plastic waste every year. If historic growth trends continue, global production of primary plastic is forecasted to reach 1,100 million tonnes by 2050. There has also been a worrying shift towards single-use plastic products, items that are meant to be thrown away after a short use.

Approximately, 36% of all plastics produced are used in packaging, including single-use plastic products for food and beverage containers, of which 85% ends up in landfills or as unregulated waste. On top of that, about 98% of single-use plastic products are produced from fossil fuel, or “virgin” feedstock. The level of greenhouse gas emissions associated with the production, use and disposal of conventional fossil fuel-based plastics is forecast to grow to 19% of the global carbon budget by 2040. Of the seven billion tonnes of plastic waste generated globally so far, less than 10% has been recycled. Millions of tonnes of plastic waste are lost to the environment, or sometimes shipped thousands of kilometres to destinations where it is mostly burned or dumped. The estimated annual loss in the value of plastic packaging waste during sorting and processing alone is \$80-\$120 billion. Cigarette butts — whose filters contain tiny plastic fibres — are the most common type of plastic waste found in the environment. Food wrappers, plastic bottles, plastic bottle caps, plastic grocery bags, plastic straws, and stirrers are the next most common item.

### **What is India’s position on the treaty?**

India said that it would be “unable” to support any measures to regulate the production of primary plastic polymers as it has larger implications in respect of the right to development of member States. Indian delegation leader, Naresh Pal Gangwar, of the Environment Ministry, said at the concluding plenary session India had always been “committed” to the principle of consensus in decision-making in respect of substantive matters under multilateral environmental agreements. This principle reiterated collective decision-making and reflects shared responsibilities and commitment. Elaborating on these points, India’s position was that it had banned 22 kinds of single-use plastic and put in place an Extended Producer Responsibility regime. This means that



companies had to ensure a certain percentage of their plastic-packaging waste was recycled and that the littering of some of the most common kinds of plastic waste was banned. However, virgin polymer production is one of India's major products and exports, with conglomerates such as Reliance having significant stakes in the industry. India viewed calls to cut plastic production and regulate its supply as akin to introducing barriers to trade. Its position was closer to that of China, Saudi Arabia and several other oil and petrochemical-refining states. At the talks, 85-100 of the gathered countries were supportive of cuts to plastic production, year-wise targets to achieve them and restrict supply and trade. Finally, India has strongly opposed proposals for countries to vote on propositions in draft texts that were produced at negotiations such as INC. In INC-like negotiations — like the Conference of Parties talks in climate — every single word and punctuation has to be agreed upon by all countries. This inevitably leads to deadlock that can take years to resolve. There have been proposals to include voting rights to engineer progress but countries have opposed this, on the ground that it violates the principle of equity.

### **Is this the end of the road?**

By no means. It is expected that an "INC 5.2" will likely be convened sometime later next year to resume conversation and find common ground to firm a treaty. The final treaty, if agreed to, will lead to the beginning of a periodic Conference of Parties (COP) — just like in the climate talks. The UN talks in Rio de Janeiro, in 1992, was where countries decided to address carbon dioxide emissions. It took three years until the first COP was organised in Berlin and in the 29 years since, the world has moved at a glacial pace to address CO2 emissions.

According to an analysis by the Center for International Environmental Law, multilateral environmental agreements have taken varying amounts of time to negotiate treaty text due to a range of factors, ranging from just over a year to nearly five years between the start of negotiations and treaty adoption. In addition, depending on the number of countries required to ratify, it is not unusual for several years to pass between adopting the treaty and its entry into force. For example, the Intergovernmental Conference on an international legally-binding instrument under the United Nations Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction held five sessions over five years. It met seven times by holding a "resumed" fifth session and a "further resumed" fifth session.

### **UN TALKS IN RIYADH KEEP FOCUS ON LAND DEGRADATION**

Much of the earth's lands are drying out and damaging the ability of plant and animal life to survive, according to a United Nations report released Monday at talks where countries are working to address the problem.

The report was released at the UN summit in Riyadh, Saudi Arabia, on combating desertification — once-fertile lands turning into deserts because of hotter temperatures from human-caused climate change, lack of water and deforestation. It found that more than three-quarters of the world's land experienced drier conditions from 1970 to 2020 than the previous thirty-year period.

"The drier climates now affecting vast lands across the globe will not return to how they were," said Ibrahim Thiaw, chief of the United Nations Convention to Combat Desertification (UNCCD), which is facilitating the Riyadh talks. "This change is redefining life on earth."



At the talks, which started last week and are set to end on Friday, nations are discussing how better they can help the world deal with droughts — a more urgent lack of water over shorter periods — and the more permanent problem of degrading land.

If global warming trends continue, nearly five billion people — including in most of Europe, parts of the western U.S., Brazil, eastern Asia and central Africa — will be affected by the drying by the end of the century, up from a quarter of the world's population today, the report warned. UNCCD's chief scientist Barron Orr warned drier land could lead to "potentially catastrophic impacts affecting access to water that could push people and nature even closer to disastrous tipping points," where humans are no longer able to reverse damaging effects of climate change.

Sergio Vicente-Serrano, one of the lead authors of the report, said that as the atmosphere heats up because the burning of coal, oil and gas spews planet-warming emissions, it leads to more evaporation on the ground. That makes water less available for humans, plants and animals, making it harder to survive.

Farming is particularly at risk, with drier land being less productive and hurting both yields and the availability of food for livestock, the report said. That can lead to food insecurity for communities worldwide.

Aridity also leads to more migration, because erratic rainfall, degrading land and frequent water shortages make it harder for regions or nations to develop economically, the report said. It said the trend is especially noticeable in some of the world's driest areas such as southern Europe, the Middle East and North Africa and southern Asia. Negotiators in Riyadh are mainly discussing how best the world can respond to more frequent and damaging droughts.

Jes Weigelt, of European climate thinktank TMG, said it's still a sticking point because countries can't agree on whether rich nations should be forking out funds for drought responses around the world. Any money pledged would go towards better forecasting and monitoring systems as well as creating reservoirs and other water-management structures.

### 30 PEOPLE DROWNED PER HOUR IN 2021, SAYS WHO

The World Health Organization (WHO) published its first-ever global status report on drowning prevention on Friday.

The report, released at an event in Geneva, reveals that three lakh people died by drowning in 2021 around the world (an estimated 30 every hour).

Close to 92% of such deaths took place in low- and middle-income countries, disproportionately affecting the poor and marginalised. The WHO's South-East Asia Region (which includes India) saw 83,000 deaths, or 28% of the global burden.

WHO Director-General Tedros Adhanom Ghebreyesus, via video conference, said the report provided a snapshot of the global burden of drowning. Countries could use the report to raise awareness, guide implementation strategies and track progress on drowning prevention, he said.

Compiled with the participation of 139 countries – including India – the report found that while drowning deaths declined 38% since 2000, the progress had been uneven and the pace slow. The WHO's European Region, for instance, saw a 68% drop, while the South-East Asia Region saw a decline of 48%.



### Children at risk

Primarily at risk are children and young people. Children aged under five accounted for the single largest share of drowning deaths (24%), with a further 19% of deaths among children aged five to 14, and 14% among young people aged 15 to 29.

The report notes that globally, drowning is the fourth leading cause of death for children in the age group of one-four and the third leading cause of death for children aged five to 14.

Even these staggering numbers however, are an underestimate, notes Caroline Lukaszyk, technical officer, WHO, as the report does not capture deaths by drowning owing to natural disasters such as flooding, and those that occur on water transport, primarily due to a lack of accurate data. With vulnerability to flooding increasing due to climate change – and 75% of flooding deaths known to be due to drowning – this is a priority on the drowning prevention agenda, she says.

### Training crucial

The report also states that while encouragingly, the WHO's evidence-based drowning prevention interventions are being implemented in many countries, the implementation is to varying degrees. For instance, only 33% of countries offer national programmes to train bystanders in safe rescue and resuscitation, and just 22% integrate swimming and water safety training into their school curriculum. Quality data collection also remains a challenge.

More than 7.2 million people, mainly children, could die due to this “silent killer” by the year 2050 if current trends continue. Yet almost all drowning deaths are preventable, the report states, highlighting that political will and investment in drowning prevention are critical to save lives. Providing day care for pre-school children and teaching school students basic swimming skills could help protect millions of lives, it says.

Developed in response to a member-state request made through a World Health Assembly Resolution 76.18 (2023) and funded by Bloomberg Philanthropies, the report underscores that drowning is a complex health issue that requires the involvement of multiple sectors to address the broad range of risk factors. Legislation, even when it exists, is often out of step with the scale of the challenge, it says.

## MAPPING OF FOETUS'S BRAIN AT IIT-MADRAS CAN YIELD SIGNIFICANT BREAKTHROUGHS

A baby's brain starts developing in the womb and by the time the child is born, they have most of the brain cells, or neurons, they need. For a long time, birth was seen as the starting point for studying the effects of the environment on the brain. However, in the last half a decade, advances in imaging have revealed that the brain of a foetus too absorbs influences. Last year, 200 scientists from around the world, led by Oxford University neuro experts, released images of early brain anatomy and the intricate neural network that carries some of the earliest signals around the organ. Now, researchers at IIT-Madras have come out with a 3D map of five developing baby brains from the second trimester. This map, now the most detailed high-resolution representation of the foetal brain, shows how it undergoes rapid growth during this critical stage. Called Dharani, the atlas maps over 5,000 brain sections and more than 500 brain regions. The data could provide significant insights into neurological ailments and poorly understood developmental disorders such as autism.





The origins of developmental disorders have been debated for more than a century. The brain chemistry that leads to autism, for example, has been linked to both genes and environment. But taking scans of sleeping babies is hard enough — they move around and blur the images — doing so for the foetus kicking in the womb is even more so. The IIT-Madras used the brains of five stillborns in the second trimester — at 14, 17, 21, 22 and 24 weeks of pregnancy. The brains were frozen and thinly sliced, enabling scientists to see the structures. They were thinly sliced using complex robotic instrumentation — the slices are of 10 to 20 microns thickness, equivalent to 1/10th or 1/5th the thickness of human hair. The technology used for freezing, slicing, creating plates, digitising, and putting the map together was indigenously developed by the IIT researchers.

A number of studies have suggested that brain development may be particularly vulnerable to factors such as maternal nutrition, infection and stress during pregnancy. The Oxford University-led research underlined the vital public health message: A mother's health, educational, nutritional and environmental needs must be met to ensure that her child's body and brain develop healthily. The IIT-Madras atlas could help convey this message with even more nuanced data. This is especially important in a country where the nutritional and health needs of a large section of pregnant women remain unmet, despite several interventions by the government. A better understanding of how the human brain works could also be an aid in AI development.

#### INDIAN SCIENTISTS DEVELOP NOVEL GENE THERAPY TO PROVIDE ONE-TIME SOLUTION FOR HAEMOPHILIA

Scientists in India have reported success with using gene therapy to treat severe haemophilia A, a rare hereditary condition resulting from a faulty gene which triggers severe, spontaneous, and potentially fatal bleeding episodes.

Though only tested on five patients in Tamil Nadu so far, none of them have reported bleeding episodes over an average follow-up period of 14 months. It is not unusual for those with haemophilia to have weekly bleeding episodes, requiring frequent treatment. The results of the study were reported in the peer-reviewed New England Journal of Medicine (NEJM) earlier this week.

The trial was led by Alok Srivastava of the Centre for Stem Cell Research (CSCR) at the Christian Medical College in Vellore, and financially supported by the Union Department of Biotechnology.

#### One-time solution

The typical treatment for the condition requires injections at frequent intervals, with infusions of a "clotting factor" to prevent bleeding. Gene therapy treatments, however, promise to be a one-time solution. A gene introduced into the body teaches it to create enough of the clotting factor that can prevent such haemorrhage.

Haemophilia can be classified as minor or severe depending on the percentage of clotting factor present. Haemophilia A, the more common version of the condition, is caused by the absence of a blood-clotting factor called Factor VIII. Even though haemophilia is a rare disorder, India has the world's second-largest patient pool, with an estimated 40,000 to 1,00,000 patients.

Those with Severe Hemophilia A have less than 1% of the clotting factor, and manage the condition with repeated Factor VIII replacement, monoclonal antibodies, or injecting substances that mimic Factor VIII to stop or prevent bleeding. Because of the nature of the condition and the



relatively low numbers of patients, treatment can be expensive. A March 2024 research study in the journal *Heliyon* estimates the per-patient cost of treating a haemophilia patient in India to be \$300,000 (or ₹2.54 crore) over a 10-year period.

There is only one gene therapy — Roctavian — which was approved by the U.S. Food and Drug Administration for commercial use in 2023. Its effectiveness was established based on results from a cohort of 112 patients followed up for at least three years after Roctavian treatment. Following the infusion, the average bleeding incidents decreased from 5.4 bleeds per year at baseline to 2.6 bleeds per year.

The majority of patients who received Roctavian also received corticosteroids to suppress their immune systems for the gene therapy to be effective and safe, according to the U.S. FDA.

This approach, the authors say in their paper, is safer than using an adenovirus, and potentially opens up the gene therapy treatment to children.

An independent expert described the study as “ground-breaking”.

#### INDIA ACCOUNTS FOR HALF OF MALARIA CASES IN SOUTHEAST ASIA IN 2023

The World Health Organisation (WHO) South East Asia Region contributes about 1.5% of the burden of malaria cases globally and India accounted for about half of all estimated cases in 2023, followed by Indonesia, which carried just under one-third.

Estimated malaria deaths in the region fell by 82.9%, from 35,000 in 2000 to 6,000 in 2023. Together, India and Indonesia accounted for about 88% of malaria deaths in the region.

This is according to the WHO’s latest World Malaria Report (2024) released on Wednesday.

The report notes that since 2000, the WHO South-East Asia Region has made remarkable progress against malaria and estimated malaria cases in the region fell from 22.8 million in 2000 to 4 million in 2023 – a reduction of 82.4%.

“In the period 2022-2023, four countries achieved reductions in their malaria caseload — Bangladesh (-9.2%), India (-9.6%), Indonesia (-5.7%) and Nepal (-58.3%). Meanwhile, three countries saw case increases — Democratic People’s Republic of Korea (+47.9%), Thailand (+46.4%) and Myanmar (45.1%).

In 2023, both Timor-Leste and Bhutan reported zero indigenous cases of malaria.

A reduction in case incidence of 87% was achieved between 2000 and 2023, from 17.7 to 2.3 per 1000 population at risk.

“These gains have been largely attributed to progress in India, which saw 17.7 million fewer estimated cases and a 93% decrease in case incidence since 2000,” the report said.

Meanwhile, new data from the WHO revealed that an estimated 2.2 billion cases of malaria and 12.7 million deaths have been averted since 2000, but the disease remains a serious global health threat, particularly in the WHO African Region.

According to WHO’s latest World malaria report, there were an estimated 263 million cases and 5,97,000 malaria deaths worldwide in 2023. This represents about 11 million more cases in 2023 compared to 2022, and nearly the same number of deaths.



Meanwhile, as of November 2024, 44 countries and one territory had been certified malaria-free by WHO.

## WHAT IS DISEASE X AND WHY THE WORLD SHOULD PREPARE FOR IT

### The story so far

The recent outbreak reported in the first week of December 2024 in the Democratic Republic of Congo, which has claimed over 400 lives and remains unclassified, has raised concerns that it could be an instance of Disease X. This unsettling event has reignited discussions about Disease X. Disease X is not an actual but a hypothetical disease. The World Health Organization (WHO) coined the term in 2018 to describe an unknown pathogen that could potentially unleash a devastating epidemic or pandemic. It was conceptualised by the WHO to prepare for future outbreaks that are difficult to predict or identify. While investigations continue to determine the cause in Congo, the outbreak underscores the importance of Disease X.

### WHO's priority list of pathogens?

COVID-19 is widely regarded as the first instance of a real Disease X after the WHO introduced the concept in 2018. When SARS-CoV-2 emerged as an unknown pathogen causing a global pandemic, it exemplified the scenario that Disease X was meant to represent — an unpredictable, novel threat requiring rapid global response and adaptation. The concept of Disease X traces its origins in the aftermath of the West African Ebola epidemic of 2014–2016, which resulted in over 11,000 deaths and revealed significant gaps in global epidemic preparedness. After the outbreak, the WHO brought together scientists and public health experts to address how future outbreaks of similar scale could be prevented.

The WHO's priority list of pathogens is a strategic tool published in 2018 that is designed to focus global attention and resources on the most serious infectious disease threats. This list identifies diseases that have epidemic or pandemic potential for which there are insufficient or no medical countermeasures such as vaccines or treatments. The need for such a list arises from the urgency to guide research and development, allocate funding, and enhance preparedness. It helps policymakers, researchers, and health organisations prioritise efforts toward controlling the diseases. The current list (not exhaustive ) includes Ebola virus disease, Marburg virus disease, Lassa fever, Nipah virus, Rift Valley fever, Crimean-Congo haemorrhagic fever, Zika virus, and Disease X. Each of these pathogens has been flagged due to factors like high mortality rates, potential for rapid spread, and the lack of adequate preventive or therapeutic options.

### What is Disease X?

Disease X is not a specific illness but a placeholder for an unpredictable and as-yet-undiscovered pathogen capable of sparking a global health crisis. The WHO included it in the Blueprint for Priority Diseases in 2018 to focus on the risks of emerging diseases that science has yet to encounter. The term sits at the intersection of two categories (among four) popularised by Donald Rumsfeld's matrix: "known unknowns" (threats we are aware of but cannot fully understand) and "unknown unknowns" (threats we are not aware of and understand). Disease X embodies both, as it acknowledges the likelihood of a future pandemic without specifying when, where, or how it might arise.

The potential culprits behind Disease X are varied. It originates from Pathogen X, which could be a virus, a bacterium, a parasite, fungi, helminths, or even a prion — a misfolded protein capable of



causing severe neurological diseases. Historical data supports this uncertainty. Since 1940 (from where authentic records are available), researchers have identified more than 300 emerging infectious diseases, about 70% of which have zoonotic origins, meaning they are transmitted from animals to humans. This process, known as zoonotic spillover, is often linked to human encroachment on wildlife habitats, deforestation, and the intensification of agriculture. Meanwhile, the growing risks of antimicrobial resistance, bioterrorism, and accidental lab leaks add further layers of unpredictability.

### **Patterns in emerging diseases**

While the exact nature of Disease X remains unknown, epidemiological patterns provide critical insights into how new diseases emerge and spread. The emergence of viruses such as HIV, SARS, MERS, and Ebola was closely linked to ecological disruptions caused by human activity. Deforestation, urbanisation, and climate change have pushed humans and wildlife into closer contact, increasing the likelihood of pathogen transmission. Epidemiologists estimate that over 1.7 million undiscovered viruses exist in wildlife, with hundreds of thousands potentially capable of infecting humans. The frequency of novel outbreaks has also increased significantly since the mid-20th century, reflecting a combination of environmental, demographic, and global factors.

Regions with high biodiversity and inadequate healthcare systems, like the Congo Basin, are particularly vulnerable. The interconnectedness of our world, with frequent international travel and trade, makes it easier for localised outbreaks to escalate into pandemics, as seen with COVID-19. While epidemiology cannot predict the exact moment or source of Disease X, it can help identify high-risk regions and behaviours that increase the likelihood of its emergence.

### **Challenges of predicting Disease X**

Forecasting the next Disease X is daunting, as its emergence depends on numerous unpredictable factors. Zoonotic diseases are the most likely source, given their history of driving major epidemics. However, other scenarios, such as pathogens mutating to evade treatment, laboratory mishaps, or deliberate biological attacks, cannot be ruled out. Climate change is also reshaping disease transmission dynamics, expanding the range of vector-borne illnesses like malaria and dengue fever while pushing pathogens to adapt to new hosts and environments.

The sheer number of potential pathogens adds to the complexity. Scientists estimate that only a fraction of viruses capable of infecting humans have been identified, leaving a vast pool of unknown threats. Genomic sequencing and artificial intelligence are beginning to play an important role in narrowing this vast field of possibilities, but even with these tools, predicting the exact origin, timing, and behaviour of Disease X remains out of reach. What is certain, however, is that the conditions that gave rise to pandemics like COVID-19 and SARS continue to exist, making the emergence of Disease X a question of when, not if.

At the heart of preparation is the need for robust surveillance systems to detect new outbreaks early. Advances in genomic sequencing, artificial intelligence, and real-time data sharing are essential tools for developing diagnostics, therapeutics, and vaccines. Strengthening healthcare infrastructure, particularly in low- and middle-income countries, is also crucial. Organisations like the Coalition for Epidemic Preparedness Innovations (CEPI) are now investing in “prototype pathogen” platforms that can be adapted to target unknown diseases within 100 days of their identification.





### Need for global collaboration

Fighting Disease X will require an unprecedented level of international cooperation. The WHO's ongoing efforts, such as its list of priority pathogens and the proposed Pandemic Treaty, aim to foster a unified global response to health emergencies. These initiatives recognise that pandemics do not respect borders and that fragmented efforts will be insufficient to counter a threat as elusive as Disease X. Governments must work together to share data, pool resources, and ensure equitable access to diagnostics, treatments, and vaccines.

The outbreak in the DRC serves as a sobering reminder of the risks the world faces. Disease X is no longer a distant hypothetical but an urgent call to action. By strengthening public health systems, investing in research and innovation, and fostering global solidarity, the world can prepare for the unpredictable and safeguard future generations from the devastating consequences of the next pandemic. Frameworks like the Nagoya Protocol, which ensure equitable sharing of benefits from genetic resources, could be expanded to include biological materials like pathogens. It would promote global collaboration, ensuring fair access to research and medical countermeasures during outbreaks. A novel disease anywhere is a threat to everyone.

### SWEETENED DRINKS 'INCREASE RISK OF CARDIOVASCULAR DISEASES'

A large-scale study in Sweden has suggested that consuming sweetened drinks significantly increases the risk of serious cardiovascular disease. An occasional treat is acceptable, though, the study has added.

Researchers studying the effects of the consumption of different types of sugar on health risks have found that generally higher sugar intake raises the risk of certain cardiovascular diseases. Sugary drinks in particular carry higher risks. Extremely low sugar consumption is also associated with poorer cardiovascular health. The study indicated that the lowest risks of cardiovascular diseases were found among people who ate occasional treats. The scientists advocate avoiding fizzy drinks, since such beverages have excessive added sugar that can increase the risk of stroke or aneurysm, heart failure, and atrial fibrillation.

#### Source of the sugar

"The most striking finding from our study is the divergent relationship between different sources of added sugar and cardiovascular disease risk," said Suzanne Janzi, PhD candidate at Lund University and corresponding author of the article in *Frontiers in Public Health*. "This surprising contrast highlights the importance of considering not just the amount of sugar consumed, but its source and context," Ms. Janzi said.

The scientists collected data from two other studies : the Swedish Mammography Cohort and the Cohort of Swedish Men, which included diet questionnaires administered in 1997 and 2009, allowing for monitoring participants' diets over time.

They looked at three classes of sugar consumption — toppings such as honey, a pastry as a treat, or sweetened beverages such as fizzy drinks — and seven cardiovascular diseases: two different types of stroke, heart attacks, heart failure, aortic aneurysms, atrial fibrillation, and aortic stenosis.



The participants were monitored until they died, were diagnosed with one of the cardiovascular diseases, or reached the end of the follow-up period in 2019. The research found that during the study period, 25,739 participants were diagnosed with a cardiovascular disease.

#### **Sweet drinks increase risk**

The data helped to break down how the different types of sugar intake affect the risk of different cardiovascular diseases. The analysis showed that consuming more sweetened drinks significantly increased the risk of ischaemic stroke, heart failure, atrial fibrillation, and abdominal aortic aneurysm.

“Liquid sugars found in sweetened beverages make you feel less full, potentially leading to overconsumption,” Ms. Janzi said.

Different cardiovascular diseases were affected differently by increased sugar intake, possibly because consuming additional sugar affected participants’ individual risk profiles differently. Increased sugar in general raised the risk of ischaemic stroke and abdominal aortic aneurysm, as well as increasing the risk of heart failure in participants with a normal BMI. However, the highest risks of a negative health outcome arose in the lowest intake category for treats. Occasional treats were associated with better outcomes than no treats at all.

#### **Low intake not beneficial**

“While our observational study cannot establish causation, these findings suggest that extremely low sugar intake may not be necessary or beneficial for cardiovascular health,” she added.

In India, the study resonates with our food habits, which include a large consumption of sweets and carbohydrates. “Carbohydrates are not inherently harmful. One should pay attention to the type and the amount consumed, which can increase the risk of heart disease,” said G. Sengottuvelu, clinical lead, Structural Heart Disease Programme at Apollo Hospitals.

“Excess carbohydrates in the form of sugars and refined carbs may be more harmful than dietary fats. Added sugars, sugary beverages, or processed foods can contribute to obesity and metabolic syndrome, which is linked with insulin resistance, high triglycerides, and low HDL (good cholesterol),” he added.

They are associated with increased visceral fat deposition and accelerated atherosclerosis. Insulin resistance causes systemic inflammation with progression of plaque formation, the specialist explained.

Government Omandurar Multi Super Speciality Hospital dietician Meenakshi Bajaj said though the Indian dietary guidelines limit added sugars to 10% of the daily energy requirement, some dieticians recommend stricter restrictions given Indians’ disposition to metabolic diseases. “Traditional Indian sweets contain not just sugars but also nuts, milk, seeds, trans fats, and saturated fats that prevent overconsumption, but this is not so with sugar-sweetened beverages. They could be replaced with herb infused water, tender coconuts, and fresh unsweetened home-made juices,” she added.