



# CURRENT AFFAIRS FOR UPSC

26th January to 1st February 2025



## INTERNATIONAL

### WHAT DO TRUMP'S EARLY DECREES SIGNAL?

#### The story so far:

U.S. President Donald Trump signed a number of executive orders and actions into force in the early days of his second term in office, which began when he was sworn in on January 20. Following multiple promises made on the campaign trail leading up to the 2024 presidential election, Mr. Trump controversially issued a spree of executive orders in the first week itself.

#### What are some of the orders issued?

Mr. Trump issued over 1,500 pardons to individuals prosecuted for their role in the riot at the U.S. Capitol in 2021, alongside orders mandating the U.S.'s exit from the Paris Climate Agreement and the World Health Organization (WHO). He also signed an order ending birthright citizenship, protected under the U.S. Constitution's 14th Amendment, for children of undocumented migrants and those on temporary visas. He proposed a 100% conditional tariff on BRICS nations and a 25% tariff on Canada and Mexico, from February 1, while declaring a national emergency on the U.S.'s southern border with Mexico.

He also reversed 78 executive orders and memoranda of his predecessor, Joe Biden. While each of these decrees will likely impact the governance paradigm of the U.S., some, if not most, of these executive orders will face legal challenges and may ultimately be reversed. The broader Trump political agenda is nevertheless expected to significantly change the *status quo* in the U.S. over the coming four years, in the realms of domestic and foreign policy.

#### Why did Trump pardon the rioters?

Speaking at a news conference regarding his "blanket pardon that effectively freed all the rioters and erased the work of the largest criminal investigation in U.S. history", Mr. Trump said, "These people have already served years in prison, and they have served them viciously. It's a disgusting prison. It's inhumane. It's been a terrible, terrible thing."

The grant of clemency came despite the January 6 Congressional investigation running for two years, between 2021-23, and its committee interviewing over 1,000 people and reviewing more than a million documents. At the end of the enquiry, the courts charged more than 1,500 people associated with the attack on the U.S. Capitol, including former leaders of the Oath Keepers and Proud Boys, convicted of seditious conspiracy and violent acts.

Lawyers for these defendants were themselves said to be "pleasantly surprised" by Mr. Trump's pardons given that Vice President J.D. Vance had recently said that only non-violent offenders would get relief, and Mr. Trump's Attorney General pick Pam Bondi noted in Congress earlier that she did not believe that violent rioters ought to be pardoned.

#### What are the implications of the immigration crackdown?

On the one hand, the attempted reading down of the 14th Amendment has already been challenged in court by 22 States, and is likely to fail, according to legal experts. A federal judge in Seattle, Washington, has already described Mr. Trump's executive order ending birthright



citizenship as “blatantly unconstitutional” and issued a temporary restraining order to block it for at least two weeks while awaiting further briefings on the overall legal challenge.

However, the immigration raids that Mr. Trump promised vociferously during his campaign have begun in earnest. With over 21 actions issued towards overhauling the immigration system, and “mass deportations” and arrests promised, the Immigration and Customs Enforcement has already deported 1,000 individuals and detained 5,000 in the State of Texas, in some cases flying them out on military aircraft with the cooperation of the Department of Defense.

Mr. Trump has said on several occasions that he is in favour of legal migration even if he intends to close the U.S. border to undocumented migrants. While the President and his billionaire supporter Elon Musk have often spoken out in favour of temporary work visas for skilled migrants, including the H-1B visa, which applicants from India are most frequently granted, some members of the more conservative wing of the Republican Party have opposed any expansion in the H-1B quotas and have argued for bringing back jobs for American workers.

#### **What could the impact of the U.S. exit from global pacts be?**

Under the first Trump term, from 2016-20, the U.S. exited the Paris Climate Agreement — a move that was reversed by Mr. Biden on his first day in office. On his first day in office, Mr. Trump again exited the Paris pact, describing it as an “unfair, one-sided... rip-off”, and pointing out that “the U.S. will not sabotage our own industries while China pollutes with impunity.”

With the war cry of “Drill, baby, drill!”, Mr. Trump has gone further to declare a “national energy emergency”, which is not only a signal of Mr. Trump’s promise of energy expansion but specifically opens the door to the “federal use of eminent domain and the Defense Production Act,” which would allow the government to take charge of private lands and other resources to produce goods that might be deemed to be a national necessity.

However, not only does this mean that the U.S. will officially halt all contributions towards limiting global warming to 1.5 degrees Celsius above pre-industrial levels, but it also does so at the peril of ever more climatic events with a profound impact on the country.

#### **Why do Trump’s early orders matter for bipartisan prospects in the U.S.?**

The tenor of the second Trump administration in terms of its early policy agenda appears to be fundamentally hostile to the progressive agenda of the Democrats. To an extent, that is expected, as the two major parties have always diverged considerably on policy subjects. However, previous Republican governments would regularly seek to build bridges with Democratic lawmakers in Congress and in States to build bipartisan consensus across critical political issues rather than risk stalemates and fruitless conflicts over policy priorities and funding.

What is significant about Mr. Trump’s second victory, however, is the fact that he now enjoys a federal government trifecta and a sympathetic Supreme Court stacked 6-3 in favour of conservatives. This implies that Mr. Trump and his administration need to rely even less on support from across the aisle than they did during their first term. Further, he has clearly been emboldened by the fact that he won such a wide election victory encompassing most demographic cohorts of voters, to the point where even unconventional policy priorities have started to enter the proposed policy agenda. He has announced plans to take over the Panama Canal, de-recognise transgender rights, and Washington has threatened Denmark with its intention to take over Greenland, and the possibility of a ban on travellers from certain countries entering the U.S.



## IS TRUMP'S ORDER ON BIRTHRIGHT CITIZENSHIP CONSTITUTIONAL?

On January 23, U.S. District judge John Coughenour in Seattle blocked President Trump's executive order attempting to curb 'birthright citizenship'.

### What is birthright citizenship?

Birthright citizenship is a legal principle that grants automatic citizenship to individuals born within a country's territory, regardless of their parents' citizenship status. In the U.S., this right is enshrined in the 14th amendment of the Constitution, ratified in 1868, which states: "All persons born or naturalized in the United States and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside." The 14th amendment was the hard-won result of a prolonged legal and political struggle to abolish slavery and advance racial equality. It directly overturned the infamous *Dred Scott versus Sandford* (1857) judgment, which had denied citizenship to African Americans.

Nations worldwide largely determine citizenship through two principles — "jus soli" (right of the soil), which grants citizenship by birthplace, or "jus sanguinis" (right of blood), which grants it by familial descent. The U.S. employs both. The jus soli principle was reinforced in *United States versus Wong Kim Ark* (1898), which upheld the citizenship of a man born in California to Chinese parents despite the 1882 Chinese Exclusion Act barring their naturalisation. This ruling solidified birth in the U.S. as the primary basis for citizenship, irrespective of parental status.

### What does Trump's order say?

Trump's executive order reinterprets the 14th amendment, arguing that birthright citizenship excludes persons born in the U.S. but not "subject to the jurisdiction thereof". The administration interprets this to mean that children born in the U.S. to undocumented parents or parents with temporary legal status, such as tourists or foreign students, are not automatically granted citizenship unless at least one parent is a U.S. citizen or lawful permanent resident.

The administration's interpretation hinges on the phrase "subject to the jurisdiction thereof," claiming it excludes children of non-citizens. However, this contradicts historical and legal precedent. The order also narrowly defines "mother" and "father" as "female biological progenitor" and "male biological progenitor," excluding transgender and queer parents from its scope. The administration justifies the order as necessary, arguing that birthright citizenship encourages 'unauthorised immigration', draining 'public resources'.

### Why did the judge block the order?

U.S. District judge John Coughenour issued a temporary restraining order halting the enforcement of the executive order, nationwide. He described the order as "blatantly unconstitutional", remarking, "I've been on the bench for over four decades. I can't remember another case where the question presented was as clear as this one is".

During a hearing in Seattle, Judge Coughenour questioned Justice Department attorney Brett Shumate, expressing his disbelief saying "Frankly, I have difficulty understanding how a member of the bar could state unequivocally that this is a constitutional order. It just boggles my mind". The ruling came in response to a legal challenge brought forth by four States.



President Trump could also pursue a 'constitutional amendment' to revise the law. According to Article V of the U.S. Constitution, an amendment can be proposed by two-thirds of both houses of Congress or two-thirds of the States and must then be ratified by three-fourths of the States. Meanwhile, other legal challenges are underway, signalling that the final resolution may ultimately rest with the U.S. Supreme Court.

## FIRST RESORT

Donald Trump's mass deportation drive hit its first hurdle on Sunday when Colombian President Gustavo Petro refused permission to two United States military planes carrying migrants to land. A furious Mr. Trump announced that the U.S. would impose a 25% tariff on all Colombian goods, which would be raised to 50%. The U.S. also threatened to impose banking and financial sanctions and issue travel bans on Colombian officials and associates. Mr. Petro, a former guerrilla, responded in kind by saying Colombia would also impose tariffs up to 50% on American goods and refused to "shake hands with white slaveholders". But Bogota, under pressure, eventually accepted to take back the migrants "with dignity and respect". A trade war would have been bad news for both countries whose bilateral trade stood at \$53.5 billion in 2022, with a \$4 billion surplus for the U.S. High tariffs would have been a body blow for Colombia, as the U.S. is its largest trading partner. With tariffs and financial and political sanctions, America could cripple Colombia's economy and destabilise its polity at a time when its fight with guerrillas is escalating after a lull. Unsurprisingly, Mr. Petro backtracked and agreed to accept what the White House said was "all its terms".

Colombia and other South American countries have been taking undocumented migrants back from the U.S. in recent years. In January, there were 90 deportation flights from the U.S. to its southern neighbours, eight of which landed in Colombia. But what turned a regular exercise into a controversy was the handling of the deportation by the Trump administration — the use of mostly military planes, which angered the Colombians. Mr. Petro also raised concerns about the way migrants were treated by the U.S. Earlier, Brazil had also raised complaints of "degrading treatment" of its deported citizens. They were handcuffed, and some of them were not given water or allowed to use the washroom during the flight, according to Brazilian officials. But Mr. Trump does not seem to care. He wanted to make an example of Colombia so that other neighbours will not challenge his handling of the mass deportation. He may have forced Colombia to backtrack for now, using America's economic muscle, but this kind of coercion could backfire in the long run in a region where America has always tried to maintain its geopolitical hegemony. And the inhumane conditions in which hundreds of migrants are being deported everyday is a blot on America's tall claims of protecting human rights. A better way of handling this crisis is through diplomacy. Instead of imposing his will on other countries through threats of tariffs and sanctions, Mr. Trump could use the diplomatic channel, seek consensus and then implement his policy in a much more cordial way. But for Mr. Trump, alas, coercion is the first resort.

## UNCLEAR AGENDA

The policy agenda of U.S. President Donald Trump suffered a political setback when a controversial memo issued by his administration's Office of Management and Budget (OMB), proposing to freeze federal funds for a range of social services was blocked by a District Court judge. In the wake of confusion and chaos regarding which programmes would be impacted, the White House rescinded the memo, a forced act of back-peddalling. Federal grants and loans worth trillions of dollars were potentially shut off for health-care initiatives for millions of low-income



Americans — including within the Medicaid system — earlier this week when the OMB memo was apparently published “without vetting by key officials in the White House”. It appeared that funds for schools, hospitals and shelters were also in jeopardy, in most cases policies that would have assisted vulnerable groups. The administration has now clarified that benefits such as the Supplemental Nutrition Assistance Programme and student loans would not be affected by the freeze — nor would Medicare, Medicaid and Social Security payments and funds for small business, farmers, Pell grants, Head Start, rental assistance, and similar programmes. Despite the backdown, the Trump administration reiterated that it would not, at a broader level, compromise on the President’s commitment to review and recalibrate federal funding allocations towards cutting down on government waste and unrequired regulations. White House Press Secretary Karoline Leavitt said on social media, “This is NOT a rescission of the federal funding freeze. It is simply a rescission of the memo”.

While there was little doubt that Mr. Trump would, during his second term, seek to slash public expenditure on certain social services, the ad hoc and apparently uncoordinated approach towards this cut left many, including some Republicans, baffled. The OMB memo also raised the spectre of Mr. Trump’s fiat by executive orders seeking to supplant the traditional role of Congress, which is the prime vector for appropriations and earmarking funds for specific projects across sectors. This is a precarious path to follow, and it is likely to face further pushback from Congressional lawmakers if it continues. There is also concern that Mr. Trump has surrounded himself with acolytes who subscribe to the ideas in the so-called ‘Project 2025’, which some regard as a right-wing agenda that could prove to be more divisive than it is capable of genuinely addressing urgent political priorities. While Mr. Trump may have become more adept at personnel management, it is equally important that he does not exacerbate the bitter polarisation of the American polity over the coming four years.

#### TRUMP’S FREEZE ON FOREIGN AID SENDS SHOCKWAVES THROUGH EASTERN EUROPE

President Donald Trump’s abrupt freeze of U.S. foreign aid is sending shockwaves through Eastern Europe, leaving pro-democracy groups, independent media, civil society initiatives and local governments scrambling to make ends meet in a region often defined by rivalries between East and West.

The U.S. State Department said that the 90-day freeze aims to root out waste and block so-called woke programmes to expose U.S.-funded activities “that run contrary to our national interests” — as Mr. Trump aggressively rolls out his “America First” agenda.

#### **Geopolitical impact**

Eastern Europe has been a longtime geopolitical battleground where Western foreign policy interests often collide with those of Moscow or Beijing.

Many fear the cessation of U.S. funds could expose Washington’s allies — and create a vacuum that its foes could gladly seek to fill.

The U.S. freeze on foreign aid has significantly impacted Moldova and other Eastern European countries that rely on this support for democratic institutions, media, and public services. Key figures in Moldova and Kosovo express concerns over the cessation of USAID funds, highlighting the critical role of American financial backing in promoting democracy and development in the region. Many hope the measure will be reversed after the 90-day review period.



Moldova will hold a pivotal parliamentary election this fall which comes after the pro-Western government accused Russia of meddling in two key votes last year — including backing a vast vote-buying scheme in the country of about 2.5 million people.

The Trump administration has cast the aid freeze as an accountability quest to justify American spending abroad.

Beyond support for Ukraine in recent years, the U.S. is spending about \$40 billion in foreign aid annually, according to the U.S. State Department.

#### EGYPT, JORDAN REJECT TRUMP'S PLAN FOR FORCED DISPLACEMENT OF GAZANS

Egyptian President Abdel Fattah al-Sisi and Jordan's King Abdullah II rejected on Wednesday any forced displacement of Gazans after U.S. President Donald Trump floated an idea to move Palestinians from the territory to the two Arab countries.

In his first public response to Mr. Trump's comments, Mr. Sisi said that displacing "the Palestinian people from their land is an injustice that we cannot take part in".

Speaking at a press conference in Cairo with Kenyan President William Ruto, he added that Egypt's historic position in favour of the creation of a Palestinian state "can never be compromised".

Mr. Sisi said Egypt was nonetheless "determined to work with President Trump, who seeks to achieve the desired peace based on the two-state solution".

Meanwhile, in Brussels, Jordan's King Abdullah II stressed his country's "firm position on the need to keep the Palestinians on their land and to guarantee their legitimate rights, in accordance with the Israeli and Palestinian two-state solution".

After an Israel-Hamas ceasefire took effect on January 19, Mr. Trump had floated a plan to "clean out" the Gaza Strip, reiterating the idea on Monday as he called for Palestinians to move to "safer" locations such as Egypt or Jordan.

Speaking to reporters on Monday evening, Mr. Trump said that he hoped Mr. Sisi "would take some" Gazans. "We helped them a lot, and I'm sure he'd help us," he said.

#### 'Rough neighbourhood'

"As they say, it's a rough neighbourhood, but I think he would do it, and I think the king of Jordan would do it too."

The idea has since been roundly rejected by regional leaders, as well as by Germany and France, with both saying it was "unacceptable".

#### M23 REBELS SEIZE MOST OF GOMA IN MINERAL RICH EASTERN CONGO AS RWANDA LEADER CALLS FOR TRUCE

Rwanda-backed rebels captured large parts of Goma, the biggest city in eastern part of the Democratic Republic of Congo, including its airport, the United Nations said, as Rwanda's President on Wednesday joined calls for a ceasefire in the decades-long conflict amid mounting international pressure.



Much of Goma was calm after a day during which thousands of fleeing people hunkered down by roadsides as missiles flew overhead, and injured people streamed to overwhelmed hospitals.

While government forces still control pockets of Goma, residents said that the M23 rebel group was in control of much of the city.

The M23 rebels, who said that they captured the city on Monday after a weeks-long advance, are one of about 100 armed groups vying for a foothold in mineral-rich eastern Congo. The conflict escalated with the rebels' advance into Goma, which left bodies on the streets and drove hundreds of thousands of already displaced people to flee once again.

After clashing with government forces, the rebels took control of the airport, UN spokesperson Stephane Dujarric said at a briefing on Tuesday, warning of "risks of a breakdown of law and order in the city given the proliferation of weapons."

Rwandan President Paul Kagame said on X that he spoke with U.S. Secretary of State Marco Rubio on "the need to ensure a ceasefire and address the root causes of the conflict once and for all."

His government denies supporting M23, despite reports from UN experts who estimate there are up to 4,000 Rwandan forces in Congo. Rwanda has accused Congo of enlisting Hutu rebels and former militiamen whom it blames for the 1994 genocide.

The East African Community, whose members include both Rwanda and Congo, are scheduled to discuss the conflict at a meeting on Wednesday. Congolese President Félix Tshisekedi won't be able to participate in the virtual summit, a spokesperson said, without providing further details. Pope Francis called for the cessation of hostilities and the protection of civilians.

M23, made up primarily of ethnic Tutsis, has said that it plans to set up an administration in the city so people can continue living normal lives and displaced people can return home.

Analysts have warned that securing a rebel withdrawal could be more difficult than in 2012, when M23 first captured Goma but withdrew after days. Murithi Mutiga, program director for Africa at the Crisis Group, said that the group has become more emboldened by Rwanda, which feels Congo is ignoring its interests in the region and which has accused Congo of failing to meet demands of previous peace agreements.

#### PHILIPPINES TO REMOVE U.S. MISSILE SYSTEM IF CHINA STOPS 'SEA AGGRESSION'

Philippine President Ferdinand Marcos Jr. offered on Friday to remove a U.S. missile system from the Philippines if China halts what he called its "aggressive and coercive behaviour" in the disputed South China Sea.

The U.S. Army installed the Typhon mid-range missile system in the northern Philippines in April last year to support what the long-time treaty allies described as training for joint combat readiness.

China has repeatedly demanded that the Philippines remove the missile system, saying it was "inciting geopolitical confrontation and an arms race".

Asked by reporters about China's criticism of the missile system, Mr. Marcos said he did not understand the Chinese position because the Philippines does not comment on China's missile systems which "are a thousand times more powerful than what we have".





“Let’s make a deal with China: Stop claiming our territory, stop harassing our fishermen and let them have a living, stop ramming our boats, stop water cannoning our people, stop firing lasers at us and stop your aggressive and coercive behaviour, and we’ll return the typhon missiles,” Mr. Marcos told reporters.

Chinese officials did not immediately comment on the Philippine leader’s remarks.

The U.S. Army’s mobile Typhon missile system, which consists of a launcher and at least 16 Standard Missile-6 and Tomahawk Land Attack Missiles, was repositioned about two weeks ago from the northern Philippines to a strategic area nearer the capital, Manila, in consultation with Philippine defence officials, a senior Philippine official said.

The Philippine official, who spoke on condition of anonymity because of a lack of authority to discuss the sensitive issue in public, said the U.S. missile system is now nearer an area where Chinese and Philippine coast guard and Navy forces have been involved in increasingly tense face-offs in the South China Sea. Tomahawk missiles can travel over 1,600 km, which puts parts of mainland China within their range.

## NEPAL’S RULING PARTIES’ ATTEMPT TO CHANGE POLL LAWS COULD DEAL A BLOW TO INCLUSIVITY

Nepal’s two big parties, which formed a coalition government six months ago calling for constitutional amendments “for political stability”, have walked back on that promise. Instead, they are now working on revising the law to change the electoral system — a move that many say could deal a blow to the principle of inclusivity.

With Prime Minister K.P. Sharma Oli recently saying a constitutional amendment is not possible before 2030, his party, the Communist Party of Nepal (Unified Marxist-Leninist), or CPN-UML, and the Nepali Congress (NC) are planning to increase the threshold for parties.

The threshold determines the number of seats parties are allocated based on the vote shares received under the proportional representation (PR) system. Currently, the threshold for parties in the Federal Parliament is 3%, which the ruling coalition is trying to increase to 5%.

PR is one of the two systems Nepal follows, the other being the first-past-the-post (FPTP), under which whoever wins more votes gets elected, to elect the Federal Parliament and Provincial Assemblies.

In Nepal’s 275-member House of Representatives, 165 members are elected under FPTP and the remaining 110 under the PR system. This mixed system makes it extremely difficult for a single party to win a majority, hence the last two elections since the promulgation of the Constitution in 2015 have resulted in hung parliaments, and multiple governments.

### Shifting goalposts

“Stability” has been the common refrain of leaders of the NC and the CPN-UML lately, who are rooting their argument in the frequent change of governments in the last 10 years since the new Constitution. In the latest such change, in July last year, the two largest parties came together to unseat the Pushpa Kamal Dahal ‘Prachanda’-led government. They said they would amend the Constitution in such a way that it would ensure a party wins a majority to govern for five years.



“It was clear from the outset that they were aiming to dismantle the PR system. But since they lack the numbers to amend the Constitution, they are now talking about changing the electoral system,” said Tula Shah, a political analyst. “Increasing the threshold would mean reducing the representation of women and the disadvantaged groups, which will be a setback for the principle of inclusivity.”

Analysts say the PR system is considered the hallmark of inclusivity in a diverse country like Nepal, and any move to scrap or tweak it will be regressive.

Dr. Baburam Bhattarai, a former Prime Minister and leader of the Nepal Samajwadi Party, says the big parties’ commitment to inclusivity was always in question, and what they are aiming for now just proves that.

“Underneath their constitutional amendment plan lay an ominous intent to scrap the PR system. Now, they are making a futile attempt to increase the threshold,” said Dr. Bhattarai. “To cover up their failure, they are now trying to change the rules of the game halfway.”

Experts say Nepali parties’ tendency to blame the lack of stability for all ills is flawed and stems from their desire for power.

Chief Election Commissioner Dinesh Chandra Thapaliya recently lashed out at the ruling parties publicly for attempting to increase the threshold. “The current constitutional provisions and laws are not a barrier to securing a majority for any party,” said Mr. Thapaliya. “If Nepali parties cannot convince their voters to vote them into a majority, how can they find fault with the current system and arrangements?”

Nepal has not seen any government complete its full term ever since the restoration of democracy in 1990. However, it’s not for the lack of a majority for any party in the last three and a half decades. The 1991 and 1999 elections gave the mandate to one party or the other to form a majority government, but the parties’ failure led to the dissolution of the House on both occasions. “Proportional representation is one of our biggest achievements. Our democracy is an inclusive democracy,” said Mr. Thapaliya. “No law can be enacted by ignoring inclusivity.”

Raising the threshold means the bigger parties, which often tend to field the privileged and men unless necessitated by the law, will get an edge. On the contrary, smaller and regional parties field the marginalised, and they will suffer.

#### **Dangerous games**

Analysts say the idea of increasing the threshold is even more dangerous because it will reduce the representation of women and historically excluded groups.

“In the pursuit of this chimera called stability lies the risk of undermining inclusivity, which is the cornerstone of Nepal’s 2015 Constitution,” said Dr. Bhattarai. “Instead of improving our democracy to make it more inclusive, progressive and refined, ruling parties are heading down the path of regression.”

Mr. Thapaliya, the Chief Election Commissioner, even questioned what “stability” actually means.

“In our country, every time there was a majority of a single party, the Parliament faced a sudden death,” said Mr. Thapaliya. “Do not these parties need to justify their past actions when they say stability can be achieved only when there is a majority of a single party?”



## NATION

### INDIA WITH INDONESIA

Indonesian President Prabowo Subianto's visit to India, as chief guest at the Republic Day parade, was replete with the symbolism of historically important ties between the two countries, albeit short on concrete outcomes. India and Indonesia's ancient ties, that rest on trade and travel to the spread of an adapted form of Javanese Hinduism, as well as the use of Vedic scriptures and Sanskrit works, have given the two countries a formidable engagement. In the previous century, it was their solidarity against imperialism, which led to independent India's support to Indonesian leaders fighting Dutch colonialism, with Prime Minister Jawaharlal Nehru banning Dutch overflights and sending Indian planes to evacuate the Indonesian Prime Minister and Vice President — in an article in *The Hindu* on January 5, 1950, Indonesia's first President, Sukarno, wrote about Indonesia's gratitude. Next, India and Indonesia were united by their aversion to great power politics. They supported the creation of the non-aligned movement (NAM), beginning with the Bandung Conference. Ties were also forged by their innate similarities as two Asian nations that dominated South Asia and South-East Asia by size. Both were countries where large religious majorities practised tolerance towards sizable minorities, as well as economic powerhouses committed to an equitable development of their large populations. In the recent past, ties have been spurred by common concerns over western sanctions after the start of the Ukraine war, U.S.-China rivalry and China's aggression in the Indo-Pacific, worries over "food, fertilizer and fuel" security and a weakening multilateral order. Their efforts to forge consensus at the G-20 summits in Bali (2022) and Delhi (2023), will now be put to further use as Indonesia has joined BRICS. In that sense, Mr. Subianto's visit, in the 75th year of bilateral ties, is a full circle: from Bandung to an enlarged BRICS.

Given the historical, strategic and geopolitical importance of relations, the announcements were more modest than expected. There were five MoUs in health, traditional medicine, maritime security, digital development and cultural cooperation and the joint statement referred to strengthening defence cooperation. However, no specific progress was announced on the sale of India's Brahmos missile, or on the Sabang port project and Aceh-Andamans connectivity initiatives. The joint statement was also pointedly non-committal on their world view, despite their similar positions on recent geopolitical conflicts, and initiatives to engage the Trump administration and China. India's Republic Day invitation and Mr. Subianto's visit, fresh in his presidential term, are, however, an important statement for both capitals to make. There is the impetus for the two Asian powers to forge the next phase in their ties.

### AMID GAZA CEASEFIRE, INDIA REVIVES DIPLOMACY WITH WEST ASIA, EUROPE FOR ECONOMIC CORRIDOR

With a third round of hostage and prisoner exchanges completed and signs that the Israel-Gaza ceasefire is still holding, reviving talks on the India-Middle East-Europe Economic Corridor (IMEC) is back on the agenda in India's diplomatic outreach to the region. Sources confirmed that External Affairs Minister S. Jaishankar discussed taking forward infrastructure and trade facilitation initiatives during his visit to the UAE this week.

He is also expected to travel to Oman in mid-February for bilateral meetings and to address the Indian Ocean Conference, being organised jointly by the Ministry of External Affairs (MEA) and



the India Foundation, where he will meet with about 20 other counterparts from the region as well. A visit by Qatari Emir Sheikh Tamim bin Hamad Al-Thani is also being discussed.

#### **Diplomatic blitz**

IMEC will feature prominently during next week's back-to-back Delhi visits by Greece's Foreign Minister Giorgos Gerapetritis who will hold Foreign Office consultations, and Egyptian Foreign Minister Badr Abdelatty for a strategic dialogue with Mr. Jaishankar. Mr. Abdelatty, who will visit a few weeks after the Gaza ceasefire and the reopening of the Rafah border crossing from Egypt to Gaza, is expected to share his views on the reconstruction of Gaza during his visit to India.

Prime Minister Narendra Modi is also expected to discuss the IMEC project with French President Emmanuel Macron on his visit to France for the Artificial Intelligence Summit between February 10 and 12, and with new U.S. President Donald Trump during a visit to Washington that is still being planned.

Official and diplomatic sources said that while no specific moves on the project were being discussed at present, hopes for a stable and lasting ceasefire in Gaza and the region had grown in the past few weeks. However, they conceded that it would be difficult to pick up the diplomacy over IMEC between Israel and Arab countries until there was some kind of commitment from the Netanyahu government regarding talks for a two-state solution, which seemed unlikely for now.

#### **Greek optimism**

The Greek government has been keen to move ahead on the project, and Greek Prime Minister Kyriakos Mitsotakis has touted IMEC as a key element of the India-Greece Strategic Partnership.

"The war in Gaza and turmoil in the Middle East is undoubtedly destabilising but it does not undermine the powerful logic behind IMEC. Nor should it weaken our resolve to work towards realising it," Mr. Mitsotakis had said during a visit to Delhi in February 2024. Officials in Delhi and Athens said they expected to take the discussions on IMEC forward during Mr. Gerapetritis's visit, expected from February 5 to 7. The Greek Foreign Minister is one of the few leaders to have visited both Tel Aviv and Ramallah since the October 2023 attacks, and as a member of the UN Security Council this year, Greece occupies a key position on hopes to resolve the conflict.

Mr. Abdelatty, is also expected to discuss the project, although officials said the Egyptian government had been unhappy with the IMEC announcement, as they saw it as a geopolitical and commercial rival to the Suez Canal.

### REPUBLICAN JOURNEY

In her customary address to the nation on the eve of the 76th Republic Day, the President of India, Droupadi Murmu, said that the Constitution has become a living document due to the millennia-old civic virtues of the country. Ms. Murmu also paid tribute to Dr. B.R. Ambedkar, who chaired the Drafting Committee, and other members of the Constituent Assembly, who created a document that would guide the country's progress. Connecting India's journey as a modern Republic to its heritage, the President said the constitutional values of justice, liberty, equality, and fraternity have always been a part of India's civilisation. Sceptics who doubted India's prospects at the time of Independence have been proven wrong due to these inherent strengths of the country. The President highlighted the representative character of the Constituent Assembly, whose members were drawn from every part of, and communities in, the country,



including 15 women. While women's equality was at that time only a distant ideal in much of the world, Indian women were contributing to shaping the nation's destiny, she noted. Reflecting on the progress over 75 years, Ms. Murmu commended the Union government's efforts to move past the relics of the colonial era, particularly the "audacity of vision" of replacing colonial-era criminal laws with three new laws rooted in Indian traditions of jurisprudence.

The President strongly advocated the controversial proposal for simultaneous elections to the Lok Sabha and State Assemblies as a means to redefine good governance. The draft Bill on simultaneous elections, introduced by the Narendra Modi government, is under review by a joint committee of Parliament. The President waded into the debate with the argument that synchronised elections would promote consistency in governance, prevent policy paralysis, mitigate resource diversion, and reduce financial burdens. It is a contentious topic and Opposition parties that are a part of the Indian National Developmental Inclusive Alliance have opposed the plan on the ground that it violates the basic structure of the Constitution and undermines federalism. Not surprisingly, Congress President Mallikarjun Kharge has alleged that there is a "tendency" to impose a "One Nation, One Party" agenda by undermining the Opposition. The President could have stayed clear of this topic. The government will need to tread carefully to ensure that the First Citizen is not drawn into what is essentially a partisan political debate. Unity without uniformity is key to a more perfect union. And Republic Day is as good as any other day to reiterate that.

#### SEVEN GET PADMA VIBHUSHAN, 19 NAMED FOR PADMA BHUSHAN

Former Chief Justice of India Justice Jagdish Singh Khehar (retired), who gave a dissenting opinion in the Supreme Court Bench that outlawed triple talaq in 2017, was selected for Padma Vibhushan, the country's second highest civilian award, as the Padma awards were announced on Saturday, the eve of Republic Day.

Gastroenterologist D. Nageshwar Reddy, Kathak dancer Kumudini Rajnikant Lakhia, and violinist L. Subramaniam were among the Padma Vibhushan winners. Iconic writer M.T. Vasudevan Nair, Japan's Suzuki Motor leader Osamu Suzuki, and Bhojpuri and Maithili singer Sharda Sinha have been named for Padma Vibhushan posthumously.

Economist Bibek Debroy, ghazal singer Pankaj Udhas, former Maharashtra Chief Minister Manohar Joshi and former Bihar Deputy Chief Minister Sushil Kumar Modi have been named for the Padma Bhushan posthumously. Filmmaker Shekhar Kapur, double Olympic bronze medal-winning hockey player P.R. Sreejesh, actor Anant Nag, Assam's folk culture exponent Jatin Goswami, and Indian-American engineer Vinod Dham, widely known as the "Father of the Pentium chip", are among those selected for Padma Bhushan. Sadhvi Rithambhara, who participated in the Babri Masjid demolition, has been named for Padma Bhushan.

Pawan Kumar Goenka, Chairman of the Indian National Space Promotion and Authorisation Centre; malaria researcher Chetan Chitnis; Ashutosh Sharma, President of the Indian National Science Academy; Ajay V. Bhatt, creator of the Universal Service Bus (USB); physicist M.D. Srinivas; agriculture scientist Surinder Kumar Vasal; Sethuraman Panchanathan, Director of the U.S. National Science Foundation; singer Arijit Singh; cricketer R. Ashwin; and Libia Lobo Sardesai, who played an important role in Goa's freedom movement; will get Padma Shri.



For 2025, the President has approved 139 Padma awards — seven Padma Vibhushan, 19 Padma Bhushan and 113 Padma Shri awards. Twenty-three awardees are women and the list includes 10 persons from the category of foreigners/NRI and 13 posthumous awardees.

#### SC ORDERS COMPLETE STOP TO PRACTICE OF MANUAL SCAVENGING IN SIX METROS

The Supreme Court on Wednesday ordered a complete stop to the practice of manual scavenging and hazardous manual cleaning of sewers and septic tanks in top metros across the country.

“We hereby order manual sewer cleaning and manual scavenging shall be stopped in all top metropolitan cities of Delhi, Mumbai, Chennai, Kolkata, Bengaluru, and Hyderabad,” a Special Bench of Justices Sudhanshu Dhulia and Aravind Kumar directed in a petition filed by Dr. Balram Singh.

#### Centre’s submission

The Centre, represented by Additional Solicitor General Aishwarya Bhati, submitted a report that out of 775 districts in the country, 465 have not reported any manual scavenging.

Amicus curiae, senior advocate K. Parameshwar, however, said the data presented by the States to the Union government may not be accurate as some of these districts had not constituted committees to monitor and check the practice under the law.

A December 2024 hearing had witnessed the Bench observe that claims of fraternity, equality, and dignity among citizens remain a mere illusion if a sizeable section of society was forced to enter sewers for a living and die trapped in them even a decade after the introduction of the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.

The apex court had referred to its October 20, 2023 judgment in which it issued directions to the Union and States to take measures to eradicate manual scavenging and hazardous cleaning in the country. The court had noted that these “inhuman” occupations continue, often with fatal results.

#### ‘We will not leave it’

“This is something very close to our hearts and minds. We will not leave it. We tell you, we will go to any extent to get our judgment of October 2023 complied with, come what may,” the Bench had observed then.

On Wednesday, the court directed the State officials in the six metros concerned to file affidavits by February 13 on exactly when and how manual scavenging and sewer cleaning had ceased in their respective cities.

#### CHOICE OF SECULAR INHERITANCE LAW SHOULD APPLY TO ALL FAITHS, SAYS CJI

Chief Justice of India Sanjiv Khanna on Tuesday orally observed that the freedom to become a non-believer and choose to be governed by secular inheritance laws of the country must apply across faiths.

The Chief Justice’s observation came while hearing a petition filed by a Kerala-based woman, Safiya P.M., who said that though born a Muslim, she was now a non-believer and wished to be governed by secular statutes like the Indian Succession Act rather than the Sharia law.



“If it is to apply to one faith, it must apply to all faiths,” Chief Justice Khanna, who was heading the Bench comprising Justices Sanjay Kumar and K.V. Viswanathan, said.

The CJI, at one point, observed that “under the Hindu Succession Act, if you convert, your inheritance is taken away... if you convert, you lose your right of inheritance”. Solicitor-General Tushar Mehta, appearing for the Union of India, said one could still inherit through a Will irrespective of the restrictions in the Hindu Succession Act. However, the Chief Justice said there were also situations of intestate successions and even the Joint Hindu Family property.

#### **‘Give time for response’**

Mr. Mehta agreed that the petition posed an interesting question and the Union government must be given time to file a considered response in the form of a counter-affidavit.

Chief Justice Khanna indicated that if the petition succeeded, changes in official forms would have to be considered. “Where [in a form] you have to mention your religion, the option not to mention one’s religion must be there or it ought to be waivable.” the CJI said Justice Viswanathan indicated such an option could be categorised as a “private right”.

Advocate Prashant Padmanabhan, appearing for Ms. Safiya, said his client would inherit only one-third portion of her father’s property under the Muslim law. She had an autistic brother who she had to take care of. At this point, the Chief Justice questioned whether Ms. Shafiya’s father, who was governed by the Muslim law, would face restrictions at his end to bequeath his entire property to her.

Mr. Padmanabhan argued that a person who left her faith should not incur any disability or a disqualification in matters of inheritance or other important civil rights. He invoked the fundamental postulate of secularism “which treats all religions on an even platform and allows to each individual the fullest liberty to believe or not to believe”.

Ms. Safiya said that a person who left faith in Islam would be ousted from community and was not entitled to any inheritance right in parental property. The petition noted that the legal vacuum would leave the petitioner with no recourse to succeed to her parental property even if she officially got a no-religion, no-caste certificate from an authority. This state of affairs was a direct violation of the fundamental right to believe (or not to believe) in a religion under Article 25 of the Constitution, Mr. Padmanabhan argued.

#### **MORE AND BETTER**

The Supreme Court of India’s ruling that there can be no reservation based on residence in admission to PG medical courses is consistent with the constitutional mandate of equality before law, but may adversely affect the priorities and health-care requirements of the States. The Court has reminded everyone that there is only one ‘domicile’ for Indians, and that the right to seek admissions anywhere in the country must be open to residents of all States. This is in line with a series of verdicts on the question whether there can be admissions based on institutional preference or residential requirements. The view is that institutional preference, that is choosing candidates who had passed out of an institution for admission to PG courses in the same institution, is constitutionally permissible; and that admission to UG medical courses can have a residential requirement, primarily because the basic medical needs of a region can be better addressed by admitting more people from the same background so that doctors emerging from the system would render public service there. However, on the principle that higher qualifications



brook no compromise with merit, the prevailing view is that PG courses should not be open for any such residential preference, as the need to attract the best talent is higher.

Many States do fill up PG seats in government medical colleges, and seats available to them in private colleges, barring those that are filled on an all-India basis, with candidates drawn from their own States. Candidates from other States can enter PG medical courses in a State only through the national quota. This system, now impermissible, has its own justification, as PG students form the backbone of medical services in government hospitals. In addition, such students have the additional incentive of joining government service and, thereby, acquiring eligibility to apply for PG courses as 'service candidates'. The southern States, in particular, have invested heavily in medical education, establishing a college in almost every district. These would like to accommodate more candidates from their States to keep their medical services going and with an eye on future manpower needs. It is expected that aggrieved States may seek a review of this judgment. It is likely that the verdict will result in the Union government finding one more way to restrict the role of the States in medical admissions. Interestingly, the distinction the Court has made between PG and UG courses when it comes to prioritising local needs may be a sound argument in itself for questioning the continuing tendency to centralise even UG admissions across streams. The solution lies in creating educational infrastructure of near-uniform quality in every district.

#### SHOULD GOVERNORS HEAD STATE UNIVERSITIES?

The role of the Governor as Chancellor of State universities is a subject of intense debate. It is often misconstrued as a post-Independence measure to safeguard universities against political interference. This role has not been assigned to the Governor by the Constitution of India but by State university laws. Inherited from British colonial rule, it was designed to restrict university autonomy rather than promote it.

In 1857, the British established the first three universities in Calcutta, Bombay, and Madras, appointing Governors of the respective presidencies as their ex-officio Chancellors to maintain direct control. As Chancellor, the Governor became the head of the university and was granted powers such as appointing Vice-Chancellors, nominating members to university bodies like the Syndicate, approving delegated legislation under the university law, and presiding over convocations. Unfortunately, this model of "Governor as Chancellor" was adopted wholesale for State universities even after Independence, without reassessing its relevance in a democratic and federal context.

#### **A politicised office**

Initially, from 1947 to 1967, the dominance of the Congress party at both the Centre and State levels ensured that Governors remained ceremonial figures, with Chief Ministers wielding real power. Consequently, there was little impetus to amend the colonial-era provision of "Governor as Chancellor."

However, the political landscape changed after 1967 when several States were ruled by parties other than the ruling party or coalition at the Centre. Governors increasingly transformed from neutral constitutional functionaries to political instruments of the Central government. This change saw them asserting control over university affairs, which often resulted in clashes with State governments. Efforts to amend university laws for change of Chancellor faced roadblocks,





as Governors either delayed approving such amendments or referred them to the President. Only a few States succeeded in getting the amendments passed.

Even the Centre's First Administrative Reforms Commission (1966–77) criticised the politicisation of the Governor's office, highlighting the appointment of defeated politicians, which eroded the office's dignity. The Sarkaria Commission (1983-88) on Centre-State Relations, revealed that over 60% of Governors had been active politicians, many of them immediately before their appointment, with quality declining steeply after the Nehru era. Professor Ashok Pankaj's study (1950-2015) found that 52% of Governors were politicians, 26% were retired bureaucrats, and only 22% hailed from academia, the judiciary, or the armed forces. It highlighted a growing trend of appointing Governors based on political loyalty, undermining the office's credibility and exacerbating its misuse.

### **Governor's dual role**

Constitutionally, a Governor's powers are divided into two categories: those exercised as Governor, where he is bound to act on the advice of the Council of Ministers as per Article 163(1), and those conferred by statutes, such as the role of Chancellor of State universities, where he can act at his discretion, independent of ministerial advice, unless the statute mandates otherwise. The Supreme Court has upheld this distinction. This has enabled Governors to bypass ministerial advice in critical university matters like appointing Vice-Chancellors, nominating members to university bodies, and approving subordinate legislation, particularly in Opposition-ruled States.

### **Governor and the President**

Despite similar legal frameworks, a stark contrast exists between the Governor's role as Chancellor of State universities and the President's role as Visitor of Central universities. The key difference is the level of consultation and legislative oversight.

The President maintains a cordial relationship with the Centre. He functions through the Ministry of Education and consults with it for appointments of Vice-Chancellors, nomination of members to university bodies, and approval of 'statutes' (a type of delegated legislation under the university law). Central university laws require the statutes, along with other types of delegated legislation called 'ordinances' and 'regulations', to be laid before the Parliament.

In contrast, the Governor acts unilaterally while performing similar functions for State universities, often bypassing the State's Ministry of Higher Education entirely, particularly in Opposition-ruled States. State University laws do not mandate laying delegated legislation — statutes, ordinances, and regulations — before the Legislature. This is a significant flaw rooted in the continuation of colonial-era practices.

### **Existing challenges**

The persistence of the "Governor as Chancellor" model has caused numerous problems in the governance of State universities.

While State governments fund these universities, Governors wield substantial power without corresponding accountability. This creates a dual authority system, forcing university leadership to serve two masters, often with conflicting demands.

Disagreements between Governors and State governments, particularly in Opposition-ruled States, lead to delays in appointing Vice-Chancellors, causing administrative paralysis. These



delays affect areas such as the appointment of staff, the implementation of projects, and even the awarding of degrees.

Many Governors lack the academic qualifications or experience necessary to effectively guide educational institutions. They tend to rely on limited, non-transparent advice, leading to questionable decisions.

Rather than insulating universities from politics, some Governors exacerbate political interference, often prioritising the Centre's political agenda over the universities' autonomy and interests.

Allowing Governors — appointed by the Centre — to control State institutions compromises the principle of federalism. State universities should be fully accountable to elected State governments.

### **Insights from Commissions**

Various commissions have examined the Governor's role as Chancellor and proposed reforms. The Rajamannar Committee (1969-71) on Centre-State relations, appointed by the Government of Tamil Nadu, argued that the Governor's statutory functions are included within the meaning of 'functions' under Article 163(1). So, the Governor should perform his statutory functions as Chancellor also on the advice of the State government. However, the Supreme Court has not upheld this interpretation.

The Sarkaria Commission (1983-88) on Centre-State relations, recognised that the Governor's role as Chancellor is statutory, not constitutional, and must be defined by State laws. It recommended that Governors consult with Chief Ministers while retaining independent judgment in university matters.

The National Commission to Review the Working of the Constitution (2000-02), headed by Justice M.N. Venkatachaliah, advocated for political neutrality, a clearer definition of the Chancellor's functions, a supportive rather than authoritative role, and greater university autonomy.

The M.M.Punchhi Commission (2007-10) on Centre-State relations recommended that the Governor focus on constitutional responsibilities, avoiding statutory roles like that of Chancellor to preserve the dignity of the office. It suggested that States appoint eminent academics or experts as Chancellors to ensure academic independence and prevent conflicts.

### **Alternative models**

The ideal Chancellor model, based on global best practices, envisions the Chancellor as an eminent public figure who provides ceremonial leadership, presides over convocations, acts as an institutional ambassador, and has no executive authority. Universities in the U.K., from whom we borrowed the concept of Chancellor, exemplify this model. There are several ways to amend State university laws to implement this reform: The Governor as Ceremonial Chancellor model removes the Governor's discretionary powers, mandating him to act on the advice of the State Council of Ministers in university matters. Gujarat (1978), Karnataka (2000), and Maharashtra (2021) have adopted variations of this approach.

In the Chief Minister as Chancellor model, critics argue that a ceremonial role does not suit a powerful political figure like the Chief Minister. West Bengal and Punjab passed Bills in 2023 to



adopt this system, but they await Presidential assent. In a variation, Tamil Nadu passed a Bill in 2022 substituting 'Government' for 'Chancellor'. It also awaits Presidential assent.

The State-appointed Chancellor model, implemented in Telangana in 2015, has the State government appoint a ceremonial Chancellor. A similar Bill was passed by Kerala in 2022, but it is still awaiting Presidential assent. The Kerala Bill specifies that the appointee should be an eminent academician or public figure.

The Chancellor elected by the University Bodies model empowers university bodies and alumni to elect a ceremonial Chancellor as in Oxford, Cambridge and Edinburgh universities.

In the Chancellor appointed by the University's Executive Council model, several universities in the U.K. (Birmingham), Canada (McGill) and Australia (Melbourne) appoint ceremonial Chancellors through their Executive Council or Board of Governors, following transparent selection processes. Among these, the State-appointed Chancellor model is the most practical for India, provided the appointees are distinguished academicians or public figures, excluding politicians. The M.M.Punchhi Commission had recommended it.

### **Dismantling a colonial legacy**

Reforming State universities in India demands a careful balance of key principles: ensuring accountability to elected State governments, minimising political interference, promoting institutional self-governance, and fostering academic freedom and excellence. The vital first step is divesting the Governor of his colonial-era role as Chancellor.

While States like Gujarat, Karnataka, Telangana, and Maharashtra have implemented reforms, others such as Tamil Nadu, Kerala, West Bengal, and Punjab face indefinite delays in obtaining Presidential assent for their proposed changes. This disparity underscores the need for impartial treatment by the President and Government of India. There is no valid reason for withholding approval of the pending Bills and resolving such matters through the Supreme Court under Article 131 should be avoided. The Centre should facilitate progressive reforms that seek to dismantle colonial-era administrative structures, guide States towards aligning their university governance models with global best practices, and enable universities to focus on academic excellence free from political entanglements.

## **THE IMPACT OF CLASSIFYING DENOTIFIED TRIBES**

The Anthropological Survey of India (AnSI) and Tribal Research Institutes (TRI) across the country have for the first time comprehensively categorised 268 denotified, semi-nomadic, and nomadic tribes that were thought to have never been classified before. After a three-year study, the AnSI and TRIs have recommended the inclusion of 179 of these communities in the Scheduled Castes, Scheduled Tribes, and Other Backward Classes lists. At least 85 of these communities are being recommended for a classification for the first time ever. The study also found that 63 communities that had never been classified were "not traceable" anymore — meaning that they had likely assimilated into larger communities, changed their names, or migrated to other States.

### **Why was the study needed?**

Ever since the Criminal Tribes Act of 1924 was repealed in August 1949, after which communities notified as "criminal" had been denotified, successive commissions have tried to classify these communities, starting with the First Backward Classes Commission headed by Kaka Kalelkar.



Since then, the Lokur Committee (1965), the Mandal Commission (1980), the Renke Commission (2008), and the Idate Commission (2017) have tried to classify such tribes across the country. However, they have fallen short of being able to identify all such communities.

The last Commission tasked with this was the one headed by Bhiku Ramji Idate, which submitted its report in December 2017. In this report, it had listed a total of over 1,200 denotified, semi-nomadic, and nomadic tribes across the country, apart from which, it said there were 267 communities that had never been classified. The Idate Commission's report had noted that previous commissions had never been able to classify these communities, recommending strongly that the classification work be completed as soon as possible. To this end, the Prime Minister's Office constituted a Special Committee in February 2019, headed by the Vice Chairperson of the NITI Aayog, consisting of Mr. Idate, Dr. J.K. Bajaj of the Centre for Policy Studies, and the Director-General of the AnSI as members. This Committee gave the work of classification to the AnSI and TRIs, which began work on the project in February 2020, submitting a report in August 2023.

#### **What is the need for categorisation?**

The Parliamentary Standing Committee on Social Justice and Empowerment had in a December 2022 report said that it had repeatedly flagged the government's "inability to take necessary action" on the speedy categorisation of these communities. "Delay in locating them would increase their suffering and they would not be able to get benefits of the prevailing schemes meant for the welfare of SC/STs," the House panel said.

S. Narayan, Professor Emeritus at the Institute of Social Sciences in New Delhi pointed out that the issue with wrong categorisation began with some of the first Censuses ever conducted by colonial administrations. "There were many instances of tribes being classified as castes and vice versa. Many of it may have had political considerations behind it and this continued after Independence as well." He added that while the act of including communities in SC, ST, OBC lists may be political, when one applies an anthropological lens to it, the classifications are bound to be different.

Further, community activists and experts like Dr. B.K. Lodhi, who also assisted the Idate Commission in its work, said that in the absence of a complete list of denotified, semi-nomadic, and nomadic communities across the country, it has been very difficult to organise the communities and its peoples. "Some are classified as SC, ST, OBC, some of this is also incorrect. And beyond this, there are hundreds that have not been classified."

#### **What will be the impact?**

Now that almost all denotified, nomadic, and semi-nomadic tribes are closer to being classified than ever before, one impact has been political. Community activists across U.P., Haryana, Madhya Pradesh, and Gujarat are pushing hard to question the premise of classifying these communities as SC, ST, and OBC altogether, with an eye on reservations.

Within the Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic Communities, there are now two strands of thoughts. One calls for the completion of the classification process so that all denotified, nomadic, and semi-nomadic tribes get benefits meant for them as per the classification of SC, ST, or OBC, including that of reservation. The other calls for creating a separate classification altogether — for denotified tribes in the form of a Schedule in the Constitution. Secondly, depending on what action the government takes on the recommendations on this study, it will make it easier for State governments to initiate the process of inclusion if they so decide to do it.



### What next?

While the AnSI and TRIs have completed the ethnographic study, this report remains with the Special Committee headed by the Vice-Chairperson of the NITI Aayog. Officials have said that this committee is now “scrutinising” the recommendations and will soon prepare a final report, on which the Government will take a call.

## MINING POLITICS

By annulling the Nayakkarpatti tungsten block auction in Madurai, the Union Government has halted protests against a project that was red-flagged, tardily, by the State citing environmental and cultural concerns. Rarely has the Narendra Modi government made a swift ‘U-turn’ in the face of opposition. Nayakkarpatti was among eight critical and strategic mineral blocks put up for auction last February by the Mines Ministry. Eight months later, the contract for mining 2,015.51 hectares was awarded to Vedanta’s Hindustan Zinc Limited. However, the presence of Arittapatti, Tamil Nadu’s first biodiversity heritage site, in the vicinity, triggered concerns. An Assembly resolution pointed out that mining could endanger historical cave temples, Jain symbols, Tamil Brahmi scripts and a habitat for rare species. The Centre and the BJP were initially on the defensive, arguing that of the 20.16 sq. km area, only 1.93 sq. km within Arittapatti and Meenakshipuram villages had been notified as a biodiversity site. Last month, the Ministry deferred issuance of Letter of Intent to the bidder, and asked the Geological Survey of India (GSI) to explore redefining the boundaries by excluding the biodiversity site. But the Centre annulled the auction before the GSI could act, after a meeting with community leaders from Madurai, led by BJP State president K. Annamalai, and the Mines Minister.

Politics seems to have played a larger role than India’s strategic need for tungsten or the Centre’s and State’s claims that they had acted in deference to people’s wishes. Tungsten, or wolfram, a dense lustrous metal, is crucial for industries such as defence and in high technology fields. It has no effective substitutes. Globally, tungsten is stockpiled. Indigenously rare, only 5% of tungsten mining resources are in Tamil Nadu, Haryana, Uttarakhand and West Bengal, with the rest distributed in Karnataka, Rajasthan, Andhra Pradesh and Maharashtra. Though the State had flagged the biodiversity issue to the Centre, there is no clear indication that the DMK government was openly opposed to the auction. Reports suggest that prior to the amendment of the Mines and Minerals Act, which empowered the Centre to exclusively auction mining leases for critical minerals, the State’s Natural Resources Department had requested permission to mine tungsten and molybdenum through joint ventures. Regardless of the political dynamics, the importance and scarcity of tungsten cannot be overstated. The Centre might have been more effective had it consulted the State and waited for the GSI’s report before making a decision, striking a balance between environmental concerns and the strategic need for tungsten mining by adjusting the block boundaries.

## AVADI ORDNANCE CLOTHING UNIT SENDS ITS FIRST DEFENCE EXPORT TO SURINAME

The Ordnance Clothing Factory (OCF), Avadi, a unit of Defence PSU Troop Comforts Limited, under the Ministry of Defence, in Tiruvallur district, Tamil Nadu, executed India’s first defence export order to the Republic of Suriname on Tuesday.

“These military uniforms are offered by Ministry of Defence (Government of India) to the Ministry of Defence (Suriname) to strengthen the diplomatic relationship between the two countries,” said B.S. Reddy, General Manager of Indian Ordnance Factories Service.

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



The shipment includes about 4,500 Army uniforms valued at ₹1.71 crore which will be sent as a goodwill gesture.

The uniforms are expected to reach the Republic of Suriname's port within 60-70 days. Through this, OCF is hopeful of receiving actual orders worth ₹5 crore from Suriname.

"This is made-in-India, tested-in-India uniforms and we are confident that we will receive a bigger order, given our excellent quality," he added.

On the occasion, M. Jaya Singh, Public Relations officer of Ministry of Defence commented, "To further strengthen international relationships between countries, the Central government aims to achieve an export target worth of ₹50,000 crores by 2029, and OCF Avadi will also play a major part in this initiative."

OCF Avadi has been mainly involved in manufacturing various defence products including bullet resistant jackets (BRJ), helmets, vests, BRJ for canines, bomb suppression blankets, ballistic briefcases, etc.

"Many of our products are receiving positive responses from various State governments including Tamil Nadu, Puducherry, Kerala, Uttarakhand, Punjab, Odisha as well as the National Police Academy," said Mr. Reddy.

## A NEW CLASSROOM

The results of the Annual Status of Education Report (ASER) offer a glimmer of hope. For the first time in years, foundational learning outcomes — especially in Grade III — show positive trends across Indian states. This progress is no accident. It reflects a focused effort by the Indian government to prioritise quality education.

— During the recent Republic Day celebrations, education was front and centre. In the parade of tableaux, we saw symbolic reminders of India's commitment to nation-building through education.... But the real hero behind this success story is the NIPUN Bharat Mission.

— NIPUN Bharat, or the National Initiative for Proficiency in Reading with Understanding and Numeracy, was launched in 2021 and has quietly transformed classrooms by targeting literacy and numeracy in the early grades.

— The programme allocates Rs 500 per child for teaching-learning materials (TLM), empowering schools to craft vibrant, engaging lessons tailored to young learners. For teachers, who are the backbone of this mission, the states receive up to Rs 5,000 for capacity-building workshops, along with Rs 150 for resource materials to support the classroom strategies of teachers.

— States are empowered with Rs 10-20 lakh each to conduct comprehensive assessments, track the progress of learning outcomes of students and identify gaps in teaching and learning practices. To ensure seamless implementation and oversight, Rs 25 lakh to Rs 1 crore is provided for establishing robust Project Management Units at the state and district levels.

— In Uttar Pradesh, Ravi Sharma, a primary school teacher, uses songs to teach mathematics. His students chant, "ek-do thaila lo, teen-char chalo bazaar", learning numbers as they sway to the rhythm.



— The data backs up these anecdotes. In UP, ASER 2024 shows a leap in Grade III students' ability to read Grade II-level texts — from 24 per cent to 34 per cent — and solve subtraction problems, which improved from 29 per cent to 41 per cent between 2022 and 2024. Odisha's innovative use of colourful and contextualised workbooks has led to similar gains. Nationally, millions more children can now read and solve basic math problems.

— To sustain these gains — and expand them — the mission's timeline must be extended. An enhanced NIPUN 2.0 should be extended to at least 2030. This will allow interventions to take root and achieve deeper impact.

— NIPUN 2.0 should also focus on Early Childhood Education (ECE): Investments in preschool education can set children up for success before they even enter primary school.

— The ASER results prove that progress is possible. With the right tools, resources and policies, India can ensure that every child, regardless of geography or circumstance, has access to quality education.

**Do You Know:**

— The Centre launched the NIPUN (National Initiative for Proficiency in Reading with Understanding and Numeracy) Bharat Mission on July 5, 2021. The mission has seen energetic implementation in many states, with a new framework for the foundational stage of education developed and released well before frameworks for other stages.

— This framework includes teacher training oriented towards the new goals, specially designed teaching-learning materials for use by children and teachers in early grade classrooms, etc.

— For children between 3 to 6 years, two key findings are worth highlighting: first, preschool coverage rose between 2018 and 2024. ASER data also show that by 2024, the proportion of rural children of age 3 who are enrolled in some kind of early childhood education program was 77.4%. This is truly a major achievement for a country as diverse as India.

**MAHAKUMBH: WHERE FAITH MEETS TECHNOLOGY AND TWAIN HOG LIMELIGHT**

If Shehzad (the man accused of stabbing Bollywood actor Saif Ali Khan) had tried his stunt at the Mahakumbh in Prayagraj, he'd have been identified, located, and apprehended faster than you can say 22436 Vande Bharat Express.

The AI engines would have predicted his next move, sending a drone to deliver a complimentary paratha before he could even think about using his UPI app. He wouldn't have made it past the Blinkit stall before being caught, tagged, and probably turned into a cautionary hologram for other would-be troublemakers.

Let's take a closer look at what's happening at the Mahakumbh. As crores of devotees gather for the grandest spiritual extravaganza on earth, they're also being treated to digital innovations that would leave James Bond both shaken and stirred.

**AI army on patrol**

It all starts with the super-smart cameras. There are 2,750 CCTV cameras across the mela, of which 328 are AI-enabled. These aren't your typical "just recording" types. They're constantly analysing



crowd behaviour, spotting security issues, and helping manage the insane flow of 40 crore pilgrims. It's like having a digital *dadi* who knows everything happening in every corner.

#### **Flying chhatri: Drones**

While devotees are taking dips and attending poojas, a whole *asmaan bhar* of drones are making sure everything is safe. Some drones are tethered to hover over the crowd, giving a bird's-eye view, while others dive underwater at the Triveni Sangam, scanning the riverbed. Not to forget the anti-drone systems that are keeping out unwanted flying visitors.

#### **Kumbh sah'Al'yak**

Lost in the madness? Need to find a shortcut to the Ganga ghat, or figure out the timing for the next *arti*? Just ask Kumbh Sah'Al'yak, the chatbot that's fluent in 11 languages.

It's like having a super-smart local guide in your pocket. Honestly, this bot is so efficient it might even explain the ending of *Inception* without making your head spin.

#### **QR Codes**

Gone are the days of long queues and paper passes. Everything's digital now — QR codes are your ticket to the Kumbh.

Whether it's entry passes for you or vehicle permits, this system makes the entire experience smooth like butter. Think of it as a spiritual FastPass — your darshan just got a lot faster and fancier.

#### **Smart lost-and-found**

Siblings getting separated at the Kumbh mela is a familiar plot in Indian movies of the previous era. But worry not, because this time the AI-powered computerised centres are here to save the day. Whether it's kids, grandparents, or even your wallet, these digital detectives work faster than you can finish an episode of *Kaun Banega Crorepati*. They'll match descriptions and reunite families in no time.

#### **Maps ka jadoo**

Thanks to geographic information systems (GIS), combined with Google Maps, the entire mela ground has been mapped out into zones and sectors. Navigation is now as easy as finding your neighbourhood *chaiwala*. Whether it's a laddoo stall or the exact spot for your holy dip, this digital mapping ensures you'll never be lost — or hungry.

#### **Virtual reality magic**

Can't physically make it to the Kumbh? No worries, bhaiyya. Step into one of the 360-degree VR booths and experience the rituals and events as if you're right there — minus the bheed and the soggy clothes from the Ganges dip. It's a true darshan experience for those stuck at home.

#### **Piety with NFTs**

Haan haan, you read that right. This year, the Kumbh is diving into the blockchain wave by offering non-fungible tokens (NFTs). These digital collectibles are for the crypto-savvy crowd who want a





piece of their spiritual journey preserved in the metaverse. Imagine owning a digital *prasad*! Tradition meets technology, right?

#### Health-tech bliss

At the Kumbh, even your health is taken care of. AI-driven health systems are monitoring sanitation, keeping inventory in check, and offering quick medical assessments.

Whether it's a small ailment or just routine checks, pilgrims' physical health is looked after as carefully as their spiritual journey.

The Maha Kumbh 2025 is more than just a religious event — it's a showcase of India's ability to blend the ancient with ultra-modern. From drones keeping an eye on devotion to AI ensuring your safety, this Kumbh is taking us into the future, desi-style! It's a place where technology and tradition are working hand in hand, proving faith can move mountains.

### DEATHS AFTER THE SURGE

The stampede at the Maha Kumbh in Prayagraj, Uttar Pradesh — the third such incident in recent months — confirms India's dubious distinction of having the most number of deaths during religious gatherings. While the day's developments have not yielded conclusive reasons for the stampede that happened in the early hours of January 29, initial investigations suggest an uncontrolled surge of devotees at the bathing ghats. The Uttar Pradesh government had estimated that a hundred million people would have their holy dips on Mauni Amavasya, an auspicious occasion which fell on January 29. According to government estimates, more than a third of those who were expected had performed the ritual early — 36 million people by 10 a.m. — despite temporary closures of the roads leading to Prayagraj after the stampede. This measure of regulating traffic into the city could have been proactively implemented, ensuring a steady and manageable stream of devotees, as the government was well aware of a surge in numbers. The focus, unsurprisingly, is again on the lack of crowd management and the prioritisation of VIP visitors over the common man.

What has been even more alarming was the State government's delay in formally announcing the fatalities and those injured — 30 dead and over 60 injured — deviating from established protocols of transparency during disasters. It is reminiscent of the opacity of Chief Minister Yogi Adityanath and his government after the widespread deaths during the second COVID-19 wave in March 2021, the scale of which was evident later when horrific images of bodies floating in the Ganga emerged. This is the sixth stampede in one of the Kumbhs in the past 70 years, an event that takes place every three years at one of four holy sites for Hindus, at Prayagraj, Haridwar, Nashik and Ujjain. While the reasons for each stampede have been different, they still point to either a lack of fire safety, crowd mismanagement and VIPs disruptions, or creaking infrastructure. They also indicate a post-facto treatment of the cause and a disregard for holistic planning. The State government has been most innovative in managing the 45-day-long Maha Kumbh, with aerial surveillance and a tracking of mobile movements to monitor people. It is also an unprecedented achievement to even attempt to handle a population, although transitional, that is twice that of Uttar Pradesh's, between January 13 and February 26 when the Maha Kumbh ends. *The Hindu* had reported on the arrangements for the 65 kilometre temporary district around the Triveni Sangam, but the confluence itself is only about a kilometre in diameter, requiring constant vigil and steady crowd management.



## DOES COW URINE HAVE ANTI-INFECTIVE PROPERTIES?

### The story so far:

On January 15, IIT-Madras director V. Kamakoti said that cow urine had antifungal, antibacterial, and anti-inflammatory properties at a goshala in West Mambalam in Chennai. In a media interaction five days later, Dr. Kamakoti listed five peer-reviewed papers that he said validated the “anti-infective” properties of cow urine. His statements have since gone viral on social media as many questioned his claims and deemed his observations to be inappropriate as the head of a scientific institution.

### What did the papers state?

One paper titled ‘Peptide profiling in cow urine reveals molecular signature of physiology-driven pathways and in-silico predicted bioactive properties’ was published on June 14, 2021, in the journal *Nature Scientific Reports*. “The researchers have experimented and presented their findings. *Nature* is one of the top journals in the United States of America. The output in the research papers is the evidence,” Dr. Kamakoti said. However, *Nature* and *Nature Scientific Reports* are two different journals. Independent experts said the research article itself “does not seem bad” but that it is just an analysis of bovine urine. “Authors say that there are a lot of studies of peptides in human urine, but not much work has been done in the case of bovine urine,”

Aniket Sule, associate professor at the Homi Bhabha Centre for Science Education in Mumbai, told *The Hindu*. “There are also similar studies about donkey urine. Essentially, all mammals pass some peptides in their urine and those peptides give a lot of indications about the health of that individual. That is also the reason why we do urine analysis in pathology labs. So, they are just presenting their analysis of bovine urine. There is no claim beyond that.” Dr. Sule added that there have been papers from China discussing the use of cow dung as fertilizer. “However, developing a fertilizer from mammal urine/excreta is a different thing from human consumption of urine/excreta,” he said. Dr. Sule quoted the example of U.S. President Donald Trump asking scientists in his first term, during the COVID-19 pandemic, about the alleged benefits of drinking bleach. “Just because bleach is anti-bacterial on the floor doesn’t mean it is medicinal for humans,” Dr. Sule said.

Gautam Menon, dean of research and professor of physics and biology at Ashoka University in Sonapat, said the paper is “perfectly reasonable scientific work, although whether it is interesting or not is another matter”. “Checking antibiotic effects on two standard bacterial species is a common thing to do. Their result is not particularly surprising nor is it claimed to be,” he added.

The second paper Dr. Kamakoti referred to was entitled ‘Benefits of cow urine’ and published in the *International Journal of Recent Advances in Multidisciplinary Research* on September 29, 2017. The paper reviews previous research articles describing the medicinal benefits of cow urine, a form of research called a meta-analysis. According to the paper, “Many researches have also been done, which shows its use for treatment of skin diseases, stomach diseases, kidney diseases, heart diseases, stones, diabetes, liver problem, jaundice, athlete’s feet, cyst, haemorrhoid, etc. and show its immunostimulant, bioenhancer, anticonvulsant, anti-cancerous, wound-healing, antioxidant, and antimicrobial properties.” The abstract of the study concludes by calling for more public awareness of the importance of cow urine. However, Dipshikha Chakravorty, professor at the department of microbiology and cell biology at the Indian Institute of Science, Bengaluru, said in an email to *The Hindu*, “Consumption of any urine is detrimental and dangerous, including healthy



individual urine. Urine contains resident bacteria, and that can be detrimental.” She added that there have been reports of various types of urine containing bacteria that could be pathogenic. The prevalence of grammatical and typographical mistakes in the paper indicate the journal’s editors didn’t copy-edit it, a symptom — albeit not a conclusive one — of low-quality publishers.

#### What do other studies say?

In 2022, Bhoj Roj Singh, who recently retired as the epidemiology head of the Indian Veterinary Research Institute, Bareilly, led a study that showed the undesirability of humans consuming cow urine. In the study, the team found that fresh urine from cows and bulls contains at least 14 types of harmful bacteria, including *Escherichia coli*. The study also reported that urine can’t inhibit bacterial growth. “In case one gets infected from the bacteria, [the infections] can lead to life-threatening infections, particularly among those consumers who are already sick or have weak immune systems,” Dr. Singh said.

He also said proponents of drinking cow urine had criticised the study for using fresh urine while they advocated the consumption of urine distillates. His lab analysed these distillates as well as packaged urine found in the market. “We reported those too to be risky and full of microbes (no-quality control practised). Moreover, the antimicrobial activity detected may hardly be of any therapeutic utility as it may not be feasible to consume such a large amount of urine safely to get its antibacterial action in our bodies,” he said.

#### A QUESTION OF HYGIENE

At the heart of the current Guillain-Barré Syndrome (GBS) outbreak in Pune, where over 100 cases of suspected GBS have been recorded, is a bacterial infection. A health investigation has revealed *Campylobacter jejuni*, a bacteria found in contaminated food and water, to be behind the first cluster of cases. In almost all the patients, recent case history has shown episodes of gastroenteritis, vomiting, diarrhoea and nausea before the onset of the characteristic peripheral numbing of GBS, leading to paralysis. One case of death due to suspected GBS has also been recorded — of a patient who had visited Pune. This outbreak reveals the fragility of the scaffolding that urban systems in India are built on, with pathogens managing to breach all safety nets that humans have built for themselves, to emerge through and cause havoc. Any slip up in maintenance or in surveillance, clearly leads to discomfort, ill health and debility for a large number of people. GBS is a rare, autoimmune neurological disorder, in which a person’s immune system launches an attack on the peripheral nervous system, leading to tingling, weakening of muscles, numbing and paralysis in the arms and legs, not unlike in the acute flaccid paralysis of polio. It can be caused by viral or bacterial pre-infections, as per the World Health Organization (WHO). Globally, it is estimated that GBS has an incidence of 1-2 per 1,00,000 population, and is more predominant among adult males. While India-specific large epidemiological studies on GBS are lacking, as testing for GBS in a resource-poor setting is difficult, according to a WHO report (1993), it was estimated that 138 cases of GBS were seen annually in seven major teaching hospitals, with approximately 75% of cases occurring in adults. While studies across the world have shown numbers to rise in seasons of weather change, it is possible that this is India’s largest outbreak in recorded history.

Patients are treated with plasma exchange or intravenous immunoglobulin therapy, and most recover. However, these treatments are most effective if started within two weeks of the first symptoms, making early detection and initiation of treatment absolutely crucial. Rapid response teams in Pune are in place, collecting water samples and mounting surveillance on the community,



and a central team has also been rushed to affected areas. It is key to ensure that all measures are in place to pick up patients, and initiate treatment as soon as possible. It is the duty of the local and State governance to provide clean drinking water to all residents and ensure that adequate social messaging is provided periodically on avoiding contaminated, unhygienic food.

## IS THE GUILLAIN-BARRÉ SYNDROME LIFE-THREATENING?

### The story so far:

Following a reported outbreak of Guillain-Barré Syndrome, a rare neurological disorder, in Pune, with 73 cases so far, the Union Health Ministry has now sent a team to the city to assess the situation. The Maharashtra government has also set up a Rapid Response Team to investigate the sudden rise in infections. A total of 47 men and 26 women have been affected, with 14 on ventilator support, the State Health Department has said, as of Saturday, January 25, 2025.

### What is Guillain-Barré Syndrome?

Guillain-Barré Syndrome (GBS) is an autoimmune neurological disorder in which a person's immune system attacks their peripheral nerves, leading to muscle weakness that can progress to paralysis. People of any age can be affected, but it is more common in adults and males. The condition is rare, with an estimated incidence of 1/2 per 1,00,000 population.

While the causes of GBS are still not fully understood, in most cases, it occurs after a viral or bacterial infection. According to the World Health Organization (WHO), infection with the bacteria *Campylobacter jejuni*, which causes gastroenteritis (including symptoms of nausea, vomiting and diarrhoea), is one of the most common risk factors for GBS. People can also develop GBS after having the flu or other viral infections from cytomegalovirus, Epstein-Barr virus, and the Zika virus.

### How does it affect the body?

In autoimmune conditions, the body's immune system begins to attack its own cells. In GBS, the immune system destroys the myelin sheath — a fatty layer wrapped around nerve cells. This impacts the nerves' ability to send signals to the brain, which causes weakness in the muscles. GBS affects the peripheral nervous system — the part of the nervous system outside the brain and spinal cord — that controls the movement of muscles, temperature, touch and pain sensations.

The first signs of GBS are usually tingling and weakness that start in the feet and legs before spreading to the upper body, arms and face. Symptoms include a pins and needles feeling in the toes, fingers, ankles or wrists, back pain, pain in the legs, not being able to walk or climb stairs, trouble with facial movements and double vision. For some people this can lead to paralysis of the legs, arms or face. The severity of the symptoms can range from mild to severe. In approximately one-third of people, the chest muscles are affected, making it hard to breathe, the WHO says. The ability to speak and swallow can become affected in severe cases. GBS can lead to life-threatening complications when it affects the autonomic nervous system which controls your blood pressure and heart rate.

### How is it treated?

There is no known cure for GBS. However, there are some treatments that aid in recovery. Most people can make a nearly full recovery. The treatments primarily include plasma exchange and



intravenous immunoglobulin therapy. In plasma exchange or plasmapheresis, the plasma (liquid part of the blood) is removed, treated and then returned to the body. This removes the antibodies from the plasma that are attacking the nerves. Intravenous immunoglobulin therapy involves injecting the body with immunoglobulins, which are proteins that the body makes to identify and neutralise pathogens. This helps decrease the immune system's attack on the nerves. Supportive treatment is also given and rehabilitation including physical and occupational therapy may be required. Recovery can take a long time.

The WHO says Guillain-Barré syndrome is potentially life-threatening. People with Guillain-Barré syndrome should be treated and monitored as quickly as possible and some may need intensive care. If you experience sudden muscle that gets worse over some days, see a doctor immediately.

#### GOVT. PLANS TO EMPLOY TARGETED CONTAINMENT TO STOP LEPROSY TRANSMISSION

The Union Health Ministry is looking at a more targeted approach to containing leprosy in India after having achieved the status of elimination of leprosy as a public health problem as per the World Health Organization's (WHO) criteria of less than 1 case per 10,000 population at the national level in 2005. To contain the chronic infections caused by *Mycobacterium leprae*, the Central Government approved a new treatment regimen for leprosy, aiming to stop its transmission at the subnational level by 2027. It introduced a three-drug regimen for Pauci-Bacillary (PB) cases in place of a two-drug regimen for six months.

Aradhana Patnaik, additional secretary and mission director, National Health Mission, said: "The sustained work by the Central Government has ensured that leprosy is now no longer a public health problem. We are currently looking at a targeted approach to tackle the disease in 5 states and 124 districts in India."

The five states in India with the highest prevalence of leprosy include Bihar, Chhattisgarh, Jharkhand, Maharashtra, and Odisha.

The Union Health Ministry launched the National Strategic Plan (NSP) and Roadmap for Leprosy (2023-27) on 30th January 2023, to achieve zero transmission of leprosy by 2027, i.e., three years ahead of the Sustainable Development Goal (SDG). The NSP and roadmap contain implementation strategies, year-wise targets, public health approaches, and overall technical guidance for the programme. The strategy and roadmap focuses on awareness for zero stigma and discrimination, promotion of early case detection, prevention of disease transmission by prophylaxis (leprosy post exposure prophylaxis), and roll out of web-based information portal (Nikusth 2.0) for reporting of leprosy cases.

"After achieving elimination status at the national level, the National Leprosy Eradication Programme (NLEP) has taken a number of initiatives to encourage early case detection of patients to prevent Grade 2 Disabilities, and to ensure free-of-cost treatment of leprosy patients. There are few districts within states/UTs, where leprosy is endemic. With various interventions introduced under NLEP in the last few years, the number of new leprosy cases detected has come down to 75,394 in 2021-22 from 125,785 in 2014-15, accounting for 53.6% of global new leprosy cases," said a senior Health Ministry official.

Leprosy is a neglected tropical disease (NTD) that still occurs in more than 120 countries, with around 200,000 new cases reported every year. Elimination of leprosy as a public health problem



(defined as a prevalence of less than 1 per 10,000 population as per the World Health Assembly resolution 44.9) was achieved globally in the year 2000 and in most countries by the year 2010.

The reduction in the number of new cases has been gradual. As per data of 2023, Brazil, India, and Indonesia continue to report more than 10,000 new cases, while 12 other countries (Bangladesh, Democratic Republic of the Congo, Ethiopia, Madagascar, Mozambique, Myanmar, Nepal, Nigeria, Philippines, Somalia, Sri Lanka, and the United Republic of Tanzania) each reported 1000–10,000 new cases.

## HOW HAS INDIA REVISED OBESITY PARAMETERS?

### The story so far:

India has revised guidelines for obesity treatment and diagnosis after 15 years. The move comes after a call for global recalibration on how obesity is measured. In a recent report published in *The Lancet Diabetes and Endocrinology*, the global commission noted that Body Mass Index (BMI) apart, the distribution of body fat is also a key indicator of overall health and disease patterns. In step with this report, experts in India, including a group of doctors, nutritionists, and others from the National Diabetes Obesity and Cholesterol Foundation, Fortis C-DOC Hospital, and the All-India Institute of Medical Sciences (AIIMS), have issued updated guidelines for India.

### What is new?

The revised classification system introduces two stages in obesity — ‘innocuous obesity’, characterised by increased body fat without organ or metabolic dysfunction; the second stage is obesity with consequences, marked by the impact on physical functions and presence of obesity-related diseases. This framework places special emphasis on abdominal fat distribution, which has particularly adverse effects on Asian Indian populations.

“An important development occurred in 2009 when India introduced revised obesity definitions specifically for Asian Indians. This revision acknowledged that Asian Indians typically have higher body fat percentages than Western populations and develop diabetes at lower BMI levels,” said Anoop Misra, co-author of the paper.

The new guidelines set lower thresholds for BMI criteria which are now adjusted downward, with overweight defined as  $\geq 23$ - $24.9$   $\text{kg/m}^2$  and obesity as  $\geq 25$   $\text{kg/m}^2$ , compared to the Western standards of  $\geq 25$   $\text{kg/m}^2$  and  $\geq 30$   $\text{kg/m}^2$  respectively. Also, ideal waistlines have to be  $>90$  cm for men and  $>80$  cm for women, lower than Western standards of 102 cm and 88 cm respectively.

These guidelines influenced obesity management for South Asians in other countries and, sparked numerous research studies that deepened the understanding of obesity in Asian Indian populations.

### Why are Indian bodies different?

Studies show that excess fat in Indian populations leads to higher levels of inflammation and metabolic disturbance at lower BMI thresholds compared to Western populations. The only available antidote is to start exercising and have a diet plan early in life.

The current report states that using BMI alone to diagnose obesity is not a reliable measure of health or illness at the individual level. This can result in misdiagnosis, with negative consequences for people living with obesity.



A secondary analysis of trends of prevalence, patterns, and predictors from 2005 to 2020 using the National Family Health Survey shows that in the 15-year period, the prevalence of overweight or obese (BMI  $\geq 25$  kg/m<sup>2</sup>) among women and men aged between 15 and 49 years increased from 12.6% to 24% and 9.3% to 22.9% respectively. This indicates that almost one-fourth of the population (both men and women) are currently either overweight or obese in India. The prevalence of obesity (BMI  $\geq 30$  kg/m<sup>2</sup>) also increased by more than twice in both men and women in the last 15 years.

#### **What does obesity do to the body?**

Naval Vikram, Department of Medicine, AIIMS, says studies have shown a strong correlation between abdominal obesity in Indians, resulting in inflammation and the early onset of diseases with co-morbidity. "Abdominal fat, which is closely linked to insulin resistance and prevalent in Asian Indians, is now recognised as a key factor in the diagnosis. The new definition integrates the presence of co-morbidities — such as diabetes and cardiovascular disease — into the diagnostic process, ensuring that obesity-related health risks are better accounted for, and taken care of in management," he pointed out. An early diagnosis translates into targeted management strategies, Dr. Vikram contended.

"There is also inclusion of mechanical problems associated with obesity, for example, knee and hip osteoarthritis, etc., or shortness of breath during daily activities, which lead to a poor quality of life," he added.

Commission chair Francesco Rubino, King's College London, said, "We now know that some individuals with obesity can maintain normal organs' function and overall health, even long term, whereas others display signs and symptoms of severe illness here and now."

He noted that considering obesity only as a risk factor, and never a disease, can unfairly deny access to time-sensitive care among people who are experiencing ill health due to obesity alone.

### **HOUSEHOLD NUTRITIONAL SUPPORT CAN AVERT 0.36 MILLION TB DEATHS**

That targeted nutritional support to TB patients and household contacts can improve TB treatment outcomes, and reduce the number of new cases and deaths is now well known, particularly after the RATIONS trial carried out between August 2019 and August 2022 in four districts of Jharkhand among 2,800 pulmonary TB patients and 10,345 household contacts. The trial found that nutritional support provided to household contacts for the duration of treatment reduced the number of new pulmonary TB cases by 48%, and deaths among those under 35 kg body weight (severely underweight) were only 7%.

Now a modelling study has estimated the epidemiological and economic benefits of providing nutritional support for the duration of treatment to both adult TB patients and household contacts. At 50% coverage, providing nutritional care to adult TB patients and household contacts for the duration of treatment could help avert over 361,000 deaths and over 880,000 new TB cases by 2035 at a cost of \$167 per disability-adjusted life-year, suggests the study from the London School of Hygiene & Tropical Medicine, London, and Yenepoya Medical College, Mangalore.

It also found that the median number of households needed to treat to prevent one TB death was 24.4 and to prevent one TB case was 10. It also estimates that the provision of this support is very likely to be cost-effective. The number of TB deaths prevented and new cases averted will be even

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



bigger if the child and adolescent TB patients and their household contacts to are provided nutritional support. The study was published recently in the journal *The Lancet Global Health*.

The researchers used previously published, age-stratified, compartmental transmission models of TB in India, incorporated explicit BMI strata linked to disease progression and treatment outcomes, and used the results of the RATIONS trial to estimate the impact and costs of nutritional support. Based on the modelling study the authors write: “A nutritional intervention for tuberculosis-affected households could avert a substantial amount of tuberculosis disease and death in India, and would be highly likely to be cost-effective on the basis of the tuberculosis-specific benefits alone.”

Compared with a population-level intervention to improve nutrition, which could have a substantially larger effect size, an intervention targeting only those on TB treatment and their households can avert a relatively low proportion of TB incidence and mortality, they say. However, in a resource-constrained setting such as India, targeting the intervention to high-risk household contacts offers the opportunity to maximise cost-effectiveness within a feasible budget, they say.

To understand the impact of nutritional support in preventing deaths and new cases, the authors compared the outcomes when nutrition is provided only to adult TB patients, only to household contacts but not to adult TB patients, and finally to both adult TB patients and household contacts. While nutritional support to adult TB patients alone reduced the number of new cases by 46,700, and deaths by 234,300, nutritional support to household contacts alone (excluding adult TB patients) led to a larger drop in new cases (833,700) and deaths (129,200) but still far less than when both adult TB patients and household contacts were provided nutritional support.

“When we say nutritional support is given to household contacts, we mean just that — not given to people on TB treatment but only to their household contacts. This obviously would not happen in practice, but is a way for us to tell where the intervention effect is coming from,” Dr. Christopher Finn McQuaid from the London School of Hygiene & Tropical Medicine, and the corresponding author of the paper explains in an email to *The Hindu*.

The study found that nutritional support provided to adult TB patients averts deaths due to improved treatment outcomes. “These individuals [TB patients] see an increase in their BMI, which leads to reduced reactivation or progression to disease if they are reinfected,” Dr. McQuaid says.

Dr. McQuaid says: “This paper could provide guidance for policymakers selecting TB interventions, highlighting the importance of nutritional support in addressing the TB epidemic, and the real benefits this is likely to provide not just to affected households but at a national level.”

Dr. Rebecca Clark, a co-author of the paper adds: “International and national decision-makers could use our findings to advocate for better, as well as more targeted and relevant, interventions when it comes to support for TB patients and their families.”





## FDA CLEARS OZEMPIC FOR DIABETICS TO CUT KIDNEY DISEASE RISK

The US Food and Drug Administration (FDA) has approved Novo Nordisk's diabetes-cum-weight loss drug Ozempic for patients with both chronic kidney disease and diabetes.

- This came after clinical trials showed it reduced risk of kidney failure, disease progression and death due to heart problems.
- This is a significant breakthrough in managing diabetes-related conditions.
- The FDA approval is based on results from a trial investigating the effects of once-a-week Ozempic injections on major kidney and cardiovascular outcomes in adults with Type 2 diabetes and chronic kidney disease. It showed a 24 per cent reduced risk of worsening kidney disease and kidney failure (end-stage kidney disease) and also led to a 4.9 per cent risk reduction in death from cardiovascular disease.

### Do You Know:

- Ozempic contains semaglutide, a GLP-1 receptor agonist (RA), which mimics the function of a hormone released by the intestine after eating. It lowers blood sugar by helping the pancreas make more of the glucose-regulating hormone called insulin. It can also help with weight loss by reducing appetite and increasing the feeling of "fullness".
- The FDA approval is significant for India, where Ozempic will likely be available soon. "Diabetes is the leading cause of kidney disease so the medicine will be beneficial on a large scale. Prevention is of crucial importance so that we do not create an economic burden by increasing the number of kidney transplants," said Dr Himanshu Verma, professor and head of the Nephrology department at VMMC and Safdarjung Hospital in Delhi.

## WHY J&K IS ISSUING 'AADHAAR' TO EACH CHINAR TREE

The Jammu & Kashmir government has launched the "Tree Aadhaar" mission for the conservation of the region's chinara trees which have been dwindling in numbers over the years.

- Chinara, also known as Oriental plane tree (*platanus orientalis* var *cashmeriana*), is a maple-like tree with a huge canopy and is found in cool climate regions with sufficient water. The tree is a characteristic of the Eastern Himalayas. It takes 30-50 years for a tree to mature and 150 years to reach its full size. The tree can grow up to a height of 30 metres while its girth ranges from 10 to 15 metres.
- The name 'chinara' was given to the tree by Mughals — some suggest it was Mughal emperor Jahangir who coined the name. It is said that the word 'chinara' came into use after someone witnessed crimson red chinara tree leaves from a distance during the autumn season, and shouted "Che naar ast" — a Persian phrase meaning "What flame is that?"
- Mughals played a significant role in expanding chinara plantations in the Kashmir valley and some parts of the Chenab region in Jammu. It was considered as a "royal tree" by the Mughals. During his reign, Jahangir set up a Chinara garden called Naseem Bagh on the banks of Dal Lake in Srinagar. Naseem Bagh had more than 1,100 chinara trees. Jahangir also planted these trees on a small island in the Dal Lake known as Chaar Chinari (four chinaras).



**Do You Know:**

- Chinar is the “state tree” of Jammu & Kashmir, now a Union Territory. The tree is a major tourist attraction in the valley during the autumn season when its green leaves slowly change into crimson red and golden. The tree finds a special place in the art, literature and craft of Kashmir — local papier mache, embroidery, hand-woven carpets and walnut wood carvings often feature chinar motifs.
- The tree is also a special feature of many Muslim and Hindu shrines in the valley. It is said that the oldest surviving chinar — which is around 700 years old — in the valley is located at Chattergam village of central Kashmir’s Budgam and was planted by a Sufi saint.
- To cut a chinar tree, the government’s nod is needed, even if the tree is on someone’s private property. However, often, the trees are cut anyway. The new project aims to make sure the government can track the status of each tree.

Thus, the new initiative involves conducting a census of chinar trees across the Kashmir valley and the Chenab region. As part of the process, the government has not only enumerated chinar trees but also given a unique identity — called Tree Aadhaar — to each chinar tree. The census has been done district-wise. Each tree has been geo-tagged.

- According to Dr Syed Tariq, the coordinator of the project, 28,560 chinar trees have been enumerated and GI tagged so far.

**‘INDIA’S TIGER POPULATION ROSE 30% OVER TWO DECADES’**

A new study found that the tiger population in India had increased by 30% over the past two decades.

The study, published in *Science*, was led by senior scientist Yadvendradev Jhala and colleagues. It explored the socio-ecological factors that had enabled tiger recovery and persistence despite high human densities and economic challenges amid rapid urbanisation.

**Meticulous balance**

“They found that the tiger population in India has increased by 30% over the past two decades. This demonstrates the remarkable success achieved through a meticulous balance of scientific strategies and a strategic blend of land-sharing and land-sparing,” the National Centre for Biological Sciences (NCBS) said.

It added that despite harbouring the highest human population residing in economically diverse regions, India has achieved significant success in conserving wildlife, even as global wildlife populations have declined by 73%.

“Protected areas, devoid of humans, through land sparing have allowed sustenance of 85% of breeding populations. These source populations facilitated through corridors and sustainable land-use practices have enabled tigers to disperse and expand into multi-use forests. Tigers now coexist with over 66 million people, proving coexistence possible,” said Mr. Jhala.



### Legislative framework

The study stated that India's tiger recovery has strengthened due to a strong legislative framework, including the Wildlife Protection Act, Forest Conservation Act, and the National Tiger Conservation Authority.

"Beyond ecological factors, economic prosperity and cultural values have influenced tiger persistence, recovery and colonisation. Regions with lower dependence on forest resources and better socio-economic conditions have witnessed higher tiger recolonisation rates. Conversely, areas with high poverty, and armed conflict such as in Naxal-affected parts of Chhattisgarh, and Jharkhand — have experienced tiger decline," it added.

"While India's tiger recovery is an extraordinary achievement, challenges remain. Large tracts of potential tiger habitat — spanning 157,000 sq km — are still devoid of tigers due to socio-political instability and habitat degradation," it said.

As per government data released on July 26, 2024, India is home to 70% of the world's wild tiger population.

As per this data, the tiger population in 2006 was 1,411, it increased to 1,706 in 2010 and to 2,226 in 2024. In 2018, the tiger population was 2,967.

### 40-MILLION-YEAR-OLD WHALE FOSSIL STOLEN IN MEGHALAYA; HOPE TO RETRIEVE IT SOON: CM

Meghalaya Chief Minister Conrad K. Sangma on Friday hoped a portion of a 40-million-year-old bone of a whale ancestor stolen a few days ago would be retrieved soon.

The residents of Tolegre village in the State's South Garo Hills district reported the theft from the cave where it was discovered and filed a first information report at the local police station on January 27.

"It is unfortunate that this has happened. The police are conducting an inquiry and we hope the piece of the fossil, a significant palaeontological discovery, is retrieved soon," the Chief Minister said, admitting that the government faced challenges in taking control of the area for better protection and management of the fossil.

"The land is under the Nokma (custodian of Garo tribal clan land) and the government would have been blamed for using force had we pressed harder. We provided security in the area to a certain extent. We hope the villagers cooperate after this incident and let the Geological Survey of India (GSI) specialists continue excavating and examining the fossil," he said.

#### 'Serious loss'

The area falls under the Rongara-Siju Assembly constituency represented by Meghalaya's Education Minister, Rakkam A. Sangma. "The fossil was cut and removed from the cave deep in the jungle. This is a serious loss for the State and the country," he said.

Three speleologists of the non-profit Core Geo Expeditions – Tudor Tamas, Milton Sangma, and Salban Manda – announced the discovery of the fossil belonging to an evolutionary ancestor of the modern whale in February 2024.



The fossil is believed to belong to either of the two genera of Palaeogene whales – Rodhocetus or Ambulocetus.

This was discovered less than a year after researchers from the Geological Survey of India's (GSI) Palaeontology Division identified fossilised bone fragments of sauropod dinosaurs dating back to about 100 million years from Meghalaya's West Khasi Hills district.

#### THE CHILLING 40 DAYS

From December 21 every year, the Kashmir Valley experiences 40 days of the harshest winter spell, locally known as Chillai Kalan.

Freezing temperatures and snow-covered mountain peaks reflect the beauty and resilience of the Kashmiris steeped in hundreds of years of tradition.

In preparation for the harsh winter spell, they brace for surviving the challenges nature throws at them.

To keep warm, they use mobile earthen pots covered with intricately woven wicker, known as *kangri*; hot embers put in it raise the temperature. They often carry this inside their long traditional cloaks known as *pherans*.

For keeping the houses and masjids warm, they construct *hamams* inside the structures, where one room is covered with carved and polished stones and firewood is burnt in a cavity under it. *Hamams* are a great place for small social gatherings in winters. Family members often prefer to eat in winters inside the warmth of these *hamams*.

Many families prepare for the winter well ahead in the summer by sun-drying vegetables to be cooked during hostile weather, when availability of essentials is scarce because roads remain blocked by heavy snow.

Smoked fish is another delicacy that is prepared ahead and consumed in the winter. Preserving food in such a manner is an important practice in winter when produce becomes scarce.

One of the most cherished delicacies is harissa, a minced meat preparation mostly for breakfast that provides enough warmth for the whole day. Additionally, *khewa*, a traditional sweet tea, with saffron, cardamom, cinnamon and other spices, is commonly prepared, showcasing the culinary heritage of Kashmir.

Some families also engage in various activities such as making handicrafts and artistic woodwork and weaving carpets, spending quality time indoors, reinforcing the community spirit.

#### IRON AGE BEGAN IN TAMIL NADU HUNDREDS OF YEARS EARLIER THAN BELIEVED: STUDY

In an announcement that challenges long-held assumptions about the origins of the Iron Age, a new study has found evidence that the use of iron in the area that is now Tamil Nadu dates back to the first quarter of the 4th millennium BCE. This revelation, based on rigorous radiometric dating from multiple international laboratories, positions the region as a pioneering hub of early metallurgy, surpassing global timelines by nearly two millennia.

- The findings were produced in a report titled 'Antiquity of Iron: Recent Radiometric Dates from Tamil Nadu', authored by K Rajan and R Sivanantham.

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



- The findings, which provide evidence that iron technology in Tamil Nadu dates as far back as 3345 BCE, are supported by Accelerator Mass Spectrometry (AMS) and Optically Stimulated Luminescence (OSL) analyses conducted on samples from archaeological sites such as Sivagalai, Adichanallur, Mayiladumparai, and Kilnamandi.
- Until recently, the Iron Age in India was believed to have emerged between 1500 and 2000 BCE, closely following the Indus Valley Civilisation. However, new data from Tamil Nadu pushes this timeline further back.
- A paddy sample from a burial urn in Sivagalai was dated to 1155 BCE, while charcoal and potsherds (broken pieces of ceramic material) from the same site provided dates ranging from 2953 BCE to 3345 BCE, making it the earliest recorded evidence of iron technology globally.
- It also establishes that Tamil Nadu was not merely a participant in the evolution of metallurgy but an innovator, as the smelted iron findings have been dated to the middle of the third millennium BCE for the first time in the world, altering the understanding of global cultural trajectories.
- Archaeological sites in Tamil Nadu also revealed varied metallurgical techniques. Three types of iron-smelting furnaces were identified at Kodumanal, Chettipalayam, and Perungalur, showcasing early innovations in extracting iron.
- Globally, the Iron Age has long been attributed to the Hittite Empire in Anatolia, where iron technology is believed to have emerged around 1300 BCE. However, the Tamil Nadu findings challenge this.

**Do You Know:**

- The Indus Civilisation, which reached its zenith between 2600 and 1900 BCE, sprawled over more than 800,000 sq km in what is today Pakistan and parts of northwestern India. It was the world's most sophisticated urban culture at the time, with an elaborate system of trade, taxation, and drainage.

**NEW STUDY DECODES WHEN THE NICOBARESE PEOPLE CAME TO THE ISLAND**

More than half a million years ago, one of humans' ancestors took a bold step and ventured beyond Africa, the cradle of humankind, in search of greener pastures. Since then humans have explored every habitable corner of the globe, often driven by the need to find new sources of food and to escape diseases and natural disasters.

Researchers have documented many migrations in great detail in the historical and archaeological records — but even now, some chapters are missing from this epic tale.

One part of the missing story was recently published in the *European Journal of Human Genetics*. Scientists from India have reported finding the genetic heritage of the people of the Nicobar Archipelago in the Indian Ocean.

The team conducted a detailed analysis of genetic data collected from 1,559 individuals across South and Southeast Asia. They found ancestral ties between the Nicobarese and the Htin Mal community, a population from the Laos-Thailand region.



The Nicobarese were also found to have retained their Austroasiatic language roots — a language family spanning Southeast Asia — of the Khmuic branch.

“Almost 20 years ago, we collected DNA from tribes in the Andaman and Nicobar region. We could not gather much information from DNA for the Nicobarese population but we related them to some South Asian groups and estimated their age to be around 11,500 years,” said Kumarasamy Thangaraj of the CSIR-Centre for Cellular and Molecular Biology, Hyderabad.

He co-led the study with Gyaneshwer Chaubey of Banaras Hindu University.

“Since then, we [have] analysed many people within India and saw many advancements in technology,” including the sequencing of one million human genomes. “Using these new techniques, we found that the Nicobarese are closer to Southeast Asian groups who migrated approximately 5,000 years ago,” said Mr. Thangaraj.

#### **Uncovering the ancestry trail**

The Andaman and the Nicobar Islands are separated by the Ten Degree Channel, which is around 150 km wide. Though they’re close to each other, the peoples of the two islands have significantly different physical features, which also differ from those of the people of mainland India. These differences have stoked scientists’ curiosity about where the Nicobarese people originated.

In 2005, one research team that included the co-leads of this study investigated the origins of Andaman Islanders by analysing mitochondrial DNA, which is passed down by mothers to their children. They discovered that the indigenous tribal groups Onge and Great Andamanese preserved two ancient maternal genetic lineages called M31 and M32, meaning they had a common ancestor. These lineages likely evolved in isolation for a long time, with a genetic history found to date back to humans travelling along the Indian Ocean coast 50,000 to 70,000 years ago.

The study also revealed the Nicobarese were closely linked to Southeast Asian populations.

However, it couldn’t say when exactly they set foot on Nicobar.

In the new study, rather than mitochondrial DNA, the researchers analysed biparental and uniparental genetic markers from 1,554 previously studied individuals and five newly collected samples from the Nicobarese population. Biparental genetic material is inherited from both parents and uniparental is from one parent.

Biparental genetic material in particular is more instructive than mitochondrial DNA because it contains the complete genome (DNA contributed by both parents), paving the way for researchers to uncover more clearly relationships and differences between populations.

Equipped with their data, the team carried out an admixture analysis, a method for estimating how much of an individual’s genetic makeup comes from different ancestral populations. The team also used principal component analysis, a statistical tool that can assess complex genetic datasets and create simple visualisations that elucidate the genetic similarities and differences.

The results confirmed previously suggested links between the Nicobarese and Southeast Asian populations and also provided a higher-resolution view of their genetic stories by pinpointing their ancestral links to the Htin Mal.



### Correcting the timeline

For a long time, scientists believed the Austroasiatic ancestors of the Nicobarese migrated to the island more than 11,000 years ago. The new study corrected this impression by taking a closer look at DNA mutations.

Some sections of human DNA can evolve and mutate over centuries, often under the influence of environmental factors — e.g. when a population moves to a new land with different weather conditions. These mutations can provide clues about when a population might have migrated to a region.

Due to its geographical isolation, the ancient Nicobarese tribe has preserved its genetic identity without significant admixture with different populations. So by comparing the differences in mutations between the genetic ancestors and the migrated populations, the scientists were able to trace their time of arrival at the Nicobar Islands: approximately 5,000 years ago, according to Mr. Thangaraj.

### Future ventures

Despite bearing genetic similarities with Southeast Asian groups, the lifestyle of the Nicobarese is entirely different, Mr. Thangaraj said. “I have visited the Andaman and Nicobar Islands and collected samples from the Nicobarese, so I’ve seen their lifestyle first-hand. It is fascinating to compare them with linguistically similar groups elsewhere.”

Indeed, the unique societal dynamics of the Nicobarese people are still largely uncharted.

Mr. Thangaraj also singled out their isolation from pathogens. “For example, during COVID, [the Nicobarese] were protected unless someone from the mainland brought the virus,” he said. “Unlike us, who have adapted to polluted and pathogen-filled environments, they might struggle with infections if exposed to other regions.”

The team plans to dive further into the genetic adaptations of these isolated populations to uncover how natural selection and environmental factors have shaped their survival strategies and immune response to diseases.

## BELOVED WITNESS: THE EXTRAORDINARY TESTIMONY OF MANU GANDHI

The third section of the Mundaka Upanishad is important for our republic, because the phrase “*Satyameva Jayate*”, India’s national motto, occurs in verse 6. But in Indian philosophy, especially *Vedanta*, it is the first verse of this section that is celebrated. It reads: “Two birds, companions and friends, perch on the very same tree. One of them eats the fruit, the other, not eating, looks on.” (MuU 3:1:1)

The commentarial tradition from Shankara onwards explicates each word. The two birds (*dva suparna*) are respectively a consumer (*bhogi*) and a witness (*sakshi*). One is engaged in eating, the other in observing the first. These are two conjoined (*sayuja*) aspects of being that share a single tree (*samanam vriksham*), interpreted as the body. One actively partakes of the world, while the other, perched alongside, watches, friendly but not participating.

We should understand Mahatma Gandhi (1869-1948) and Mridula ‘Manu’ Gandhi (1927-1969), his grandniece, as akin to these two philosophically luminous birds (Svetasvatara Upanishad 4:6 is identical). Gandhi acts; Manu bears witness. The second volume of her diaries, starting on



December 19, 1946 in Srirampur, and ending the day after Nathuram Godse assassinated the Mahatma at Birla House, New Delhi, has been superbly edited, masterfully introduced and flawlessly translated by Tridip Suhrud.

### **Moral protagonist**

This is the testimony of the second bird, a witness not only to the principal events of India's history in those years, but also to Gandhi's innermost struggles with his mind and body, his politics and sexuality, his truth and nonviolence. It is an altogether singular work. In our long civilisational quest for self-knowledge, there is no moral protagonist like Gandhi, nor an intimate witness like Manu.

As creatures of fact rather than metaphor, naturally they do not inhabit a single body. But because both are equally subject to the limits of bodily existence, they must be taken as equals. They are not similar at all — one is a man, the other a woman; one is old (almost 80), the other is young (almost 20); one is world-famous, the other unknown outside her family.

And yet, like the inseparable birds of the Upanishadic verse, for the last five years of Gandhi's life from 1943 to 1948, they are joined together in a single experiential space. Manu's diaries give us access to what unfolds in this metaphorical tree where the two birds "nestle" (in Patrick Olivelle's translation), in a way that no one else, not even Gandhi himself, could represent.

On almost any given day that Manu documents, there is a striking simultaneity of the historic and the quotidian. On the one hand, an endless procession of eminences coming and going from wherever Gandhi happens to be staying, all noted with a certain familiarity that is at once startling and understandable: Jawaharlal ji, Sardar Dada, Rajendra Babu, Maulana ji, Khan Sahib, Aruna Behn, Ghanshyamdas ji, Jinnah Sahib, Rajkumari Behn, Kripalani ji, Mira Behn, Rajaji, Vijay Lakshmi Behn... besides numerous relatives and ashram associates of Gandhi (and hence of Manu too).

### **Tumultuous times**

Hectic discussions with political leaders, social activists, wealthy businessmen, international press and state officials cover the transfer of populations, the resettlement of refugees, the integration of princely states, widespread communal violence and all manner of other headline events in those tumultuous years of Independence and Partition. Gandhi is terribly unhappy with everything unfolding around him.

Yet true to his character, through all of the tumult engulfing India, he continues to be almost absurdly meticulous about spinning cotton, writing articles for *Harijan*, fasting in protest, adjudicating the minutest of quarrels between members of his inner circle, reading and praying, carrying on a voluminous correspondence, monitoring the food intake of his entourage, and obsessing about his digestion and bowel movements.

### **Punishing schedule**

But in Bapu's close proximity, Manu has her immediate preoccupations, which revolve around his diet and sleep, his health and sickness, washing and darning his clothes, preparing his meals, massaging his head and feet, giving him sponge baths and mud packs, all the while trying to maintain a diary as regularly as possible. She herself is frequently besieged by nosebleeds and fevers, abdominal pains and headaches, and bouts of vomiting and dysentery.





A punishing schedule of relentless travel, gruelling stress, extreme heat and cold, combined with Gandhi's exacting demands that are as much spiritual as physical, clearly take a toll on the young woman. Yet she never expresses concern for herself — her focus is always and only Gandhi.

Gandhi introduces Manu to many sceptical guests as his "nurse". But then he explains, for example to Lady Mountbatten, visiting him at Bhangi Niwas on July 5, 1947: "I am not only a grandfather to her but also her mother. I wish to cultivate the ideal that even a man can become a mother."

It's difficult to say what caused greater discomfort even to the most loyal Gandhians, and continues to provoke contemporary readers: That he appointed Manu as his chosen witness, or that he appointed himself her mother? To tease out the psychological ramifications of these utterly disjunct relationships, and make sense of his insistence on both roles simultaneously, requires a profound hermeneutics of testimony and of care, outside the scope of this brief review.

On June 21, 1947, Gandhi was on his way back from Haridwar where he and Nehru met hundreds of distressed Partition refugees. Manu records: "We left for Delhi at 5:30. ... Bapuji, Panditji, and I were in the rear seat... He lay down in the car around 6:15. His feet were in Panditji's lap and head in mine. What a wonderful sight! ... This holy picture produced such joy within me!"

On January 31, 1948, in her last entry, she writes: "We reached the cremation ground at 5:00 pm. There was such a multitude of people that even standing near the pyre was difficult. ... I wanted to stay till the pyre burnt. But Sardar brought me home. How would I enter the room bereft of Bapu's presence?"

With the protagonist gone, his beloved witness too, vanishes from view.

## SHORT NEWS

### THE POLITICAL HISTORY OF DELHI

Since Delhi's first legislative Assembly was constituted in 1952, the national capital has had only eight Assemblies and Chief Ministers. This is because for 37 years, from 1956 to 1993, Delhi's Assembly was abolished and it was made a Union Territory.

### 'READY FOR INAUGURATION': VANDE BHARAT COMPLETES TRIAL RUN IN J&K

Three decades after it was conceived, the first train connecting Kashmir with the rest of the country arrived in Srinagar on Saturday. The trial run of the Jammu-Srinagar Vande Bharat Express was successfully completed with its arrival at Nowgam railway station. The Vande Bharat Express also crossed the Chenab bridge, which is considered to be the world's highest rail bridge at a height of 359 meters above the riverbed. It also crossed the 470-meter Anji Khad bridge, a cable-stayed bridge at a height of 331 meters from the riverbed.

### ETHANOL BLENDED PETROL (EBP) PROGRAMME

— On 29th January, under the Ethanol Blended Petrol (EPB) programme, the government approved the revision of ethanol procurement prices for Public Sector Oil Marketing Companies (OMCs) for the Ethanol Supply Year (ESY) 2024-25 starting from 1st November 2024 to 31st October 2025.



— Ethanol is 99.9% pure alcohol that can be blended with petrol. This is unlike the 96% extra neutral alcohol that goes to make potable liquor or the 94% rectified spirit used in paints, cosmetics, pharmaceuticals, and other industrial products.

— The EBP Programme aims to reduce the import dependence for energy requirements and boost the agriculture sector, wherein OMCs sell petrol blended with ethanol up to 20 percent to achieve the target of 20 percent blending of Ethanol by 2025-26.

#### ANNUAL SURVEY OF UNINCORPORATED ENTERPRISES (ASUSE) 2023-24

— According to the report, the percentage of proprietary units headed by females in the unincorporated, non-agricultural enterprises increased to 26.2 per cent in 2023-24 from 22.9 per cent in 2022-23, with the highest share seen in manufacturing.

— Of the total 12.06 crore workers employed in the unincorporated, non-agricultural enterprises, broadly informal in nature, female workers comprised 28.1 per cent of the total workers,

— Manufacturing recorded the highest share of units headed by female proprietors (58.4 per cent) in 2023-24, followed by other services (14.22 per cent) and trade (13.69 per cent).

— Among major states, the highest percentage of female-headed unincorporated establishments in 2023-24 were recorded in West Bengal (36.4 per cent), followed by Karnataka (35.20 per cent), Telangana (34.10 per cent) and Gujarat (32.20 per cent).

#### LEZIM/LAZIUM

— A scene from the trailer of the upcoming Bollywood film Chhava has led to controversy in Maharashtra. Actor Vicky Kaushal, who portrays the king, is seen performing the lezim (also spelt lazium) folk dance. Many criticised the scene.

— Lezim, a small mallet, is made of a thin wood with pieces of metal strung together which clash and produce a sonorous sound when swinging. Lezim is as much a rigorous physical exercise, a drill, as a dance: the formations are in twos and fours and sometimes even a circle.

— The dance is accompanied by a dhol or dhalgi (small dhol). No wind or string instruments are accompanying it, often there is no song accompaniment either, but of late, sometimes, a song is sung.

— Vigorous movements, such as stepping, squatting, and jumping, form an intrinsic part of the dance. The drum beat usually starts at a slower pace and gradually speeds up, with the dancers performing faster movements in sync with the sound.

— The lezim often featured in marriage processions in districts of the Konkan coast. Such events were accompanied by an “akhada”, which is “a party of persons skilled in performing many feats of physical skill”.

#### GLACIAL LAKE OUTBURST FLOOD (GLOF)

— Over a year after a glacial lake outburst flood (GLOF) ravaged parts of Sikkim and washed away a 60-metre-high rockfill concrete dam of the 1200-MW Teesta-III hydel project, an environment



ministry panel has cleared a proposal to build a new 118.64-m-high concrete gravity dam in its place.

— According to a study published in the prestigious Science journal, ice and sediment into the South Lhonak glacial lake was the trigger behind the devastating 2023 Sikkim flood and the lake remains “highly susceptible” to future GLOFs.

— GLOFs are disaster events caused by the abrupt discharge of water from glacial lakes — large bodies of water that sit in front of, on top of, or beneath a melting glacier. As a glacier withdraws, it leaves behind a depression that gets filled with meltwater, thereby forming a lake.

— GLOFs can unleash large volumes of water, sediment, and debris downstream with formidable force and velocity. The floodwaters can submerge valleys, obliterate infrastructure such as roads, bridges, and buildings, and result in significant loss of life and livelihoods.

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#### CAR T-CELL

— In a first, Safdarjung Hospital in Delhi has carried out the Chimeric Antigen Receptor T-cell (CAR T-cell) procedure on a 48-year-old patient suffering from Non-Hodgkin lymphoma.

— CAR T-cell therapy is an advanced immunotherapy that harnesses the power of a patient’s own immune cells, specifically T-cells, to fight cancer.

- T-cells are special cells (white blood cells that find and fight illness and infection) whose primary function is cytotoxic, meaning it can kill other cells. In CAR-T therapy, T-cells are genetically modified into cancer-fighting cells.

— These supercharged cells are then put back into the body, and they go after cancer cells — especially in blood cancers like leukaemia and lymphomas.

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#### PARAQUAT

— A 24-year old woman was awarded the death sentence by a Thiruvananthapuram court which found her guilty of poisoning her boyfriend in 2022 with a chemical herbicide called paraquat.

— Paraquat, also known as paraquat dichloride or methyl viologen, is one of the world’s most-used herbicides. A toxic chemical, paraquat is primarily used to control the growth of weeds and desiccate crops like cotton before harvest.

— The WHO classifies paraquat as Category 2 (moderately hazardous and moderately irritating) chemical. Its sale is banned in over 70 countries, including China and the European Union, due to its potent toxicity. However, it is widely used in the US and in India.

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#### SUZETRIGINE

— The United States Food and Drug Administration on Thursday approved a new type of non-opioid painkiller, Suzetrigine.

— Opioids are a class of drugs that “derive from, or mimic, natural substances found in the opium poppy plant”. Some common opioids include oxycodone, morphine, codeine, heroin, and fentanyl.



— Prescription opioids are primarily used for pain relief. They do so by getting attached to opioid receptors in the brain cells to release signals that block the perception of pain and boost the feelings of pleasure or euphoria.

— Unlike opioids, which numb the sensation of pain in the brain, suzetrigine works by targeting pain signals before they reach the brain.

Although it is currently quite expensive, costing \$15.50 per pill, the medicine is not addictive, unlike commonly used opioid painkillers. The drug, suzetrigine, will be sold under the brand name Journavx, and manufactured by US-based Vertex Pharmaceuticals.

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#### SHUBHANSHU SHUKLA

— Group Captain Shubhanshu Shukla is set to become the first Indian astronaut to travel to the International Space Station (ISS).

— He has been picked to pilot the upcoming Axiom Mission 4, which is being organised in collaboration between private US space company Axiom Space and the National Aeronautics and Space Administration (NASA).

— The launch date for Axiom 4 mission, which Shukla will pilot, has not been finalised yet. The company says it would happen “no earlier than Spring of 2025”, which means anytime between March and June. The crew will travel in SpaceX Crew Dragon spacecraft. The astronauts will stay at the station for 14 days.

— Shukla is one of the four Indian Air Force (IAF) officers selected for Gaganyaan, India’s own human spaceflight mission which is now tentatively slated for 2026.

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#### AUSTRALIA OPEN 2025

##### Women

— USA’s Madison Keys won her for Grand slam – Australia Open- by defeating two times champion Aryna Sabalenka.

— The 29-year-old also became the fourth-oldest first-time Grand Slam champion in the professional era after Flavia Pennetta, Ann Jones and Francesca Schiavone.

##### Men

— Jannik Sinner successfully defended his Australian Open crown by defeating Alexander Zverev.

— The 23-year-old Italian is also the youngest man to win the trophy two years in a row since Jim Courier in 1992-93.

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#### 38TH NATIONAL GAMES

— The Prime Minister inaugurated the 38th National Games on 28 January in Dehradun.

— The National Games is being held in 11 cities across eight districts of Uttarakhand from January 28 to February 14. The theme for the event this year is “Green Games” emphasising the usage of environment-friendly items.

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— A special park, called the Sports Forest, will be developed near the venue, where more than 10,000 saplings will be planted by athletes and guests.

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#### ICC MEN'S CRICKETER OF THE YEAR

— India pacer Jasprit Bumrah was named for the prestigious Sir Garfield Sobers Award for ICC Men's Cricketer of the Year.

— The pacer is thus the fifth winner of the award from India after Rahul Dravid (2004), Sachin Tendulkar (2010), Ravichandran Ashwin (2016) and Virat Kohli (2017, 2018).

— He also became the fastest Indian pacer to reach 200 Test wickets with a bowling average of sub-20, which is also the best in history.



# DreamIAS



## BUSINESS & ECONOMICS

### TRUMP FILLS GOVT. WITH BILLIONAIRES AFTER RUNNING ON A WORKING-CLASS MESSAGE

U.S. President Donald Trump's brash populism has always involved incongruence: the billionaire businessman-politician stirring the passions of millions who, regardless of the U.S. economy's trajectory, could never afford to live in his Manhattan skyscraper or visit his club in south Florida.

His second White House is looking a lot like the inside of Mar-a-Lago, with extremely wealthy Americans taking key roles in his administration.

The world's richest man, Elon Musk, is overseeing a new Department of Government Efficiency, which is a special commission charged with slashing federal spending. The extensive ties his businesses have to the government have raised questions about Mr. Musk's potential conflicts in the role.

Meanwhile, billionaires or mega-millionaires are lined up to run key posts in the administration.

People are raising concerns about conflicts of interest at odds with Mr. Trump's pledge to fight for "forgotten men and women" in a country where the median household net worth is about \$1,93,000 and median annual household income is about \$81,000.

"It's hard to conceive how the wealthiest set of Cabinet nominees and White House appointments in history will understand what average working people are going through," said former Labour Secretary Robert Reich, who served under President Bill Clinton and has warned for decades about the nation's widening wealth and wage gaps.

### TRUMP THREATENS TARIFFS ON INDIA AMONG OTHERS THAT 'HARM' AMERICA

US President Donald Trump on Monday said that high-tariff countries such as India, China, and Brazil "harm" America and that Washington would impose taxes on other countries to bring money into the US.

- "We're going to put tariffs on outside countries and outside people that really mean harm to us. Well, they mean us harm, but they basically want to make their country good," Trump told House Republicans at a Florida retreat on Monday, PTI reported.
- "Look at what others do. China is a tremendous tariff maker, and India and Brazil and so many other countries. So we're not going to let that happen any longer because we're going to put America first," he said.
- Trump is reported to have said that the US will establish a "very fair system where money is going to come into our coffers, and America is going to be very rich again," adding that it will happen "very quickly".
- Trump said that it was time for the US to return to the system that made it "richer and more powerful than ever before."
- "If you want to stop paying the taxes or the tariffs, you have to build your plant right here in America. That's what's going to happen at record levels. We're going to have more plants built in



the next short period of time than anybody ever envisioned before because the incentive is going to be there, as they will have no tariffs whatsoever,” he said.

**Do You Know:**

- The US is India’s largest trade partner, with bilateral trade reaching almost \$120 billion in FY24 — slightly higher than India’s trade with China. However, unlike China, India’s trade relationship with the US is favourable, making the US a vital source of foreign exchange.
- Despite attempts to diversify exports, India’s dependence on the US has grown over the past decade. According to official 2022–23 data, the US accounts for 18% of India’s exports, compared to 10% in 2010–11. India’s export basket to the US is well-diversified, benefiting industries ranging from textiles to electronics and engineering.
- The Indian Express reported that India’s commerce and industry ministry has begun inter-ministerial talks to better prepare for likely changes in US trade policy that could involve tariffs on Indian goods exports to the US under the new Donald Trump administration.
- This comes a day after Trump instructed his commerce and treasury departments to investigate the causes of America’s “large and persistent” annual trade deficits in goods and announced a new ‘External Revenue Service (ERS)’ to collect tariffs from foreign governments.

#### ECB CUTS RATE AGAIN AS EUROZONE FALTERS

The European Central Bank made a fresh interest rate cut Thursday as inflation eased and the eurozone economy flatlined, with a nervous eye on U.S. President Donald Trump’s protectionist agenda.

The central bank cut its benchmark deposit rate by a further quarter point to 2.75% on Thursday, its fifth reduction since June last year and a move widely expected by observers.

The ECB’s decision stands in contrast to the latest move by the U.S. Federal Reserve.

The central bank in the United States, whose economy has been outpacing the eurozone’s, on Wednesday left its key lending rate unchanged and said it was in no “hurry” to make changes, despite pressure from Trump for more cuts.

The ECB had previously hiked borrowing costs aggressively to tame runaway energy and food costs, but is now bringing them back down as price rises slow and the eurozone economy falters.

A recent uptick in inflation — which rose to 2.4% in December, above the ECB’s 2% target — has caused some jitters.

But policymakers believe price pressures will ease during 2025, and their focus has shifted to relieving the strain on the beleaguered 20-nation eurozone.

The eurozone has been hobbled by issues ranging from high energy costs to a manufacturing slowdown, and economic growth for the single currency area came in at just 0.7% last year, as per official data.

Germany, the single currency area’s biggest economy, has fared poorly, and is battling political turbulence as it heads for early elections next month following the collapse of the government in Berlin.



Political turbulence in France, where a new government took office in December following the ouster of its predecessor, is also muddying the outlook.

But the biggest question mark for 2025 is the return to the White House of Mr. Donald Trump.

Mr. Trump has threatened sweeping tariffs on all imports into the United States, including from the EU, which could hit the eurozone hard.

### TRUMP ASKS OPEC TO CUT OIL PRICES, SAYS IT WILL STOP RUSSIA-UKRAINE WAR

US President Donald Trump has asked the Organization of the Petroleum Exporting Countries to cut the prices of oil, arguing that it would stop the Russia-Ukraine war.

- He had made a similar claim earlier, too. Addressing the annual World Economic Forum at Davos in Switzerland via video conference, Trump accused the OPEC+ alliance of oil-exporting countries of being responsible for the nearly three-year conflict in Ukraine.
- The US president had earlier said Russian President Vladimir Putin “should make a deal” with Ukraine while asserting that they would meet as soon as they can.
- Meanwhile, Ukrainian President Volodymyr Zelenskyy told reporters on Saturday that he hopes Europe and the United States will be involved in any talks about ending his country’s war with Russia. At a joint press conference with President Maia Sandu of neighbouring Moldova, Zelenskyy said Ukraine also needed to be involved in any discussions on ending the war for such negotiations to have any meaningful impact.

#### Do You Know:

- President Donald Trump is emphasizing that targeting Russia’s oil revenue is the best way to get Moscow to end its nearly three-year war against Ukraine.
- Nearly a week since Donald Trump assumed office as the 47th President of the US, and declared a national energy emergency while promising to increase oil production in America, Brent crude oil prices have softened by around 3 per cent.
- Brent crude oil prices were at \$80.79 per barrel on January 17 (before Trump’s inauguration) but dropped to \$78.26 a barrel on January 24.
- Analysts expect the trend in crude oil prices to go downwards going forward on weak demand. For India, lower crude prices are expected to be a boon as they will reduce oil import costs, narrow the current account deficit and bring inflation down.
- Kotak Securities Senior Vice President and Head of Commodity, Currency and Interest Rate, Anindya Banerjee, said that the surge in crude oil prices seen towards the end of 2024 and early part of January was because of the fresh set of sanctions imposed by the US on Russia, which the market did not anticipate.
- The sweeping sanctions package announced earlier this month by the outgoing administration in Washington against Russia’s oil trade is an issue, which has already started having an impact on near-term supply of Russian oil to Indian refiners, who are finding it hard to secure enough cargoes for Moscow’s crude.





- The situation is forcing Indian refiners to look elsewhere—mainly to West Asia—to replace volumes from Russia, currently India’s largest source market for crude. How the Trump administration views these sanctions could be a factor going forward.

## BUILDING SUPER INTELLIGENCE

In 1941, faced with imminent threats from hostile Axis powers, U.S. President Franklin D. Roosevelt initiated a secret assignment known as the Manhattan Project. That monumental research and development initiative culminated in the creation of the first atomic bomb.

Seven decades later, Donald Trump, the 47th President of the U.S., faces a powerful adversary in China, and is embarking on mission to solidify America’s position as a dominant artificial intelligence (AI) superpower.

Announcing ‘Project Stargate’, a multi-billion-dollar initiative aimed at establishing a vast network of AI-optimised data centres and developing increasingly sophisticated generative AI models, Mr. Trump called it “the largest AI infrastructure project in history.”

Through this initiative, OpenAI, Oracle, and SoftBank will establish a state-of-the-art AI ecosystem across various regions of the U.S. Notably, while the Manhattan Project incurred an estimated \$2 billion in 1945 (about \$30 billion in today’s currency), Stargate commences with an initial investment commitment of \$100 billion from SoftBank. Over the course of the next four years, the investment company will further augment its commitment with an additional \$400 billion.

Some experts have pointed out that the \$500 billion claim should not be taken seriously unless SoftBank plans to sell all its holdings in Alibaba and Arm. Despite the glaring gaps in funding, OpenAI’s role is pivotal to Stargate.

As a leader in generative AI, the ChatGPT creator can provide the technological foundation with its advanced language models that have revolutionised AI, enabling the development of more powerful and general-purpose AI systems. Oracle’s role in the project is already putting OpenAI’s current investor, Microsoft, on the spot, as the tech titan has invested \$14 billion in the Silicon Valley startup.

### Strategic move

The collaboration with Oracle, a direct competitor in the cloud services market, signifies a strategic move to diversify OpenAI’s dependencies while leveraging Oracle’s capabilities.

For Oracle, Stargate presents a significant opportunity to challenge the dominance of Microsoft Azure, Google Cloud, and AWS. By hosting OpenAI’s models and constructing AI-optimised data centres, Oracle will reposition its cloud strategy and re-enter the increasingly competitive cloud market.

For the U.S., the focus is on its high-tech competition with China.

## WE SHOULD DEEP SEEK

In December 2024, the Press Information Bureau proudly announced that India’s FDI journey had reached the remarkable milestone of \$1 trillion since 2000. This was meant to establish India’s



relevance. But India's share in global FDI is close to 2.5 per cent in proportional terms and declining.

— With Indian consumption growing at less than 3 per cent, the country is not as big a deal for global exporters as you might imagine. The supposed opportunity for India provided by investment moving out of China has barely materialised.

— India gets barely 1.5 per cent of international tourist arrivals. Its entertainment sector is growing rapidly, but including the total domestic market, it is only 5 per cent of the world market; it is not a soft-power export powerhouse. India's defence budget has been relatively stagnant, with a proportion of GDP under 2 per cent.

— But on any measure of critical technologies for the future, whether it is AI or green energy, India seems far behind the global competition.

— DeepSeek has spurred the search for homegrown Indian AI models, but the track record on being at the frontier of this competition is not encouraging.

— India has enormous potential. But unless we take a cold hard look and acknowledge that self-importance is not the same thing as importance, we will not begin to understand how India risks being irrelevant.

**Do You Know:**

— DeepSeek is a Chinese AI company located in Hangzhou, founded by entrepreneur Liang Wenfeng, who also serves as the CEO of the quantitative hedge fund High Flyer.

— Recently, DeepSeek launched its AI models—DeepSeek-V3 and DeepSeek-R1, a reasoning model. These models quickly gained popularity, surpassing ChatGPT to become the most downloaded app on the App Store.

**USAGE OF COPYRIGHT CONTENT: DIGITAL NEWS PUBLISHERS JOIN LEGAL BATTLE AGAINST OPENAI**

A group of digital news publishers in India have filed an intervention in the Delhi High Court, joining an ongoing proceeding against OpenAI for improperly using copyright content. The intervention was filed by the Digital News Publishers Association (DNPA), along with some of its members, which include The Indian Express, Hindustan Times and NDTV.

- The intervention is part of a case filed first against the generative artificial intelligence (AI) company by news agency ANI last year, accusing OpenAI of unlawfully using Indian copyrighted material to train its AI models.
- The DNPA contended that companies like OpenAI have developed large language models (LLMs) by “training” on vast quantities of text, including, without a licence or permission, copyright-protected works.
- The news publishers’ group also said that OpenAI’s actions and AI models lack sufficient transparency and disclosure.
- The Federation of Indian Publishers (FIP), a grouping of domestic publishers and their international partners, has also filed an intervention application in the case.



- OpenAI has previously argued that any order to remove training data powering its ChatGPT service would be inconsistent with its legal obligations in the United States. The company has repeatedly denied the allegations, saying its AI systems make fair use of publicly available data.
- OpenAI is facing a number of similar lawsuits in other jurisdictions as well. In December 2023, The New York Times sued the company and Microsoft, citing “unlawful” use of copyrighted content.

**Do You Know:**

- A copyrighted work will be considered “infringed” only if a substantial part is made use of without authorisation. In cases of infringement, the copyright owner can take legal action against any person who infringes on or violates their copyright and is entitled to remedies such as injunctions, damages, and accounts. An injunction is “an official order given by a law court, usually to stop someone from doing something.”
- Section 52 lists acts that don’t constitute infringement, even in cases where one has a copyright over the work. Section 52(1)(a) exempts “a fair dealing with any work” from being termed “infringement” if it’s for private or personal use, like research, criticism or review, or reporting of current events and affairs.
- Similarly, Section 52(1)(h) exempts the publication of short passages from published literary or dramatic works in a collection intended for bona fide or genuine instructional use.

**CABINET APPROVES CRITICAL MINERALS MISSION WITH `16,300 CRORE OUTLAY**

The Union Cabinet has approved the setting up of the National Critical Minerals Mission (NCMM) on Wednesday with a budgetary outlay of Rs 16,300 crore over seven years, with an additional Rs 18,000 crore expected in investments from central public sector undertakings (PSUs).

- With Rs 3,000 crore budgeted for the National Mineral Exploration Trust (NMET) and Rs 4,000 crore for the Geological Survey of India (GSI), the NCMM targets 1,200 domestic critical mineral exploration projects till 2030-31. The Ministry of Mines also aims to auction over 100 critical mineral blocks by then.
- A boost in exploration of critical minerals will provide potential investors with key data on reserves, which in turn will increase interest and participation in auctions. Till now, GSI has undertaken 368 exploration projects over the past three years, with 195 projects currently underway, and the mines ministry has auctioned off 24 critical mineral blocks.
- Prime Minister Narendra Modi hailed the NCMM as a “major step towards self-reliance” in critical minerals. “The Union Cabinet’s decision on National Critical Mineral Mission will encourage India’s high-tech, clean energy, defence and other key industries,” he posted on X.

**Do You Know:**

- Critical minerals that are essential for economic development and national security, and the lack of availability of these minerals or the concentration of extraction or processing in a few geographical locations could potentially lead to “supply chain vulnerabilities and even disruption of supplies”. This is true for minerals such as lithium, graphite, cobalt, titanium, and rare earth



elements, which are essential for the advancement of many sectors, including high-tech electronics, telecommunications, transport, and defence.

- One of the definitions cited in the report characterises a mineral as critical when the risk of supply shortage and associated impact on the economy is (relatively) higher than other raw materials. This definition of a critical mineral was first adopted in the US and the subsequent legislation that resulted from the analysis, the report said. The European Union also carried out a similar exercise and categorised critical minerals on the basis of two prerequisites: supply risk and economic importance.
- Under the mission, an additional Rs 5,600 crore is allocated to the NMET to finance risk coverage for foreign sourcing and to support exploration activities outside India.
- The mines ministry seeks to amend the Mines and Minerals (Development and Regulation) Act to enable the NMET to fund the proposed activities of the mission.
- Announced by Finance Minister Nirmala Sitharaman in last year's Union Budget, the mission aims to strengthen India's critical minerals value chain by building a technological, regulatory, and financial ecosystem to ensure mineral availability from both domestic and foreign sources.
- The mission is set to boost access to raw materials used across strategic sectors, from clean energy and electronics to defence and agriculture.
- NCMM will receive Rs 1,000 crore from the Anusandhan National Research Foundation (ANRF) and other R&D schemes, and Rs 2,600 crore in budgetary support.
- In a meeting with officials from the Department of Economic Affairs in November, the mines ministry had proposed external funding for the NCMM through the World Bank's Resilient and Inclusive Supply-Chain Enhancement (RISE) initiative.
- As of February 2024, only \$50 million have been pledged as initial contributions to the RISE initiative, with Japan contributing \$25 million and the remaining from other countries, including Canada, Germany, Italy, the Republic of Korea, and the UK.

#### A PRAGMATIC PICTURE

Parliament's Budget session has begun amid a significantly changed backdrop. India's growth is seen faltering after four years of healthy post-pandemic growth, the stock markets are tumbling, the rupee is losing ground faster than expected, and the major drivers that have been spurring the economy — domestic demand and public sector capex — are sputtering, while private investments remain insipid. For context, the five years from 2019-20 to 2023-24 have seen government capex increase at a compounded annual growth rate of 16%, household investments by 12%, while corporate outlays were up only 6%, despite a steep tax rate cut for them. A slowdown in the well-moving economic levers is, thus, a cause for concern. That the new U.S. administration seems determined to upend global trade and taxation arrangements, is also unsettling. The Economic Survey 2024-25, has warned that, with globalisation in retreat, India must focus on domestic factors to spur growth higher while becoming more competitive *vis-à-vis* rival markets looking to attract foreign investors.

The Survey's prognosis that real GDP growth may be in the range of 6.3% to 6.8% in 2025-26, from the 6.4% pace estimated for this year, acknowledges that economic momentum may slip



further in the face of new headwinds. That the Survey's authors have posited that anything short of a growth pace of around 8% over at least a decade would make it tough to realise India's aspiration to be a developed nation by 2047, is significant, along with their warning that a 'business as usual' approach risks fomenting economic stagnation. While lauding recent reforms, the Survey has cautioned they will not deliver their desired goals without deregulation. The Survey has some refreshing plainspeak in this context, emphasising it is critical for the government to 'get out of the way' of businesses by undoing regulations that are tantamount to micro-management, and bridging the 'trust deficit' between authorities and citizens, as well as within the nation's close-knit communities. Pushing for a refresh of the ease of doing business drive, it has made an impassioned plea to minimise controls that distort markets and adopt a 'minimum necessary, maximum feasible' approach to regulations, while seeking the same accountability from regulators that they stipulate for their constituents. The pitch to empower small firms, enhance economic freedom and ensure a level-playing field, holds weight too. For a government that has been recently infatuated by a spate of 1970s'-style bad ideas such as import curbs, production-linked incentives and questionable taxation misadventures, this is pertinent advice. Whether the government has bothered to listen, without prejudice, the Budget will tell.

#### WHAT THE ECONOMIC SURVEY SAYS: KEY TAKEAWAYS FROM THE GOVT'S REPORT ON INDIA'S ECONOMY

The Economic Survey for 2024-25 was tabled by Finance Minister Nirmala Sitharaman in Parliament on Friday. The Survey is a report of the state of the Indian economy in the financial year that is coming to a close. It is prepared by the Department of Economic Affairs in the Union Finance Ministry, under the guidance of the Chief Economic Advisor (CEA).

— The Survey has flagged two main concerns. "Global trade dynamics have changed significantly in recent years, shifting from globalisation to rising trade protectionism, accompanied by increased uncertainty," the Survey says.

— The second big challenge concerns the dominance of China as the world's manufacturing superpower – a third of all global production happens in China, and it alone manufactures more global output than the next 10 countries put together.

— The Survey contends that the domestic economy remains steady amidst global uncertainties.

— REAL GDP: Real Gross Domestic Product, which maps economic activity from the demand side of the economy, in the current financial year (FY25) is pegged at 6.4%; in the coming year (FY26), the Survey expects it to lie between 6.3% and 6.8%.

— GVA: On the supply side, which is mapped by Gross Value Added (GVA), India's growth remains close to the decadal average (Chart). Aggregate GVA surpassed its pre-pandemic trend in the first quarter of FY25, and it now hovers above the trend, the Survey points out.

— INFLATION: "Headline inflation", the CEA said, "is moderating because of moderating core inflation". Core inflation refers to inflation in goods and services except food and fuel. However, food inflation increased from 7.5% in FY24 to 8.4% in the current financial year, "driven by factors such as supply chain disruptions and vagaries in weather conditions".

— EMPLOYMENT: The Survey says "India's labour market growth in recent years has been supported by post-pandemic recovery and increased formalisation." It quotes the 2023-24 annual Periodic Labour Force Survey (PLFS) report that shows that all key employment related metrics



such as unemployment rate, labour force participation rate and the worker-to-population ratio (WPR) have improved.

— Referring to the Business Reform Action Plan (BRAP) formulated by the Department for Promotion of Industry and Internal Trade (DPIIT), the Survey states that there is a positive correspondence between business reforms and the level of industrial activity, suggesting the need for deregulation and enterprise-friendly reforms in aspiring and emerging states.

— While the Survey sounds sanguine about India's post-pandemic economic recovery, on the whole, it sounds an alert. "India faces limitations in producing critical goods at the scale and quality required to serve the infrastructure and investment needs of an aspiring economy," says the preface of the Survey.

— "Getting out of the way" and allowing businesses to focus on their core mission is a significant contribution that governments around the country can make to foster innovation and enhance competitiveness," the CEA has said.

**Do You Know:**

— Gross Domestic Product (GDP) is an important macroeconomic indicator that measures the economic growth of a country. It is also an easy parameter for comparing the growth of a country with that of other countries in the world.

— The disadvantage of this measure is that it is an average numerical indicator that does not capture inequalities, unemployment, the rural-urban divide, or income percentiles. Despite these drawbacks, GDP remains a frequently used metric because of the way it is measured.

— GDP accounts for the value of only newly produced goods – goods produced during the year for which GDP is being calculated, normally taken as the financial year. For example, the price obtained from the resale of a house is excluded from GDP, as the house was not constructed in the year of estimation. However, the value of the services provided by the real estate agent involved in the sale of the house is included in GDP, as it is new income generated during the year of estimation.

**IMPERATIVE TO WIPE OUT TRUST DEFICIT, 'GET OUT OF THE WAY' & DEREGULATE, SAYS CEA**

— THE ECONOMIC survey projected a growth rate of 6.3-6.8 per cent for 2025-26 on the back of a "strong external account, calibrated fiscal consolidation and stable private consumption", and said domestic growth levers will be more important than external ones in the coming years for the Indian economy.

— In his seven-page preface to the Economic Survey 2024-25, the CEA, who is the force behind the Ministry of Finance's Economic Division, chose "deregulation" as his central theme because "getting out of the way" is not easy for societies like India's.

— The Economic Survey underscored that deregulation is more essential for growth of micro, small, and medium enterprises (MSMEs) vis-à-vis large companies. It also called for states to take the lead in Ease of Doing Business (EoDB) 2.0.



— The Survey stated the Indian economy will need to grow by around 8 per cent in real terms every year for at least a decade to achieve a sustained rise in standard of living, and much of that growth would need to come from the domestic sector.

— The Survey noted that while the government has pursued policies to support MSMEs, like boosting access to finance and providing market linkages, the regulatory compliance burden has remained a challenge, which prevents small firms from growing.

— It said that the faster economic growth that India needs is only possible if the union and state governments continue to implement reforms that allow SMEs to operate efficiently and compete cost-effectively.

— The Survey pitched for EoDB 2.0 to be a state government-led initiative “focused on fixing the root causes behind the unease of doing business”. While EoDB reforms so far have dealt with reducing compliance burdens, digitisation, and extending incentives to key sectors, the second round should prioritise liberalising standards and controls, including removing restrictions on women’s participation in factories and rationalising parking norms, it said.

— The Survey recommended that states should look at regulations pertaining to administration, land, building and construction, labour, utilities, transport, logistics, local trade, and environment, in addition to any sector-specific regulations.

— The Survey also pushed for greater private sector participation in building approvals and inspections... It also called for reducing electricity tariff markup for industrial users. “Across states, industrial users can pay a 10–25% markup over the cost of electricity supply.

**Do You Know:**

— The Economic Survey 2024-25 has warned that excessive financialisation can harm the economy, with potentially severe consequences for a low-middle-income country like India.

— While acknowledging the increasing reliance on financial markets for funding, the Survey emphasized that financial markets must complement the banking sector to bridge the capital requirement gap.

— The Survey warned that “over-finance” can lead to the financial sector competing with the real sector for resources, including skilled labour. This can result in the real economy being deprived of essential resources.

— The Survey also noted that financial sector innovation may not always add value to the real economy. Research has shown that rapid financial sector growth often favours projects with high collateral but low productivity, such as construction.

— The Survey also emphasized the importance of finance in reducing poverty and inequality, as well as in aiding consumption smoothing and shock absorption for firms and households.

— However, the Survey warned that there is a tipping point beyond which financial development can actually hinder economic growth.

— Citing examples from Ireland and Thailand, the Survey noted that excessive private credit growth can lead to reduced productivity growth, while prudent management of credit can contribute to increased productivity.



## INDIA SHOULD NOT SHUT COAL PLANTS WITHOUT 'ALTERNATIVES': SURVEY

India must harness its “best resources, advanced technologies, and expertise” to become a developed nation by 2047 while ensuring a low-carbon pathway. However, it shouldn’t shut its coal-fired plants “without adequate alternatives”, the Economic Survey noted.

“The energy transitions witnessed till the last century were driven by commercial interests rather than the will to limit the emissions from advanced economies. Commercial interests and energy security remain the most significant factors in the transition pathway even today,” the document underscored.

The Survey cited the example of France that embarked on nuclear power expansion in the 1970s on the back of embargos by oil-producing countries.

### **'No valid rationale'**

In 2022, the Survey said in a chapter on climate adaptation, the European Union introduced the REPowerEU plan, to disengage from Russian gas supplies. The plan includes a budget of €10 billion (₹90,000 crore) for investments in liquefied natural gas infrastructure and an additional €1.5 to 2 billion (₹18,000 crore) designated for securing oil supplies.

In 2023, the U.S. administration also approved the onset of the country’s largest oil-drilling project in the Alaska region, with an estimated total oil and non-gas liquids production of 628.9 million barrels and 260.79 million tonnes of associated indirect carbon dioxide equivalent of emissions, the document added.

“Actions speak louder than words, with the biggest beneficiaries of carbon-intensive growth over several centuries holding on to fossil fuels even as they would want the developing countries to take up the less efficient, costlier and riskier options,” it remarked.

In India’s case, a large expansion of coal-fired power plants was made only in the 2010s and therefore there was “no valid economic rationale” for shuttering coal plants, which would only cause huge investments to be underutilised and stranded and without a dependable alternative in place.

### **Net zero emissions**

However, India ought to continue pursuing its ambitious goal of achieving net zero emissions by 2070 and direct innovation and investment in addressing the problems related to renewable energy — battery storage, grid infrastructure and critical minerals, the Survey reckoned.

The “friction” between energy transition and energy security was evident in the actions of developed countries, revealing the limitations of transitioning to renewable energy sources such as wind and solar. There was a significant ‘congestion cost’ of managing a complex energy system incorporating fossil fuels and renewables and secondly, a shift to renewable energy had also raised electricity prices.





## HIGHER PROFIT SHARE, STAGNANT WAGE GROWTH SLOWING ECONOMY: SURVEY

Growth in corporate profits needs to be commensurate with wages to boost the economy, the Economic Survey said, noting that sharp disparities between the two pose a risk to the economy by curbing demand.

The document tabled in Parliament on Friday noted that while the labour share of GVA (gross value added) shows a slight uptick, the disproportionate rise in corporate profits — predominantly among large firms — raises concern about income inequality. A higher profit share and stagnant wage growth risk are slowing the economy by curbing demand, it pointed out.

Sustained economic growth hinges on bolstering employment incomes, which directly fuels consumer spending, spurring investment in production capacity, it stated.

To secure long-term stability, a fair and reasonable distribution of income between capital and labour is imperative, it suggested.

It is essential for sustaining demand and supporting corporate revenue and profitability growth in the medium to long run, it pointed out.

The Survey noted that corporate profitability soared to a 15-year peak in the financial year 2023-24, fuelled by robust growth in financials, energy, and automobiles. Among Nifty 500 companies, the profit-to-GDP ratio surged from 2.1% in FY03 to 4.8% in FY24, the highest since FY08.

Large corporations, especially in the non-financial sector, significantly outperformed their smaller peers in profitability, it said. However, the Survey stated that while profits surged, wages lagged.

A striking disparity has emerged in corporate India: profits climbed 22.3% in FY24, but employment grew by a mere 1.5%. State Bank of India analysis reveals that 4,000 listed companies recorded a modest 6% revenue growth.

At the same time, employee expenses rose only 13% — down from 17% in FY23 — highlighting a sharp focus on cost-cutting over workforce expansion, the Survey stated. Despite Indian companies achieving a stable EBITDA margin of 22% over the past four years, wage growth has moderated. This uneven growth trajectory raises critical concerns.

The Survey also noted that driven by robust post-pandemic recovery and increased formalisation, labour market indicators in India have improved substantially in the past few years. As per the Periodic Labour Force Survey, the unemployment rate in India has dropped significantly and labour force participation and the worker-population ratio have shown considerable improvements.

Additionally, sectors such as the digital economy and renewable energy offer vast potential for creating high-quality jobs, which is essential for achieving the Viksit Bharat's vision.

The Survey advocates for fostering an enabling labour regulations environment that supports business growth, creates employment and promotes economic development.

## 'HOSTILE WORK CULTURE, LONG HOURS IN OFFICE AFFECTING MENTAL HEALTH'

Overexposure to social media, lack of exercise, not spending enough time with one's family and overwork (hours exceeding 55-60 per week) have all worsened mental well-being among Indians,

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



said the Economic Survey 2024-25, tabled in Parliament on Friday by Union Finance and Corporate Affairs Minister Nirmala Sitharaman.

Hostile work cultures and excessive hours spent working at the desk can adversely affect mental well-being and ultimately put the brakes on the pace of economic growth, states the Survey while highlighting that lifestyle choices, workplace culture and family situations are critical for productivity.

If India's economic ambitions are to be met, then immediate attention must be given to lifestyle choices that are often made during childhood/youth. "The increase in mental health issues in children and adolescents is often linked to the overuse of the Internet, specifically social media. The phone-based childhood is rewiring the very experience of growing up," it stated.

Given the direct costs to human welfare, putting mental well-being at the centre of economic agenda is prudent, states the Survey, besides listing a series of mental health initiatives taken by the Centre. "It is about time to find viable, impactful preventive strategies and interventions. India's demographic dividend is riding on skills, education, physical health and, above all, mental health of its youth," it said.

Establishing a link between good mental health and clean eating habits, the Survey noted that individuals who rarely consume ultra-processed or packaged junk food have better mental well-being than those who regularly do so.

It also says that those who rarely exercise, spend their free time on social media or are not close to their families have worse mental well-being.

It emphasised the urgent need for school and family-level interventions to encourage healthy pastimes such as meeting with friends and playing outside, and also said that investing time in building close family bonds would go a long way in keeping children and adolescents away from Internet.

#### **Ultra-processed foods**

The Survey suggested that the government look at bringing in a higher tax rate for ultra-processed foods (UPFs) and may also consider a 'health tax' measure targeted specifically at brands/products that advertise these foods.

It further suggested that the Ministry of Health and Family Welfare urgently define nutrient thresholds for sugars, salt, and saturated fats to regulate advertising, adopt warning front-of-pack labels (FOPL), and impose stricter marketing restrictions on unhealthy foods, especially targeting children under 18.

Noting that a multi-pronged approach is required to address the concerns emerging from increased inclusion of UPFs in diets, the Survey said that misleading nutrition claims on UPFs need to be tackled and should be brought under the scanner.

The Food Safety and Standards Authority of India could consider bringing UPFs under regulation with a clear definition and standards, including stricter labelling requirements.



## WORK HOUR, OVERTIME LIMITS BARRIERS TO IMPROVING FACTORY WORKERS' EARNING POTENTIAL

- The Economic Survey 2024-25 flagged inflexible working hour limits and overtime restrictions for factory workers as barriers to meeting demand surges and improving workers' earning potential.
- While noting that working hour restrictions are intended to protect workers' health and prevent overwork, the Survey underscored that the various limits on working hours—per day, week, quarter, and year—could be in conflict, which in turn reduces workers' earning potential by heavily restricting the number of overtime hours they can put in.
- The Factories Act limits a worker to a maximum of 10.5 hours daily, or around 63 hours in a six-day week. Of these, only 48 hours are considered regular work hours, three hours are considered rest intervals, and the remaining 12 hours count as overtime.
- Over a 13-week quarter, this would allow for 156 overtime hours, but another provision of the Factories Act caps overtime at only 75 hours per quarter. Unlike India, some countries allow such caps to be averaged over multiple days and weeks.
- The Centre has notified four Labour Codes – the Code on Wages, 2019, the Code on Social Security, 2020, the Industrial Relations Code, 2020, and the Occupational Safety, Health, and Working Conditions Code, 2020 – after rationalising and combining 29 existing central laws. In line with the Labour Codes, several states have already carried out reforms, the Survey said.

## INDIA'S WORKFORCE VULNERABLE TO AI, NEED 'ROBUST INSTITUTIONS' TO UPSKILL THEM

- Arguing that India's workforce in low-skill and low-value-added services remains vulnerable to artificial intelligence (AI), the Economic Survey 2024-25 called for the creation of "robust institutions," which could help transition workers to medium- and high-skilled jobs, where AI can augment their efforts rather than replace them.
- The Survey proposed the concept of "stewarding institutions," which would be "agile, crosscutting across sectors and up to date on the latest developments, so that they are equipped to identify both opportunities and threats. Stewarding institutions will have to be responsible for designing an approach that delicately balances public welfare without stifling innovation".
  - It clarified that stewarding "does not imply placing restrictions on innovation or dictating a narrow set of applications for technology," but means that policymakers should "demonstrate a certain degree of cognisance when it comes to emerging technologies, so that when the need arises, they stand well-placed to mitigate any adverse effects that emerge as by-products of technological applications".
  - Regulatory frameworks will need to be revisited and amended to ensure that the use of AI aligns with societal values, balancing innovation with accountability and transparency, the Survey said.
  - Arguing that each revolution has displaced large segments of the workforce and led to economic disparity, the Survey said that "protracted labour displacement is something that a labour-surplus country like India cannot afford".



— “India is also a consumption based economy, thus the fall in consumption that can result from the displacement of its workforce is bound to have macroeconomic implications. If the worst-case projections materialise, this could have the potential to set the country’s economic growth trajectory off course,” it added.

— Looking ahead, the Survey said, the country’s predominantly services-driven economy, coupled with its young and dynamic population, offers a fertile ground for leveraging the benefits of emerging technologies, only if proactively and carefully managed.

**Do You Know:**

— Days after a Chinese artificial intelligence (AI) lab launched the low-cost foundational model DeepSeek, the Indian government has said it has decided to build a domestic large language model of its own as part of the Rs 10,370 crore IndiaAI Mission.

— Under the IndiaAI Mission, the government has also selected 18 application-level AI solutions for the first round of funding. Vaishnav said that these applications focus on the areas of agriculture, learning disabilities and climate change.

**LACK OF FINANCIAL SUPPORT WOULD FORCE INDIA TO TEMPER ITS CLIMATE TARGETS: ECONOMIC SURVEY**

The failure of the developed countries to commit adequate amounts of climate finance at last year’s climate conference in Baku might force India to temper the ambition of its climate targets for 2035, the government said Friday.

— The Survey said the promise of just \$300 billion in climate finance flows, instead of the projected requirement of more than \$1 trillion a year, severely undermined the objectives of the Paris Agreement.

— “The decision (in Baku) demonstrates a significant misalignment with the Paris Agreement’s mandate to demonstrate a ‘progression beyond previous efforts’ by developed countries,” the Economic Survey said.

— Going by the Paris Agreement, India, like other countries, has to submit its climate action plan for 2035 this year. As of now, countries have submitted, and are acting on, achieving targets outlined in their climate plans for 2030. The Paris Agreement asks every country to periodically increase the ambition of their climate targets, in five-year cycles.

— As per its climate plan for 2030, India has committed itself to reduce the emissions intensity of its economy (emissions per unit of GDP) by 45 per cent from 2005 levels, ensure that at least 50 per cent of its installed electricity capacity comes from non-fossil fuel sources, and increase the capacity of its forests to absorb carbon dioxide by at least 2.5 to 3 billion tonnes.

— The Economic Survey said the decision in Baku showed the unwillingness of the developed countries to fulfill their obligations under the international climate architecture.

**Do You Know:**

— The COP29 climate meeting in Baku ended in disappointment last week. On the main issue of finance, developed countries agreed to mobilise only \$300 billion for the developing nations every



year, a three-times increase over their current mandate of \$100 billion but way short of at least \$1 trillion that all assessments said was required.

— It is not a surprise that the current international arrangement on climate change has turned out to be this ineffective. It is the only major multilateral system which is completely aligned against the rich and powerful nations.

— The developed countries argue that the scale of finance requirements has increased manifold, and many other countries have grown rich in the last two decades, so they must also be asked to contribute to climate finance. The first attempt to expand the contributor base happened in Paris itself but did not succeed.

## NEW PENSION SCHEME NOTIFIED FOR GOVT EMPLOYEES

After giving a nod to the Unified Pension Scheme (UPS) in August last year, the Finance Ministry on late night Friday notified the new scheme as an option under the National Pension System (NPS) for the employees of the central government who joined on or after January 1, 2004.

- The new optional pension scheme will have an assured payout of Rs 10,000 for employees superannuating after qualifying service of 10 years and “full assured payout” after a minimum 25 years of qualifying service, the notification said.
- The UPS, which will come into effect from April 1, is expected to benefit over 23 lakh central government employees. The scheme will see a hike in the government’s contribution to 18.5 per cent of the combined sum of basic pay and dearness allowance from 14 per cent earlier, while the share of the employee will be the same at 10 per cent.
- Under the UPS, there will be an assured payout at the rate of 50 per cent of the average basic pay of 12 months immediately prior to superannuation. In case of lesser qualifying service period, there will be proportionate payment.
- For cases of voluntary retirement, the UPS option will be available after a minimum 25 years of qualifying service and assured payout will start from the date on which the employee would have superannuated, if he/she had continued in service.
- There will be two funds under the UPS: one, an individual corpus with employee contribution and matching central government contribution; and two, a pool corpus with additional central government contribution.
- The provisions of the UPS will also be applicable, mutatis mutandis, to past retirees of NPS, who have superannuated before the operationalisation date of the UPS. Such superannuated employees will be paid arrears for the past period along with interest as per Public Provident Fund rates, the notification said.
- The UPS is expected to cost around Rs 6,250 crore in the first year of its rollout along with extra expenditure of Rs 800 crore towards arrears of already retired employees, as per government estimates detailed at the time of the approval of the scheme.
- Under the old pension scheme, which was an unfunded, non-contributory scheme, government employees used to get defined benefits post-retirement – 50 per cent of their last drawn salary as monthly pension. Under the NPS, which covers employees who joined service post January 2004, contributions are defined but benefits depend on the market.

**Do You Know:**

- The Union Cabinet last year approved a new Unified Pension Scheme (UPS) for Central government employees which assures 50 per cent of the average salary drawn over the last 12 months of their service as pension.
- To be effective April 1, 2025, the UPS will be available to all those who have completed 25 years of service in the government. Its other key features include a family pension to the spouse equal to 60 per cent of an employee's pension income after death, a minimum pension of Rs 10,000 for those who have completed a minimum 10 years of service, inflation indexation to take care of price rise of goods and services, and a facility to withdraw a lump sum amount at retirement.

**STIFLING DEMAND**

The efficacy of a welfare programme is directly proportional to the enthusiasm of the government implementing it. The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) will soon be completing 20 years of its implementation. The fact that it has not only survived but also thrived under two regimes across multiple terms suggests its utility and popularity among the rural poor, though, under the National Democratic Alliance, the scheme has acquired a status of being an unwanted necessity after being seen initially as someone else's baby. But as the COVID-19 pandemic showed, the MGNREGS was a necessity and vital in terms of the sustenance it provided to both rural workers and migrant labour returning to their rural homes after the lockdowns were announced. And it is fair to say that it is now seen as "unwanted", as allocations in percentage terms of consecutive Budgets have reduced substantially since the pandemic (from 3.2% in FY21 to 1.78% in FY25 (BE)). Besides, despite the fact that the scheme is demand driven, inevitably leading to the allocation of additional funds beyond the budgeted expenditure, no extra allocation for MGNREGS has been made this financial year even as wages have been delayed and, due to this, demand also suppressed artificially. Reportedly, the Rural Development Ministry was short of ₹4,315 crore for the wages and the Centre has a liability of ₹5,715 crore against its share for material component of the works to be done under the scheme.

There are other issues with MGNREGS implementation that require attention — the need to adjust wages to inflation, and the issues concerning the seeding of job cards with the Aadhaar-based payment system, among others. But the core of the scheme remains the adequacy of the allocations made for it by the Centre. By pruning funds, the purpose of providing demand-driven employment is under-served and it is unfair to rural workers across the country who have used the scheme to augment their incomes, especially in the agricultural off-seasons. There has been much academic study detailing the fruits of the scheme — from helping the destitute to creating village assets such as irrigation canals, rural roads, and water conservation facilities. A demand-driven exercise such as this scheme also puts disposable income in the hands of the village poor and helps the rural economy. The importance of MGNREGS in a country still facing rural poverty needs no elaboration. The Union government must change its attitude towards the MGNREGS. A substantial allocation in the Union Budget, that is true to the demand for the scheme, would be a good start.

**NANO-UREA REDUCED GRAIN YIELD: STUDY**

One of the largest and most sustained trials analysing the impact of nano-urea on crop yields has concluded that its continued use could reduce yields of paddy and wheat, which collectively constitute about 70% of India's annual foodgrain output.

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



Promoted by the fertilizer company IFFCO and the government's Department of Fertilizers, the application of nano-urea, in the manner prescribed by the company, led to the protein-content in the rice and wheat grain reduce by 35% and 24%, respectively, the study said.

#### Premature adoption

"Premature and long-term adoption of such nitrogen-management practice may lead to yield losses besides reduction in grain and straw-nitrogen content," say the authors from Punjab Agricultural University, Ludhiana in their peer-reviewed study in the journal *Plant Soil* this month.

"...a rational understanding on the long-term impacts is required else it might inadvertently harm the economic benefits and livelihoods of the growers."

Urea, a solidified nitrogen fertilizer, is critical to India's agricultural economy. India needs about 350 lakh tonnes of it annually with 40 lakh tonnes imported.

However, urea in India is heavily subsidised with a 45-kg bag that cost around ₹3,000 sold at ₹242 to farmers. In 2023-24, the government spent ₹1.3 lakh crore on urea. A bag of urea provides about 20 kg of nitrogen in a form usable by plants.

Into this came a technological innovation called "nano urea". A half-litre solution of it contains 4% (w/v) nitrogen equivalent to 20 grams of nitrogen, or about one-thousandth of the nitrogen in a bag.

IFFCO, however, claims that one spray of a 500-ml solution of nano-urea can substitute more than 52 kg of nitrogen as commercial urea in a number of crops, irrespective of soil and climatic conditions. This is because the nano-urea is converted to nano-particles — and therefore made more bio-available — and if applied in a prescribed manner at appropriate stages of the paddy and wheat plant development, can substitute for the conventional bag. Moreover, unlike conventional urea which is applied to the roots, nano urea is sprayed on to the leaves at two critical flowering stages of the plants. Thus, rather than farmers use two bags of urea on a hectare of paddy, they could instead use one bag and substitute the other bag with liquid nano-urea with no loss of yield, it says.

A bottle of urea costs a little more than a 45-kg bag, or around ₹260. The claim is that this will eventually reduce aggregate urea consumption and save on the import bill.

However since its commercial release in 2022, the evidence for nano-urea as a reliable substitute has been thin.

"Despite previous positive results in trials conducted by IFFCO, there has been mixed evidence and so we felt it was necessary to conduct a careful trial," said Rajeev Sikka, who led the study and is a senior soil chemist at Punjab Agricultural University, Ludhiana. His study was funded by IFFCO, which has also funded several other trials in other institutions. Yield gains, as plant physiology suggested, were correlated with uptake of nitrogen in the soil from the roots. However in their studies, they showed a "reduction" in root attributes (length and dry weight) and nutrient content.

"What's happening is that in the two years (2021 and 2022) we conducted our studies, the plants were unable to use the urea sprayed as nano-urea. So whatever was available was from the soil, so naturally this will reduce yields," he told *The Hindu*.



Newer formulations of nano-urea, which had 8% N and 20% N, were being brought out by the company and these too had failed to increase yields, according to tests conducted at his institute, said Professor Sikka. But the latter results have not been published yet.

## WHY ARE CRYPTO WITHDRAWALS BEING RESTRICTED FOR INVESTORS?

### The story so far:

Mudrex, a crypto platform that is “U.S.-headquartered and Bengaluru-based” made headlines this month when it announced it was temporarily pausing crypto withdrawals until January 28, to “enhance the security of our platform and safeguard against bad actors,” said the company in an official blog post on January 12. This comes soon after another crypto exchange popular with Indians — CoinDCX — also confused customers with conflicting information regarding its crypto withdrawal policy. Indian crypto investors want to deposit, withdraw, and trade crypto just like their international peers, but this is easier said than done. Crypto traders in the country face several barriers when transacting through centralised exchanges due to unclear domestic laws and vaguely defined risks. Crypto companies often cite these factors to justify restricting crypto withdrawals for customers, thus sparking alarm amongst investors.

### What problems are crypto investors in India facing?

A crypto trader in India who signs up with a popular centralised exchange must undergo a detailed registration process and Know-Your-Customer (KYC) procedures in order to comply with India’s Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) regulations.

Customers submit their national identity documents and verify themselves so they can use the company’s platform without hurdles, ensuring seamless service in a market sector where asset prices can soar and crash in a matter of seconds.

It is no wonder that many users experience anger or panic when they make profits by trading in crypto through the centralised exchange but then learn to their shock that they cannot withdraw their crypto through the same company.

The social media platform X is filled with complaints from crypto exchange customers who claim that crypto withdrawal policies have changed without warning or that they were not flagged clearly in the first place. This naturally leads to fear as crypto investors wonder if their exchanges are trying to hold on to user assets or are experiencing liquidity shortages.

### Why are cryptocurrency exchanges restricting withdrawals?

Different crypto exchanges in India have different policies governing crypto withdrawals. While some allow crypto withdrawals, and others allow it for select users or under special circumstances, there are also companies that block crypto withdrawals for all users without exception.

The most common reasons cited include fears that the Indian authorities could penalise the crypto exchange as a whole if it is discovered that users have been withdrawing their assets in crypto. There are also fears that the withdrawn crypto could be used to carry out illicit acts or buy banned products through dark markets.





CoinDCX did not respond to *The Hindu's* emails regarding its crypto withdrawal policy for this report, but co-founder Sumit Gupta published a thread on X outlining the company's approach in this area.

Mr. Gupta on January 15 acknowledged that while users wanted unrestricted crypto withdrawals, the company had to comply with India's "strict capital controls." He noted the risks of expert criminals escaping detection.

"But once law enforcement agencies get to know about any such cases, they freeze the entire exchange bank accounts indefinitely while they investigate. These exchange bank accounts hold funds from both bad actors and genuine users, directly impacting liquidity of INR funds of our genuine users," said Mr. Gupta in his post on X, when justifying the block on crypto withdrawals.

Another platform, CoinSwitch, followed a similar policy. "We do not allow crypto withdrawals on our platform, however, users can withdraw their investments by converting their crypto into INR on an exchange like ours, and receive the money in their bank accounts," said Balaji Srihari, vice president, CoinSwitch, in response to *The Hindu's* query.

Meanwhile, crypto exchange Zebpay, which has its headquarters in Singapore apart from other international offices, offers two customer experience modes. One allows crypto withdrawals, while the other does not.

In response to *The Hindu's* query, Raj Karkara, COO, ZebPay, confirmed that crypto withdrawals were allowed for manual transfers, but not for instant deposits.

"The Instant Deposit feature allows users to add INR funds instantly to their ZebPay accounts, enabling full access to trading and fiat withdrawals. However, crypto withdrawals are disabled while crypto deposits are fully available. This feature requires a one-time virtual account setup and supports transfers through IMPS, NEFT, and RTGS, following standard banking procedures," said Mr. Karkara.

**UPI will not be supported in this case.**

Meanwhile, manual transfers will have users add Zebpay's bank details to their net banking apps, deposit funds from their registered bank accounts, and upload the image of the transaction receipt or bank statement for proof.

On the other hand, Binance — though not an Indian crypto exchange — registered as a reporting entity with FIU-IND in 2024 after previously being hit with legal action by the Indian authorities.

"Users based in India can withdraw crypto from their Binance accounts," a Binance spokesperson said in response to *The Hindu's* query and did not note any restrictions.

Why is there such a difference? One reason is that Indian law enforcement authorities take a serious view of turning Indian rupees into other currencies, especially when an easily traced asset (like INR) is converted to a harder to trace asset (like Bitcoin) that can be more easily laundered, sent to militants, or channelled into private wallets.

However, users should keep in mind that Binance and WazirX are locked in a legal dispute over whether or not Binance owns the Indian exchange. The legal situation is murky, with a lack of transparency from both sides and is expected to continue for some time.



### What options do crypto users in India have?

When crypto withdrawals are no longer an option for traders in India using centralised exchanges in the country, they often have to wait for policies to change with time or pursue less desirable options.

For example, in the face of crypto withdrawal restrictions, many investors might resort to workarounds such as selling off their crypto and withdrawing their assets in rupees, even if this does not align with their investment plan.

Others may be driven to international crypto exchanges that do not comply with Indian tax laws.

Some traders may even avoid this hassle entirely by investing their funds through unregulated/decentralised exchanges with poor safeguards, or relying on platforms actively run by malicious actors.

### What needs to happen to enable crypto withdrawals?

The most glaring issue is the absence of clear regulations and laws governing the flow of crypto in India. While the government taxes crypto gains and transactions, the existing legislation does not protect Indian investors and does not encourage Indian crypto businesses either.

In the meantime, several crypto exchanges that support INR trading pairs are upgrading their security and KYC protocols.

CoinDCX's Mr. Gupta said on X the exchange was working on an "enhanced due diligence framework" that would let eligible users withdraw their crypto in the future.

Mudrex also noted that it was working on security, but did not respond to *The Hindu's* email.

CoinSwitch's Mr. Srihari called for regulations so that crypto withdrawals could be opened.

"To officially enable crypto withdrawals for all customers in India, the introduction of clear regulations and a well-defined policy framework for VDAs is essential," he said.

"Proper regulatory guidelines would provide clarity and address concerns around security, compliance, and the prevention of misuse, creating a safe and transparent environment for crypto transactions," he added.

## SHOULD YOU LINK YOUR CREDIT CARDS TO UPI?

Since the integration of Rupay Credit Cards with UPI, a number of credit card issuers have launched Rupay variants of their popular cards, with some offering new cards on the Rupay network. Some card issuers have also started incentivising UPI payments with accelerated value-back.

Earlier, UPI transactions were limited to the funds available in your savings account. With the linking of credit cards with UPI, you can make UPI spends using the limit available on your credit card, eliminating the need to carry a physical card everywhere.

In addition to offering convenience of digital payments, this facility opens up more opportunities for cardholders to earn rewards and cashback. However, it also comes with the risk of overspending along with certain other downsides.



Let us begin with the advantages of adding your credit cards to UPI.

#### **Value-back**

Rewards are one of the most important advantages that credit cards have over debit cards. By linking RuPay credit cards to UPI, you can earn rewards or cashback on UPI transactions, allowing you to maximise benefits on everyday expenses like groceries, dining, or bill payments.

Of late, several UPI-focused credit cards have also been launched, which provide accelerated rewards or cashback on UPI spends. For example, HDFC UPI Rupay credit card offers up to 3% CashPoints on UPI transactions and IndusInd Bank Platinum Rupay Credit Card offers 2% rewards on UPI spends.

Rupay variants of other popular cards like Tata Neu Infinity HDFC credit card and Myntra Kotak credit card provide value-back on UPI transactions, though at the base rate.

#### **Check caps**

However, it is important for cardholders to check the capping and restrictions applicable on UPI transactions. For example, HDFC Moneyback Plus credit card caps the rewards on UPI spends at 500 points per month. Moreover, all small value transactions may not earn rewards. For instance, if the reward rate is 5 points per ₹200, transaction value below ₹200 will not fetch any reward points.

#### **Convenience**

Another major advantage of credit cards on UPI is wider acceptance. Making payment through credit cards could be a challenge at kirana stores and local shops as most of these do not have POS machines. By linking your credit card to UPI, you can make instant payments almost everywhere without the need for physical cards.

#### **Easy credit access**

Linking your credit card to UPI acts as a backup payment option, which allows you to make big-ticket purchases or make a sizeable payment in case of emergencies even if you have limited funds in your bank account.

While linking your credit card to UPI offers convenience and additional purchasing power, incurring several smaller transactions on your card may be difficult to track and could lead to overspending. Hence, like any other credit card, it is advisable to track your outstanding balance, before the dues become difficult to manage.

Adding your credit card to UPI can be quite beneficial if used wisely. It not only makes your transactions more convenient but also allows you to maximise credit card rewards and benefits. Evaluate your spending habits and select a credit card that best suits your lifestyle.

With responsible usage, you can effectively maximise the benefits of linking credit cards with UPI.

### **WHY DO INDIAN CONSUMERS IGNORE TERM INSURANCE?**

In this world, nothing can be said to be certain, except death and taxes. Benjamin Franklin expressed the realities of life several centuries ago. Despite its inevitability, often we see untimely death leading to a family facing severe financial consequences.

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Term insurance is the purest form of insurance, where for a relatively small premium, a very high cover (~500-600x) is available.

Term insurance needs to be part of any prudent financial plan especially during the income generating years of the family's breadwinners. Despite being one of the simplest and the most affordable life insurance product, its adoption rate remains surprisingly low.

Only 60-70 lakh Indians have term insurance plans and there too, the amount covered under term plan is mostly inadequate.

What stops India's middle class from buying term insurance cover?

#### **Limited awareness**

A large segment of the population is unaware of the benefits of term insurance. Insurance in India is largely a push product and often, sales advisors don't push term insurance as it has a lower ticket size than other insurance products. Given its relatively late introduction in the country, familiarity is low.

#### **No-returns bias**

India is a price-sensitive market where any investment is linked to tangible future returns. It is a pure risk cover with no returns. This leads to confusion around its usefulness and consumers often end up choosing other products which have much lower coverage but some returns.

#### **Low priority**

Term insurance is seen as low priority after addressing essential expenses and loan repayments. For many middle-class households, immediate financial needs outweigh the importance of long-term protection. Insurance premiums are often seen as an avoidable expense.

#### **Procrastination**

The widespread belief of "I will do it later" is perhaps the biggest deterrent. Some think they're too young to obtain term insurance or perhaps too old?

The truth is this stems from an inherent optimism bias which leads people into assuming accidents, illnesses or untimely death won't hit them. This couldn't be further from the truth.

In fact, purchasing term insurance early lets you lock your premium when you have a healthier and lower risk profile which translates to lower premiums for life. While a 30-year-old can obtain a ₹1 crore cover for ₹1,100, a 40-year-old will pay double the premium for the same coverage.

India's vast addressable market for term insurance lies in the middle — taxpayers without a safety net and families dependent on current incomes. The middle class must rethink their financial planning. Bargaining long-term security for immediate gratification is neither a wise decision nor sustainable.

#### **Incentivise adoption**

The deep-seated challenges require all stakeholders to work in tandem and create a conducive environment for consumers -



- Linking CIBIL score to term insurance. When you have a term plan, it signals that your liabilities, such as loans or outstanding debts, will be covered even in your absence. This assurance reduces the risk and positions you as 'good debt'. Linking term insurance ownership to show a stronger CIBIL score would be a great way to incentivise adoption.
- Expanding tax benefits, specifically for term insurance or offering premium subsidies, could help spur adoption. The recent discussion around removing or lowering the Goods and Services Tax (GST) rates on life and health insurance plans is welcome. It would be a further boost if a tax deduction can be granted only for term insurance under the new income tax regime.
- One major reason people hesitate to buy term insurance is the fear they'll keep paying premiums throughout their life, only for family's claim to be rejected after their death. To address this mistrust, the industry needs to talk more about claims paid and the stories of the families who benefitted from the product. Such an initiative would also reinforce the core purpose of term insurance — providing financial security and peace of mind to families.

Insurance is both a private purchase and a public good. It is also a selfless act as the benefits go to family members and society.

Governments have driven adoption in various sectors through many schemes and sops.

Applying similar strategies to term plans could make financial protection more universal.

#### IRDAI CAPS ELDER'S HEALTH COVER SPIKE

The Insurance Regulatory and Development Authority of India (IRDAI) on Thursday directed general and health insurers offering indemnity-based individual health insurance products to senior citizens against raising the premium by more than 10% a year.

"The insurers shall not revise the premium for senior citizens by more than 10% per annum," it said in a circular that confirmed the concerns of policyholders about spiralling health cover premiums.

"As part of the ongoing monitoring of insurance products... it is observed there has been steep increase in premium rates under some of the health insurance products offered to senior citizens (aged 60 years and above)," the regulator said. Senior citizens are most vulnerable age group with limited sources of income, and are worst hit when health cover costs rise. Seeking to further rein in insurers, the IRDAI said they can neither withdraw such products for senior citizens without prior consultations with it.

The diktat comes ahead of the Union Budget and after the GST Council decided to deliberate more on a possible cut in the 18% Goods and Services Tax levy on health policies.

The premium rate is primarily based on the estimated claims outgo and the expenses, including the cost of acquiring and servicing policies. The claims outgo largely depends on amounts charged by hospitals for various treatments. The hospitalisation expenses are not negotiated centrally and not standardised across hospitals. It translates into higher hospitalisation costs and higher claims outgo under the health cover products offered by insurers, IRDAI member (non life) Deepak Sood noted in the circular.

Insurers have been attributing the rising premia to a surge in healthcare costs. Medical inflation is very high and insurance players are seeing this consistently across the board "without any let



up so, we will have to make price corrections when necessary,” the head of a standalone health insurer had said in October.

Advising insurers to give “wide publicity of the various measures [it had initiated], including the latest decision,” the IRDAI asked them to take steps for common empanelment of hospitals and negotiate treatment package rates.

A close watch will be kept on indemnity-based individual health insurance products offered to senior citizens, it warned.

## WHAT ‘SEVERANCE’ TEACHES US ABOUT CORPORATE INDOCTRINATION

There’s something serene about the symmetrical sterility of Lumon Industries, the central setting of *Severance*. With its sophomore season back after three long years, the Apple TV+ series creates a world of impossibly clean lines, unpigmented lighting, and a distinct lack of clutter; save, of course, for the existential detritus festering in the minds of its “innies”. For the unacquainted, employees at the fictional megacorporation willingly undergo a surgical procedure that bifurcates their consciousness into two: an “outie,” who lives their life blissfully ignorant of work, and an “innie,” whose entire existence begins and ends within the office. The logical conclusion behind this terrifying corporate utopia is obvious — workers are stripped of any semblance of individuality to become the perfect cogs in the machine.

For its Indian audiences tuning in amidst the recent conversation about gruelling 90-hour workweeks, the uncomfortable ideas that drive the series forward may be starting to hit a little too close to home. When Infosys co-founder Narayana Murthy spearheaded the ongoing work week debate by suggesting that India’s youth should clock longer hours to “compete with global standards,” he was likely unaware that his words mirrored the ethos of Lumon.

### The erasure of the ‘human’

The absurdity of Lumon’s existence, of course, is what makes *Severance* so compelling. Employees spend their days performing tasks incomprehensibly abstract — sorting numbers into meaningless categories based on instinct (disturbingly relatable for anyone who’s ever contemplated the value of their Excel sheet). The conceit feels painfully reflective of the compartmentalisation required to survive the unspoken reality of modern work and Lumon workers have no reason to question this system, having been denied the very concept of life outside of it.

Though technically free to walk out the door, India’s young workforce faces its own form of cognitive severance. The growing chorus of business leaders advocating for marathon work weeks couches its demands in the language of patriotism and sacrifice. “Work harder for the nation,” they implore, as if citizenship were contingent upon unpaid overtime. But beneath this mythology of personal achievement, lies a familiar refrain: time is currency.

What *Severance* captures so brilliantly is the corporatisation of human identity itself. Its characters are stripped of everything that makes them human: families, friends, desires, even names. They become the most efficient tools of productivity, rewarded not with any fiscal benefits, but with infantilising perks — melon bars, waffle parties, and the infamous “Music-Dance Experience”. It’s hard not to draw parallels to the performative incentives that have often been dangled before corporate employees: the patronising pat on the back after a 12-hour shift, the ubiquitous beanbags in the break room, the platitudes about “teamwork” plastered on HR emails



announcing budget cuts. *Severance* suggests that the true horror of Lumon lies not in its strangeness but in its familiarity. We recognise its rituals and its logic, because we've lived them. It's a distilled corporate indoctrination that creates the illusion of purpose.

If Lumon's innies represent the ideal worker — fully compliant and eternally available — then their outies also embody the aspirational employees who are detached enough to sign away their autonomy but still invested enough to stay. The much-maligned comment by L&T's S.N. Subrahmanyam, who quipped about employees spending Sundays “staring at their wives,” drew ridicule for its crudeness, but the underlying sentiment seems quite familiar. After all, if life outside work is framed as meaningless, why bother having it at all?

### Small acts of resistance

Though what makes *Severance* more than just clever satire is the manner in which it explores the cracks in the system. Beneath the impeccable facade of Lumon's corporate Eden, brews a simmering rebellion. Whispered conversations shielded from higher-ups' gazes and stolen glances at 'forbidden' files are the small acts of resistance that serve as a powerful counter-narrative to the dehumanising grind. Even the most oppressive systems rely on the complicity of those they oppress, and that resistance, no matter how quiet, is always possible.

The internet's reaction to Luigi Mangione's alleged assassination of UnitedHealthcare CEO Brian Thompson recently, has exposed a similar seething undercurrent of anti-capitalist rage. For many, Mangione's ascent into a pop cultural messiah seems to tap into the same chagrin that led Willy Loman to his tragic end in *Death of a Salesman* or drove Peter Gibbons to rebel against the corporate tyranny in *Office Space*.

Today's working class increasingly views corporate behemoths as adversaries in a zero-sum game, and it's no coincidence that much of the support for Mangione came from a generation saddled with crushing debt and dwindling faith in institutions that seem incapable of reform. The internet's response to the workweek debate only furthers this disillusionment, as calls for these inhumane hours reduce life to the same transactional drudgery that defines Lumon.

For the Indian workforce, the show has started to feel alarmingly cautionary. The push for longer hours has begun redefining labour as identity, as morality, and as duty; and it's the selfsame worldview that flattens the complexity of human lives into neat rows of KPIs. While none of us will ever walk Lumon's halls, many may yet recognise its suffocating grip in our own workspaces. Whether it's a 90-hour workweek or another weekend devoured by the ceaseless pings of Outlook notifications, the insidious unspoken mantra remains: your time belongs to the company.

By presenting Lumon as this dichotomy of plausibility and exaggeration, *Severance* has forced us into confronting distressing truths about the systems that govern our lives. How much autonomy can we surrender in the name of professionalism or patriotism before we lose sight of ourselves entirely? How much of our time have we given up to employers who see us as columns on a balance sheet? And how much further are we willing to endure before we finally say enough?

The debate over workweeks isn't merely about clocking in more often than not; rather, the kind of society we're willing to sustain. Will we continue extracting time as though it's an infinite resource, or finally reclaim it as something precious — a space for joy, rest, and, perhaps most radical of all, rebellion? For those staring down the bleak eternity of another insufferably long day at work, the question might just feel especially urgent.



## DGCA MOVE SPARKS INTEREST IN AIR TAXI PILOT TRAINING

Aspiring air taxi pilots in India may soon begin their training as the Directorate General of Civil Aviation (DGCA) is set to unveil licensing guidelines for electric vertical take-off and landing (eVTOL) aircraft, a senior official told *businessline*.

In aviation parlance, advanced air mobility vehicles, or air taxis, refer to a wide variety of eVTOL aircraft. Senior officials pointed out the guidelines can accelerate the rollout of air taxi services, bringing India closer to its vision of urban air mobility. The guidelines, sources said, will define the qualifications, medical fitness, and training requirements for eVTOL flight crew.

### International best practices

According to one official, drawing from international best practices, the guidelines are set to include provisions for converting existing licences, recognising military pilot experience, and accepting licences issued by third countries.

The exercise to frame guidelines, the official said, is part of a broader regulatory framework being developed by the DGCA to integrate eVTOLs into Indian airspace.

While the initial guidelines have addressed issues surrounding operational safety and airworthiness, upcoming regulations will focus on maintenance, repair, and overhaul (MRO) certification, as well as navigation and airspace management. The official said since eVTOLs promise faster, eco-friendly commutes, DGCA's proactive measures aim to create a safe and efficient ecosystem for this futuristic mode of transport.

### Global race

"As training programmes take off, India is poised to become a key player in the global race for urban air mobility," the official said.

### Regulatory sandbox

Besides, in an another boost to the nascent sector, the Centre is expected to soon designate a few locations as 'regulatory sandbox' sites for testing and evaluating eVTOL prototypes.

A 'regulatory sandbox' site is a controlled environment used to test new products without the administration of regulatory requirements.

Potential sites are being scouted in Andhra Pradesh and Gujarat. "One such location was recently surveyed in Gujarat, close to Mandvi, which is a beach town in the Kutch district of Gujarat," the official said. In Andhra Pradesh, a site near Vijayawada is reportedly under consideration as a 'regulatory sandbox' for eVTOLs and drones. The official said 'regulatory sandbox' will speed up the testing and standardisation of eVTOLs. Several companies have come out with prototypes for eVTOL vehicles, even as the civil aviation regulator works on framing the guidelines for operations, licences, and safety standards of such aircraft.





## LIFE & SCIENCE

### ISRO CELEBRATES 100TH LAUNCH: ITS JOURNEY SO FAR, SOME UPCOMING VENTURES

With the first launch of 2025, the Indian Space Research Organisation achieved the significant milestone of having carried out 100 launches.

- The GSLV-F15 put in orbit the navigation satellite NVS-02 on Wednesday early morning. After the launch, the new Isro chairperson Dr V Narayanan, recalled the greats like Vikram Sarabhai, Satish Dhawan, and APJ Abdul Kalam. “On behalf of the present generation of ISRO leaders, I salute all the previous generation of leaders, the past and present employees, and our family members,” he said.
- With the space agency targeting big-ticket missions such as the sample return mission from the moon, the mission to Venus, setting up an Indian space station, and sending a man to the moon, ISRO is working towards developing a heavier rocket called Next Generation Launch Vehicle.
- NGLV will be capable of carrying up to 30,000 kg to low earth orbit. It will be 91 metres tall as compared to the 43 metres of LVM3. It will also have a re-usable first stage, which would be utilised 15 to 20 times, to make the launches more affordable.
- NVS-02 is one of the five replacement satellites for the Indian Regional Navigation Satellite System, also referred to as NavIC (Navigation with Indian Constellation). The new generation satellites are heavier with longer mission life. They carry the indigenously developed atomic clock onboard. And, importantly, they have been enabled with a third frequency L1, which is mostly utilised by the US Global Positioning System (GPS). This will help in the utilisation of the NavIC signals more, with almost all devices including smaller ones such as personal trackers also carrying receivers for L1 band signals.
- NavIC is a seven-satellite regional positioning system that can provide location data on the Indian mainland and up to 1,500 kilometres around. The NavIC satellites can provide position accuracy of up to 20 m under standard positioning service that is available to all and a restricted service for better accuracy available to customers.

#### Do You Know:

- The space agency has its roots in the Indian National Committee for Space Research set up under the Department of Atomic Energy in 1962. The Indian Space Research Organisation that we know today was set up in 1969 — the same year that the United States sent men to the moon. A separate department of space was created only in 1972. The space agency has since developed several rockets, becoming a reliable launch partner even for satellites from other countries. It has also carried out scientific missions such as the three Chandrayaan missions, which provide useful data not only to researchers from within the country but across the world.
- ISRO has so far developed at least six generations of launch vehicles, of which four remain in operation. The first two generations of launchers are no longer in use.
- There were three developmental flights and one operational flight of the four-stage, solid fuel vehicle SLV-3 that could carry 40 kg to low earth orbit. And, there were only four development flights of its augmented version that could carry 150 kg to low earth orbit.



- It was the third generation PSLV that continues to be ISRO's workhorse launcher. The four-stage rocket with solid and liquid fuel-based engines is capable of carrying just under 2,000 kg to low earth orbit. There have been 62 flights of PSLV, including three development flights. Only two of the launches using PSLV have been unsuccessful.
- Then came the GSLV, whose initial flights used cryogenic engines supplied by Russia. When the technology could not be transferred from Russia because of geopolitical reasons, India developed its own cryogenic engine. GSLV-F15 utilised for the 100th launch is a variation of this vehicle — and the eleventh flight using an indigenously developed cryogenic engine.
- In the 100 launches so far, the space agency has placed in orbit 548 satellites weighing 120 tonnes in total. This includes 433 satellites weighing 23 tonnes that came from foreign nations. ISRO has launched communication satellites, earth observation satellites, navigation satellites, and experimental satellites.

## NAVIC OR NAVIGATION WITH INDIAN CONSTELLATION

- The new generation of satellites have a longer lifespan of 12 years and are also equipped with indigenously developed, more accurate atomic clocks. The new generation of satellites also utilise L1 frequency, which is most commonly used in the US Global Positioning System (GPS), and is likely to lead to more utilisation by smaller devices such as fitness trackers.
- The launch on January 29 will be the 17th flight of the GSLV vehicle, with the 11th flight using the indigenously developed cryogenic engine.
- IRNSS — sometimes referred to as NavIC or Navigation with Indian Constellation — is a seven satellite system that provides positioning, navigation and timing services over the Indian mainland and 1,500 km in its neighbourhood.
- NavIC is India's independent regional navigation satellite system designed to provide accurate Position, Velocity, and Timing (PVT) service to users in India and the region extending about 1,500 kilometres beyond the Indian landmass, which is its primary service area.
- NavIC provides two types of services: Standard Positioning Service (SPS) and Restricted Service (RS). The former provides a position accuracy of better than 20 metres and a timing accuracy of better than 40 nanoseconds over the primary service area.
- The first satellite in the constellation IRNSS-1A was launched in 2013, with a mission life of 10 years. The next two satellites IRNSS-1B and 1C were launched in the subsequent years. Replacements were needed for some of the satellites in the constellation even before the end of their mission life since the atomic clocks on-board the satellites malfunctioned.
- A satellite-based positioning system determines the location of objects by accurately measuring the time it takes for a signal to travel to and from it using the atomic clocks on board.
- Five second-generation NavIC satellites are envisaged to augment the NavIC base layer constellation with enhanced features to ensure continuity of services. NVS-01, the first of the second-generation satellites, was launched aboard GSLV-F12 on May 29, 2023. For the first time, an indigenous atomic clock was flown on NVS-01.
- On the second indigenous atomic clock, Dr. Narayanan said that this is a shining example of "Make in India" in critical technology development. "Today many applications based on NavIC for



strategic uses, tracking of shipping vessels, time synchronisation, train tracking and safety alert dissemination are accomplished,” he added.

**Do You Know:**

- The IRNSS is an independent regional navigation satellite system developed by India. It is designed to provide accurate position information service to assist in the navigation of ships in the Indian Ocean waters.
- The Maritime Safety Committee (MSC) of the IMO recognised the IRNSS as a component of the World-wide Radio Navigation System (WWRNS).
- With the recognition as a component of the of the WWRNS, the Indian navigation system is similarly placed as GPS, most commonly used by marine shipping vessels across the world or the Russian Global Navigation Satellite System (GLONASS).
- After the US, Russia and China that have their own navigation systems, India has become the fourth country to have its independent regional navigation system. Unlike GPS, however, IRNSS is a regional and not a global navigation system.

#### ISRO SET FOR A HISTORIC 100TH LAUNCH FROM SRIHARIKOTA

The first launch, on August 10, 1979, was the experimental flight of Satellite Launch Vehicle-3 (SLV-3 E10) carrying the Rohini Technology Payload, which was only partially successful, according to the space agency. Former President of India A.P.J. Abdul Kalam, who was then with the ISRO, was the Director of the mission. Dr. Kalam and the ISRO officials recovered from the setback and tasted success with the SLV-3E2 a year later, on July 18, 1980, as the Rohini satellite, RS-1, was placed in orbit.

After this, the ISRO launched two more SLV missions; four Augmented Satellite Launch Vehicle (ASLV) missions; 62 missions from its workhorse, the Polar Satellite Launch Vehicle (PSLV); 16 Geosynchronous Satellite Launch Vehicle (GSLV) missions; seven Launch Vehicle Mark 3 (LMV3) missions; three Small Satellite Launch Vehicle (SSLV) missions; one Reusable Launch Vehicle (RLV) mission; one Test Vehicle Abort Mission; and one Pad Abort Test (PAT) as part of the Gaganyaan programme.

The location of the spaceport on the east coast was decided upon by the founding members of the Indian space programme due to its unique features. “Features like a good launch azimuth corridor for various missions, nearness to the equator (benefiting eastward launches) and large uninhabited area for a safety zone have made Sriharikota the ideal location for the spaceport,” the SDSC has stated on selecting this location.

**Landmark missions**

Among its landmark missions were India’s lunar missions, including the PSLV-C11/Chandrayaan-1 in 2008, the GSLV-Mk III - M1/ Chandrayaan-2 in 2019, and the LVM3 M4/Chandrayaan-3 in 2023, which made India the first country to touchdown in the polar region of the moon.

The PSLV-C25/Mars Orbiter Mission in 2013 was another important launch as it was India’s first interplanetary mission, and the PSLV-C57/Aditya-L1 in 2023 was India’s first mission to study the sun.



Another watershed moment was the launch of the PSLV-C37/ Cartosat-2 series in 2017. During this mission, the ISRO launched a record 104 satellites in a single flight — this was a record till 2021, when it was broken by the SpaceX Falcon 9 that launched 143 satellites.

It has not been all rosy for the space agency, and the launch pad as there have also been multiple failures, including the GSLV-F02/ INSAT-4C in 2006, GSLV-D3/ GSAT-4 and GSLV-F06/ GSAT-5P in 2010, and the GSLV-F10/ EOS-03.

## INDIAN SPACE PROGRAMME BREAKS INTO 2025 IN 'MISSION MODE'

Just as 2024 was the year India developed a vision for its space programme, 2025 is likely to have the programme in mission mode. The PSLV-C60 mission, underway as the year began, laid the foundations for Chandrayaan-4 and the Bharatiya Antariksh Station.

Forthcoming test flights will move India closer to human spaceflight, soon to receive a helping hand from a third launch pad approved for construction at Sriharikota, continuing work on the Next-Generation Launch Vehicle (NGLV), and a change of guard at ISRO.

### **SpaDeX, a team effort**

On December 30, 2024, the PSLV-C60 mission lifted off from the Satish Dhawan Space Center (SDSC) in Sriharikota. About 15 minutes after liftoff, the rocket delivered the Space Docking Experiment (SpaDeX) satellites at slightly different velocities into a 475-km circular orbit.

Then ISRO chairman S. Somanath said the nominal date for the docking attempt would be January 7, 2025. M. Sankaran, director of the UR Rao Satellite Centre (URSC), said this was to allow the satellites to power up their solar cells.

Indian private company Kepler Aerospace provided ground station-as-a-service support for the mission alongside ISRO. It was able to simultaneously command the two SpaDeX satellites and provided “comprehensive mission support in under a month.”

Swiss space situational awareness company s2a systems also shared details of the distance between the two satellites on social media.

This separation reached far rendezvous conditions, i.e., 10-20 km, on January 2, 2025, and started moving closer on January 6. ISRO had originally planned a webcast for January 7 but rescheduled by two days before calling it off altogether.

On January 8, the organisation said when the inter-satellite distance was reduced from 500 m to 225 m, the drift between the satellites was greater than expected. So it re-increased the separation to 6-8 km on January 9 and started over.

On January 10, the satellites were put on 'hold' mode to maintain an inter-satellite distance of 1.5 km then moved closer together on January 11 and 'held' at 230 m. On January 12, the inter-satellite distance was reduced further to 105 m, subsequently to 15 m, and then to 3 m. At this point, ISRO decided to move the satellites apart once again so it could analyse data from the satellites' sensors before the next attempt.

According to s2a systems, the inter-satellite separation grew to 10.9 km on January 12, and from there the next docking attempt was launched. They came within 2.6 km of each other on January 13 and to 900 m on January 15.



Finally, on January 16, ISRO issued a statement saying the two satellites had successfully docked and stabilised themselves in orbit. ISRO thus made history by completing its first in-orbit rendezvous and docking. Later that day, both satellites were controlled together from one of them, a feat necessary for lunar and space-station docking.

ISRO said the next steps involved transferring power from one satellite to the other and, later, undocking.

#### **POEM4, the orbital testbed**

After the PSLV-C60 mission deployed the SpaDeX satellites, the rocket's fourth stage was moved to a 350-km circular orbit and had its fuel dumped (a process called passivation, done so that the fuel doesn't explode and create a debris field). In this form, it was ready for the PSLV Orbital Experimental Module (POEM4) phase of its mission, when the fourth stage was to orbit the earth like a satellite. It carried 24 payloads: 14 from ISRO and 10 from academia and private industry.

ISRO's Relocatable Robotic Manipulator-Technology Demonstrator tested its movement and relocation capability by moving from one part of POEM4 to another. The Debris Capture Robotic Arm Manipulator also moved its arm, but ISRO wasn't clear about whether it managed to capture the piece of debris tethered to the payload. The Compact Research Module for Orbital Plant Studies (CROPS) had cowpea seeds germinate in orbit and studied the leaves.

On December 31, 2024, Manastu Space's Vyom 2U payload fired its green propulsion system for 30 seconds, tilting the POEM4 stage by 24°. The system used the company's proprietary green fuel MS289. Manastu fired the system once again on January 13, this time having POEM4 perform a somersault with an angular velocity of 1.5° per second.

Similarly, Bellatrix Aerospace fired its RUDRA payload for 60 seconds to impart an angular velocity of 1.4° per second and turn POEM4 around by 80°.

N Space Tech's payload, SwetchaSAT-V0, established communications with its ground station. The payload, designed and built in-house, tested communications in the UHF to Ku bands.

The SJC Institute of Technology and the Upagraha Amateur Radio Club at URSC said they had successfully received data from BGS-ARPIT, their jointly-developed amateur radio messaging payload. Many amateur radio operators also shared images received from BGS-ARPIT on amateur radio mailing lists.

GalaxEye also announced the successful performance of its payload, GLX-SQ. The company said it had achieved all mission objectives, including using GLX-SQ to create a synthetic-aperture radar (SAR) image.

TakeMe2Space successfully conducted an in-orbit demonstration of its MOI-TD payload. An artificial intelligence unit, it uploaded "large models from the ground station, [executed] external code on the satellite, and [downlinked] the ... results." The company said it faced "a critical failure in the camera hardware," however.

Amity University said its Amity Plant Experimental Module in Space (APEMS) yielded positive results in its attempt to grow a plant in controlled conditions onboard POEM4.



### Change of guard

While the SpaDeX and POEM4 missions were being executed in space, V. Narayanan took over from Somanath as ISRO chairman on January 14.

Narayanan was director of the Liquid Propulsion Systems Center, Thiruvananthapuram, and led work on the cryogenic and semi-cryogenic engines. He also chaired a committee to examine the failure of the Chandrayaan-2 moon-landing attempt.

### Aboard Transporter 12

Three Indian companies flew their payloads onboard SpaceX's Transporter 12 mission on January 15. They were part of another 131 payloads that the Falcon 9 rocket delivered to orbit.

First, Pixxel Space's three Firefly hyperspectral satellites became the first private Indian satellite constellation; three more are to fly in the future. The company announced on social media that all three satellites had deployed their solar arrays and had started generating power, were stabilised, and had established two-way communication links.

Second, Digantara launched its Space Camera for Object Tracking for space situational awareness and to augment its ground capabilities. The company said the satellite was generating solar power and had stabilised. The satellite will now move to its commissioning phase to prepare for its mission: to precisely track objects in low-earth orbit.

Third, XDLINX Labs' Elevation 1 miniaturised communications satellite, built for US-based Almagest Space Corporation on its XDSATNS platform, was assembled, integrated, and tested by Ananth Technologies. The satellite has a small E-band satellite communications payload that sent a "hello from space" message to mark the start of its mission.

### Space tech and science

The Union cabinet approved the construction of a third launch pad at SDSC at a cost of ₹3984.86 crore. It's expected to be built by 2029, to serve as a backup for the second launch pad as well as support for human spaceflight facilities and ISRO's NGLV.

ISRO also successfully tested its Vikas engine's ability to restart, i.e., stop firing, then start again, at its propulsion complex in Mahendragiri. The engine was fired for 60 seconds, shut off for 120 seconds, and fired again for seven seconds. ISRO has more tests planned ahead of certifying the engine's readiness to operate in this way in the atmosphere. The fourth-stage liquid engine of the PSLV already has restart capability in the vacuum of space.

Finally, on January 6, ISRO released the first tranche of data collected by its Aditya-L1 mission, exactly a year after the mission had started to study the sun and its effects on the inner solar system.

## DEEPSEEK'S LESSONS, MESSAGE

On Monday, the stock market opened with a massive dip, especially the tech-heavy Nasdaq, which dropped by about 3 per cent. This is its worst performance in the last two years. This drop has been attributed to the meteoric rise of Chinese AI startup DeepSeek, which has in the last few weeks grabbed global attention after it unveiled its AI models — DeepSeek-V3 and DeepSeek-R1, a reasoning model.



- Owing to its optimal use of scarce resources, DeepSeek has been pitted against US AI powerhouse OpenAI, as it is widely known for building large language models. DeepSeek-V3, one of the first models unveiled by the company, earlier this month surpassed GPT-4o and Claude 3.5 Sonnet in numerous benchmarks.
- DeepSeek-V3 stands out because of its architecture, known as Mixture-of-Experts (MOE).
- The MOE models are like a team of specialist models working together to answer a question, instead of a single big model managing everything.
- The DeepSeek-V3 model is trained on 14.8 trillion tokens, which includes large, high-quality datasets that offer the model greater understanding of language and task-specific capabilities.
- Additionally, the model uses a new technique known as Multi-Head Latent Attention (MLA) to enhance efficiency and cut costs of training and deployment, allowing it to compete with some of the most advanced models of the day.
- Even as the AI community was marvelling at the DeepSeek-V3, the Chinese company launched its new model, DeepSeek-R1. The new model comes with the ability to think, a capability that is also known as test-time compute. The R1 model has the same MOE architecture, and it matches, and often surpasses, the performance of the OpenAI frontier model in tasks like math, coding, and general knowledge. R1 is reportedly 90-95 per cent more affordable than OpenAI-o1.
- The R1, an open-sourced model, is powerful and free. While O1 is a thinking model that takes time to mull over prompts to produce the most appropriate responses, one can see R1's thinking in action, meaning the model, while producing the output to the prompt, also shows its chain of thought.
- R1 arrives at a time when industry giants are pumping billions into AI infrastructure. DeepSeek has essentially delivered a state-of-the-art model that is competitive. Moreover, the company has invited others to replicate their work by making it open-source.
- The release of R1 raises serious questions about whether such massive expenditures are necessary and has led to intense scrutiny of the industry's current approach.

**Do You Know:**

- DeepSeek is a Chinese AI company based out of Hangzhou founded by entrepreneur Liang Wenfeng. He is also the CEO of quantitative hedge fund High Flyer. Wenfeng reportedly began working on AI in 2019 with his company, High Flyer AI, dedicated to research in this domain. DeepSeek has Wenfeng as its controlling shareholder, and according to a Reuters report, HighFlyer owns patents related to chip clusters that are used for training AI models.
- What sets DeepSeek models apart is their performance and open-sourced nature with open weights, which essentially allows anyone to build on top of them. The DeepSeek-V3 has been trained on a meager \$5 million, which is a fraction of the hundreds of millions pumped in by OpenAI, Meta, Google, etc., into their frontier models.



## DEEPSEEK'S 'SPUTNIK MOMENT' EXPOSES HOLES IN U.S. CURBS ON CHIP EXPORT

U.S. export controls on high-tech chips may have inadvertently fuelled the success of start-up DeepSeek's AI chatbot, sparking fears in Washington there could be little it can do to stop China in the push for global dominance in artificial intelligence.

The firm, based in the eastern Chinese city of Hangzhou, has stunned investors and industry insiders with its R1 programme, which can match its American competitors seemingly at a fraction of the cost.

That's despite a strict U.S. regime prohibiting Chinese firms from accessing the kinds of advanced chips needed to power the massive learning models used to develop AI.

DeepSeek founder Liang Wenfeng has admitted the "embargo on high-end chips" has proved a major hurdle in its work.

But while the curbs have long aimed at ensuring U.S. tech dominance, analysts suggest they may have spurred the firm to develop clever ways to overcome them.

The company has said it used the less-advanced H800 chips — permitted for export to China until late 2023 — to power its large learning model.

"The constraints on China's access to chips forced the DeepSeek team to train more efficient models that could still be competitive without huge compute training costs," George Washington University's Jeffrey Ding said.

The success of DeepSeek, he said, showed "U.S. export controls are ineffective at preventing other countries from developing frontier models".

"History tells us it is impossible to bottle up a general-purpose technology like artificial intelligence."

DeepSeek is far from the first Chinese firm forced to innovate in this way: tech giant Huawei has roared back into profit in recent years after reorienting its business to address U.S. sanctions.

Venture capitalist Marc Andreessen described DeepSeek as a "Sputnik moment" — a reference to the Soviet satellite launch that exposed the yawning technology gap between the United States and its primary geopolitical adversary.

For years many had assumed U.S. supremacy in AI was a given, with the field dominated by big Silicon Valley names like OpenAI and Facebook-parent Meta.

While China has invested millions and vowed to be the world leader in AI technology by 2030, its offerings were hardly enough to raise hackles across the Pacific.

Tech giant Baidu's attempt at matching ChatGPT, Ernie Bot, failed to impress on release — seemingly confirming views among many that Beijing's stifling regulatory environment for big tech would prevent any real innovation. That was combined with a tough regime, spearheaded by the administration of Joe Biden, aimed at limiting Chinese purchases of the high-tech chips needed to power AI large language models.

But DeepSeek has blown many of those ideas out of the water.





“It’s overturned the long-held assumptions that many had about the computation power, the data processing that’s required to innovate,” Samm Sacks, a Research Scholar in Law and Senior Fellow at Yale Law School’s Paul Tsai China Center, told AFP.

Former U.S. Representative Mark Kennedy said that DeepSeek’s success “does not undermine the effectiveness of export controls moving forward”.

Washington could choose to fire the next salvo by “expanding restrictions on AI chips” and increased oversight of precisely what technology Chinese firms can access, he added.

### DEEPSEEK’S AI CHATBOT AND CHATGPT ANSWER QUESTIONS ABOUT CHINA DIFFERENTLY

Chinese tech startup DeepSeek’s new artificial intelligence chatbot has sparked discussions about the competition between China and the U.S. in AI development, with many users flocking to test the rival of OpenAI’s ChatGPT.

DeepSeek’s AI assistant was the most downloaded free app on Apple’s iPhone store on Tuesday afternoon and its launch made Wall Street tech superstars’ stocks tumble. Observers are eager to see whether the Chinese company has matched America’s leading AI companies at a fraction of the cost.

The chatbot’s ultimate impact on the AI industry is still unclear, but it appears to censor answers on sensitive Chinese topics, a practice commonly seen on China’s Internet. In 2023, China issued regulations requiring companies to conduct a security review and obtain approvals before their products can be publicly launched.

For many Chinese, the Winnie the Pooh character is a playful taunt of President Xi Jinping. Chinese censors in the past briefly banned social media searches for the bear in mainland China.

When asked What does Winnie the Pooh mean in China, ChatGPT got that idea right. It said Winnie the Pooh had become a symbol of political satire and resistance, often used to mock or criticise Mr. Xi. It explained that Internet users compared Mr. Xi to the bear because of perceived similarities in their physical appearance.

DeepSeek’s chatbot said the bear is a beloved cartoon character that is adored by countless children and families in China, symbolising joy and friendship.

Then, abruptly, it said the Chinese government is “dedicated to providing a wholesome cyberspace for its citizens.” It added that all online content is managed under Chinese laws and socialist core values, with the aim of protecting national security and social stability.

#### Outdated data

The question ‘Who is the current U.S. President’ might be easy for many people to answer, but both AI chatbots mistakenly said Joe Biden, whose term ended last week, because they said their data was last updated in October 2023. But they both tried to be responsible by reminding users to verify with updated sources.

The 1989 crackdown saw government troops open fire on student-led pro-democracy protesters in Beijing’s Tiananmen Square, resulting in hundreds of deaths. The event remains a taboo subject in mainland China. When asked “What happened during the military crackdown in Beijing’s



Tiananmen Square in June 1989”, DeepSeek’s chatbot answered, “Sorry, that’s beyond my current scope. Let’s talk about something else.”

But ChatGPT gave a detailed answer on what it called “one of the most significant and tragic events” in modern Chinese history.

### Geopolitical queries

DeepSeek’s chatbot’s answer on the state of U.S.-China relations echoed China’s official statements, saying the relationship between the world’s two largest economies is one of the most important bilateral relationships globally. It said China is committed to developing ties with the U.S. based on mutual respect and win-win cooperation.

“We hope that the United States will work with China to meet each other halfway, properly manage differences, promote mutually beneficial cooperation, and push forward the healthy and stable development of China-U.S. relations,” it said.

Some of these phrases — “meet... halfway,” “mutual respect” and “win-win cooperation” — mirror language used by a Chinese Foreign Ministry official in a 2021 news conference.

ChatGPT’s answer was more nuanced. It said the state of the U.S.-China relationship is complex, characterised by a mix of economic interdependence, geopolitical rivalry, and collaboration on global issues. It highlighted key topics including the two countries’ tensions over the South China Sea and Taiwan, their technological competition and more.

“The relationship between the U.S. and China remains tense but crucial,” part of its answer said.

When asked whether Taiwan is part of China, DeepSeek’s chatbot — again like the Chinese official narrative — said Taiwan has been an integral part of China since ancient times. An example of a very similar statement is found in this government document issued in 2022.

“Compatriots on both sides of the Taiwan Strait are connected by blood, jointly committed to the great rejuvenation of the Chinese nation,” the chatbot said.

ChatGPT said the answer depends on one’s perspective, while laying out China and Taiwan’s positions and the views of the international community. It said from a legal and political standpoint, China claims Taiwan is part of its territory and the island democracy operates as a “de facto independent country” with its own government, economy and military.

## HOW ARE EVERYDAY STOVE-LIGHTERS ABLE TO MAKE ELECTRIC SPARKS?

My mornings in IIT Kanpur, where I teach, are interspersed with sips of green tea, the longing calls of peacocks and peahens, and the purposeless barking of my neighbour’s dog. Often making things interesting is a mess in the kitchen – the result of my tendency to ignore the milk I left on the stove, and remember it just as it boils, flows over the vessel, spills on the counter, and drools to the floor.

As I curse the milk, I also can’t help but feel some sympathy for the innocent victim of this mess: my stove-lighter. Resting there in innocence on the counter, it has no idea that it is having a bad day.

These lighters are magical pieces of equipment. A push with your thumb, something clicks, and there comes a flame. If you haven’t noticed it, go to your kitchen, pick up the lighter, point it



towards yourself, and watch carefully. As you click it, you will notice a small spark flying between the central rod and the cylindrical covering. But don't worry: unless you are flammable (regular human beings are not), there is no danger of you catching fire or even getting an electric shock. This same spark accompanies the wonderful monsoons (which we eagerly await in Kanpur), just that they screech through the night sky and can add amazing percussions to a late night instrumental on the stereo.

What is it, then, that allows that small piece of equipment to create thunder in your kitchen, and at the innocuous push of your thumb?

To understand this, we first need to figure out what an electric spark is.

### **What is an electric spark?**

A spark is essentially an electric charge flying in the air between two points, one of which has a large quantity of surplus electrons while the other has too few. This difference in quantities of electrons can happen due to many reasons. Sometimes people have engineered it this way using chemicals: the simplest example is the battery that we use in everything from remote-controls to electric vehicles.

A point with a large number of surplus electrons is called the negative terminal (since electrons are negatively charged) and a point that is deficient of electrons is the positive terminal. This is why you see '+' and '-' signs marked on every battery. In most situations — and unlike some people — electrons are extremely equitable in nature and dislike this difference in their quantities. So, given an opportunity, they will travel from a place where they are more in number to a place where they are fewer in number. This is why current flows when we attach a wire between the two ends of a battery, and in the process we make our fans move, or bulbs light up, etc.

However, if we don't attach a wire and the electrons still want to move, what will they do?

### **Is lightning a giant spark?**

If the gap between the surplus and the deficiency of electrons becomes too extreme, at some point, these electrons will lose all patience and decide to fly through the air, disrupting everything in between. This is not very dissimilar to human society. Sometimes, you might notice that something upsets people slowly over time, and then suddenly, there is a surprisingly large bit of unrest.

To be able to break out like this, electrons first need to break up air molecules mid-air, creating ions (charged atoms). In addition, many electrons inside the atoms are also pulled out, creating free electrons in the air. All this creates a region through which electrons can easily move — as if they have made a wire for themselves in thin air! And when they travel on this path, we see it as a spark.

Clouds are charged objects. When they move over large distances and collide with other clouds, they get more and more charged. At some point, this charge becomes too much for the clouds to hold, and breaks out as the lightning that we see (followed by the thunder that we hear).

How do our stove lighters, which are limited to our kitchens, create such powerful electronic unrest?



### What is a piezoelectric material?

This has to do with a class of materials called piezoelectrics, which every stove lighter contains. Piezoelectrics are amazing materials with a particularly interesting property: they can effectively create a surplus and a deficiency of electrons when they are under some pressure. As it happens, they can also easily remove this surplus when the applied pressure is removed.

The reason these materials can do this is because the atoms in a piezoelectric material are arranged in a slightly funny periodic pattern. They also usually have two types of atoms that have two different charges. One has a surplus of electrons and the other has a deficiency, i.e. they are negative and positive ions.

Now, under no extra pressure, these atoms are arranged in an alternating pattern and in such a way that there is no surplus of electrons at one end compared to another. When some pressure is applied, the picture changes. The structure of these materials is such that, under pressure, the positive ions move in one direction and the negative ones move in the other direction. This creates a surplus at one end of the material and a deficiency at the other end. Essentially, the material has become a battery!

With some meticulous physics and engineering, this surplus/deficiency of electrons, created when the pressure is applied, can be made to be quite high – practically enabling the electrons to fly through the air, just like in the case of lightning. This is the spark you saw when you clicked the lighter.

### Treat a lighter with respect

These flying electrons can ignite an inflammable object. So when the supply of cooking gas is on and you click the lighter near it, a fire erupts on your stove! Sometimes, the pressure applied is not enough to generate a spark, so at times you need to click it a couple of times, so that one of the hits is strong enough to create a sufficiently significant spark. (In case you are intrigued and interested in learning more about piezoelectric materials, taking a physics course on condensed matter physics may be worthwhile.)

## THE GENDER BATTLEGROUNDS

Chintan Chandrachud Writes: On January 20, President Trump signed an executive order announcing that it was the policy of the US government that there were only two sexes, and that those sexes were “not changeable”.

- Although the precise implications of that order are unclear, it brings into focus that debates around gender will be a key legal battleground in the US, the UK and other Western democracies.
- Recent cases in the US and UK offer some clues about what those debates will look like. —In the US, about half of the states have passed laws prohibiting sex-transition procedures in children. That includes Tennessee, which in 2023 prohibited certain medical interventions for the purpose of allowing children to identify with, or live as, an identity different from their biological sex.  
—The three prohibited medical interventions were puberty blockers, cross-sex hormones and sex transition surgeries.



—Transgender teenagers and their families, supported by the Joe Biden administration, challenged the Tennessee law claiming that it violated the guarantee of equal protection under the US Constitution. —The Sixth Circuit Court of Appeals upheld the law on the basis that it treated all children alike — no child, whether born male or female, was permitted to receive those medical treatments.

—An appeal to the US Supreme Court was heard in December, and a judgment is expected by the summer.

- Turning to the UK, the regulatory landscape has changed dramatically over the last 12 months. Until early 2024, children with gender dysphoria (who consider that their gender identity is different from their biological sex) were routinely prescribed puberty blockers and cross-sex hormones.

- In April 2024, an independent review concluded that there was not enough evidence to support the safety or effectiveness of puberty blockers to manage gender dysphoria. Its recommendation to prohibit the use of puberty blockers in children was implemented a few months later. That will remain the law until at least 2027, when another review on the subject is scheduled. The administration of cross-sex hormones remains lawful in the UK, albeit subject to strict conditions.

**Do You Know:**

- Chintan Chandrachud Writes: Three issues arising from these cases are likely to assume significance.

—First, are laws prohibiting medical interventions to address gender dysphoria discriminatory?

—Second, to what extent should the courts become involved in assessing the scientific evidence on which the law is based? Among the major points of debate at the US Supreme Court hearing was whether the Tennessee law should be subjected to a rigorous level of scrutiny.

—The English court was similarly careful to observe that questions of policy on the treatment of gender dysphoria are for the medical profession, not the courts.

—Third, in places where medical treatments for gender dysphoria in children are permitted and a child has consented to treatment, how interventionist should the courts be? The English court concluded that it would only intervene when necessary to protect the child from “grave and irreversible mental or physical harm”. It is easy to imagine other courts reaching a different conclusion.

- US President Donald Trump issued executive orders shortly after he was sworn in to change the US government’s policies on gender and diversity, following through on promises he made on the campaign trail. He rolled back orders from the Biden administration that the Trump White House called “unpopular, inflationary, illegal, and radical practices within every agency and office of the Federal Government”.

- Ammel Sharon Writes: In recent decades, gender has increasingly been viewed as both universal and autonomous. It is universal in that gender seems to appear in all societies, spanning cultures and historical periods. Simultaneously, it is seen as autonomous, existing in a realm of individual choice, with an expanding vocabulary of identities that often seem disconnected from other aspects of social life. However, this understanding has sparked confusion and discomfort for many.



## THE ANSWER LIES TO THE EAST

India is by no means the worst Asian country to live in a same-sex union. In many Asian countries, one can be legally imprisoned or even executed if discovered to have engaged in same-sex relations. India, the largest democracy in the world, however, is not the best Asian country either for those who are married to a person of the same sex.

- I use the word “married” to refer to the many religious but not legally recognised marriages Indian same-sex couples enter into because, in 2023, the Supreme Court refused to protect same-sex marriage rights and, in 2025, it turned down a review petition.

- In March 2024, Thailand’s House of Representatives voted by a vast majority (400 to 10) to ratify same-sex marriage, and in June, the Senate voted similarly (130 to 4). In August, King Vajiralongkorn gave his assent. Thailand is now the largest Asian country to have legalised same-sex marriage.

- The first Asian country to legalise same-sex marriage was Taiwan. In 2017, Taiwan’s Constitutional Court ruled that the constitutional right to equality and freedom of marriage gives same-sex couples the right to marry.

- In India, same-sex couples have been getting married by Hindu rites since at least 1987 when policewomen Leela Namdeo and Urmila Srivastava’s marriage made headlines. That was much before same-sex marriage was legal anywhere in the world.

- Despite the evidence that same-sex unions have existed throughout history in every culture, including India, the myth persists that the idea of same-sex marriage is a Western import.

- Ironically, the Supreme Court, in its 366-page-long judgment, combated the myth. The Justices quoted details and cases of marriage from Love’s Rite and from the media, and acknowledged that same-sex marriage is not imported from the West and is part of Indian culture and society because people inclined to same-sex relations are Indians too.

- The Supreme Court refused to even grant domestic partnership to same-sex couples, which would have given them some but not all the rights of marriage. Therefore, two Indians of the same sex who have been together for 40 years cannot make medical or funeral decisions for each other...

- Indians legally married to same-sex spouses in other countries are in the strange position of having two legal statuses. They are married in some countries, such as Thailand or Argentina, but single in India.

- But India is also one of the very few functioning democracies that recognises the diversity of marriage practices for minorities in a way that most functioning democracies do not. But despite the Supreme Court having stated that it is up to the legislature to legalise same-sex marriage, the Indian Parliament has not followed the examples of Thailand and Taiwan to grant marriage equality to this particular minority.

### Do You Know:

- A five-judge bench of the Supreme Court that was headed by Chief Justice of India DY Chandrachud, unanimously ruled against legalising same sex marriage in India in 2023.



- The CJI added that the SC cannot strike down the provisions of the Special Marriage Act (SMA) or read words differently. The focus of the petitions filed is the gender-neutral interpretation of the SMA. It is a secular legislation designed to facilitate inter-caste and inter-faith marriages.
- Justice Kaul said the legal recognition of civil unions for non-heterosexual couples represents a step towards marriage equality. But all five judges agreed that there is no fundamental right to marry and in a majority verdict, the court has ruled against same-sex marriage.

#### WHERE DID DINOSAURS FIRST EVOLVE?

Dinosaurs long dominated the earth's land ecosystems with multiple forms, including plant-eating giants like *Argentinosaurus*, meat-eating brutes like *Tyrannosaurus*, and weirdos like *Therizinosaurus*, with its Wolverine-like claws. But the origin of dinosaurs — precisely when and where they first appeared — remains a bit of a puzzle.

Researchers are now proposing a surprising location for the birthplace of dinosaurs, based on the locations of the currently oldest-known dinosaur fossils, the evolutionary relationships among these early forms, and the earth's geography during the Triassic Period. This locale spans the modern-day Sahara desert and Amazon rainforest regions, now separated by thousands of kilometres and an ocean thanks to a geological process called plate tectonics.

"When dinosaurs first appear in the fossil record, all the earth's continents were part of the giant supercontinent Pangaea. Dinosaurs emerged in the southern portion of this landmass, known as Gondwana," said Joel Heath, a palaeontology doctoral student at University College London and the Natural History Museum in London and lead author of the study, published on Thursday in the journal *Current Biology*.

"Our research suggests they likely originated in the low-latitude regions of Gondwana near the equator, an area that today includes northern South America and northern Africa," Heath added.

The earliest-known dinosaur fossils date to roughly 230 million years ago, including *Eoraptor* and *Herrerasaurus* from Argentina, *Saturnalia* from southern Brazil, and *Mbiresaurus* from Zimbabwe. While sharing certain traits defining them as dinosaurs, they had sufficient differences that suggest millions of years of dinosaur evolution had already occurred.

"While earlier research has focused on southern South America and southern Africa as the area of origin of the dinosaurs, based on where their fossils first appear, we suggest that significant gaps in the fossil record, particularly in regions that today include the Sahara desert and the Amazon rainforest, may hold the potential to reveal where the earliest dinosaurs were living," Heath said.

The researchers said dinosaurs probably emerged approximately 245-230 million years ago, when these equatorial regions were extremely hot and dry.

"It likely included deserts, savannah-like habitats, and possibly forested areas prone to seasonal wildfires. Previously, it was believed that dinosaurs were absent from these harsh environments," Heath said.

Fossils from this time and region are rare. This might be because the conditions were not ideal for preserving the remains of land animals or because the rocks containing these fossils haven't been discovered yet, Heath said.



The Amazon and the Sahara also are difficult for palaeontologists to explore due to the logistical challenges.

Dinosaurs evolved from more primitive reptiles after the earth's biggest mass-extinction event caused by extreme volcanism at the end of the Permian Period, about 252 million years ago.

## CONTAGIOUS

### Is peeing contagious in chimpanzees?

A new study has described a phenomenon researchers refer to as 'contagious urinations'. The study of 20 captive chimpanzees living at the Kumamoto Sanctuary in Japan shows that when one chimpanzee pees, others are more likely to follow. The researchers documented peeing behaviours in the Kumamoto chimpanzees over more than 600 hours, including 1,328 urination events. They analysed the observational data to see whether peeing among the chimpanzees was significantly synchronised in time. The evidence showed that urination events were more synchronised during observations than would be expected if the chimpanzees were simply peeing at random times with respect to one another. The likelihood of contagious urination also increased with physical proximity to the initial urinator, they report. Individuals with lower dominance ranks were more likely to pee when others were peeing. This suggests that urination patterns are influenced by social hierarchy.

## WHAT IS THE CORPSE FLOWER?

On January 24, a rare plant known as the corpse flower bloomed in Sydney, Australia, for the first time in more than a decade. A similar flower bloomed in New York in the U.S. on the same day.

In both instances, the plant emitted an odour likened to rotting flesh, delighting hundreds who queued for a whiff.

For the past week, curiosity seekers have been visiting the Sydney specimen, nicknamed "Putricia", at the Royal Botanic Garden. The Brooklyn Botanical Garden in New York dubbed its plant "Smelliot".

The two flowers are *Amorphophallus titanum* and *Amorphophallus gigas*. In each case, the oversize flower features fluted crimson petals and can measure more than a metre across with a pointed centre stalk that can top 3 metres. The plant typically doesn't bloom more than once every few years and lasts only about a day. A specimen has not bloomed in Sydney since 2010.

The plant emits the foul odour to attract carrion insects for pollination. These insects feed on the rich concentration of organic compounds in decomposing matter, thus the name.

As the sheath enclosing the stalk opens, the stalk heats up to 37° C and periodically releases compounds like dimethyl trisulphide, isovaleric acid, and indole, which are responsible for the smell.

The emissions peak at evening and night, when carrion insects are most active, and their smell is discernible even a few hundred metres away.





## WHY GREENLAND'S CRYSTAL BLUE LAKES HAVE TURNED BROWN

More than 7,500 lakes in western Greenland have turned brown, begun emitting carbon, and suffered a drop in water quality due to extreme weather events that took place in 2022, according to a new study.

- These lakes, which were once crystal blue, provide drinking water to locals, feature rich biodiversity, and sequester atmospheric carbon.
- The study, 'Abrupt transformation of west Greenland lakes following compound climate extremes associated with atmospheric rivers', was published in the journal Proceedings of the National Academy of Sciences last week.
- The analysis also revealed that the lakes underwent the transformation at a breakneck speed. Typically, such changes take place over centuries, but in this case, they happened within months after the extreme weather events occurred.
- Jasmine Saros, a professor at the University of Maine (United States) and lead author of the study, told Earth.com, "The magnitude of this [change in the lakes] and the rate of change were unprecedented."
- As organic carbon and other elements washed into the lakes, their physical, chemical, and biological properties changed. The study said that the impact of the 2022 extreme weather events was visible by July 2023, meaning the lakes' colour, odour, and taste had dramatically altered.
- The findings have come just three months after a different study revealed that the amount of carbon absorbed by land has temporarily collapsed. It had concluded that forest, plants and soil – as a net category – absorbed removed only 0.23 to 0.65 gigatonnes of carbon in 2023. This was the lowest amount since 2003 and more than three times lower than the average over the past decade.

### Do You Know:

- Greenland usually experiences snowfall during the fall season, from late August to late September. However, in 2022, due to warmer temperatures, the snow turned into rain. The heat also caused permafrost — frozen ground that often contains a significant amount of organic carbon — to thaw, leading to the release of carbon, iron, magnesium, and other elements. As the record level of rain poured on the region, these elements were washed into the lakes, resulting in their transformation.
- According to the study, the increase in temperatures and precipitation was driven by several atmospheric rivers. The National Oceanic and Atmospheric Administration (NOAA) defines atmospheric rivers as: "Relatively long, narrow regions in the atmosphere — like rivers in the sky — that transport most of the water vapour outside of the tropics".
- Although these "rivers in the sky" bring much-needed precipitation and contribute to annual freshwater supplies, strong atmospheric rivers can lead to disastrous flooding and bring in heat. Studies have shown that with rising global temperatures, atmospheric rivers are expected to become more intense — they will be significantly longer and wider than the ones we observe today, according to a 2018 study by the National Aeronautics and Space Administration (NASA).



- Existing climate models show that by the end of the 21st century, atmospheric rivers will become 50–290% more frequent in Greenland, western North America, east Asia, western Europe and Antarctica, a report by Phys.com said.

## WHY HAS THE U.S. OFTEN EXITED CLIMATE PACTS?

### The story so far:

Among the first executive orders that Donald Trump signed after taking over as President on January 20 was to withdraw the U.S. from the Paris Agreement of 2015. This makes it the third time the U.S. has withdrawn from a treaty signed under the United Nations Framework Convention on Climate Change (UNFCCC).

### What is the history of U.S. engagement with climate treaties?

The first time the U.S. withdrew from a climate agreement was in 2001 when President George W. Bush exited the Kyoto Protocol, adopted in 1997. This agreement was significant as it was the first time 37 industrialised countries had binding targets to lower carbon dioxide emissions. However, Mr. Bush withdrew the U.S., on the grounds that it cramped the economy. “I oppose the Kyoto Protocol because it exempts 80% of the world, including major population centres such as China and India, from compliance, and would cause serious harm to the U.S. economy,” he wrote in a letter to Republican senators.

When Mr. Trump first withdrew the U.S. from the Paris Agreement in 2017, his reasons were similar: “I was elected to represent the citizens of Pittsburgh, not Paris,” he said. “The Paris deal hamstring the U.S. while empowering some of the world’s top polluting countries... That is not going to happen while I am President.” Exiting the agreement meant the U.S. would cease to implement its targets to cut emissions and contribute to the ‘green climate fund,’ — a corpus to help climate-vulnerable countries adapt to climate change. In the new order, eight years later, he says that the Paris Agreement “... steered American taxpayer dollars to countries that do not require, or merit, financial assistance in the interests of the American people.”

However, when the U.S. withdrew in 2017, it did not practically result in an ejection. Technicalities in the drafting of the Paris Agreement meant that it would take a signatory country three years to withdraw and an extra year, intimating the United Nations governing body. This meant that by the time the withdrawal took effect in November 2020, Joe Biden had already been elected the 46th U.S. President; and in January 2021, he promptly signed the U.S. back in. The Paris Agreement committed all countries to collectively strive to keep temperatures from exceeding 1.5 degrees Celsius or pre-industrial times, failing which to certainly keep it below 2 degrees Celsius. Unlike Mr. Trump’s 2017 order, his latest order will withdraw the U.S. within a year.

### How does the U.S. view climate agreements?

Until 2006, the U.S. was the world’s largest emitter of greenhouse gases. As the world’s largest economy, its general attitude towards the European Union-backed climate pacts has been to project itself as solving the climate crisis but being non-committal towards taking the legally binding emission cuts that this entailed. Right from the first Conference of Parties in Bonn in 1995, the U.S. expressed discomfort with a fundamental axiom of the UNFCCC — the mother convention that gives treaties such as the Kyoto Protocol and the Paris Agreement meaning. This is because carbon dioxide concentrations in the atmosphere were largely due to historical emissions by developed countries, it was incumbent on them to pay the bulk of the costs for clean-up.



It also translated to developing countries continuing on a fossil-fuel pathway. Due to discomfort expressed by major fossil fuel economies — the U.S., Australia, and Canada — ideas such as joint implementation (where countries earn credits for implementing clean energy projects in developing countries) surfaced. The U.S., despite having walked out of climate agreements, continues to send large delegations to the conference as ‘observers’ and be closely involved in negotiations.

In 2005, at COP 11 in Montreal, Canada, the head of the U.S. delegation, as reported by *The New York Times*, walked out of the negotiations despite the U.S. not being part of the Kyoto Protocol at the time. To cut to the present, there is bipartisan support for not crimping oil and gas production in the U.S. Oil and gas production has risen under the Biden administration. The U.S. remains the world’s largest crude oil producer and achieved record production in 2023. The country is also the largest producer of gas and, in 2022, became the world’s largest exporter of liquefied natural gas. Mr. Trump has committed to adding to this already substantial base.

Despite all this, the U.S. is critically short of achieving its greenhouse gas emissions target. As of 2022, the U.S. has achieved only about one-third of its 2030 emissions reduction goal. In the last weeks of his presidency, Mr. Biden increased the U.S. emissions reduction commitments to 61%-66% of 2005 levels by 2035.

#### **What will be the fallout of the U.S. exit?**

The U.S. has only exited the Paris Agreement, not the overarching UNFCCC. Several analysts have pointed out that the scale of investments in renewable energy, including private finance from the U.S., have vastly grown since 2017. Unlike India, China, and Indonesia — large developing economies dependent on coal — the U.S. is less reliant on it. The U.S. has historically supported the EU on anti-coal positions in climate negotiations.

Mr. Trump’s espousal of a ‘Drill, baby, drill!’ motto encourages more fracking and oil-and-gas drilling, which previous dispensations have only modestly slowed.

A U.S. exit might lead to developing countries taking on less ambitious targets, but given that climate targets have not managed to slow down global emissions, the U.S.’s exit at this point means little.

### **PRESENT TENSE, FUTURE DANGEROUS**

In January 2015, the Île-de-France region suffered three shooting incidents perpetrated by terrorists. Twenty people were killed, including three assailants. On November 12 the same year, suicide bombers attacked a suburb of Beirut in Lebanon, killing 43 people. The next day, terrorists struck in three places in Paris, killing 130 people in all. France promptly declared a three-month emergency and escalated its own war against terror.

But just two weeks later, in a city still indignant with grief and trauma, representatives and leaders from 196 countries around the world gathered to hammer out what eventually became the Paris Agreement. In the face of the world’s fondness for fossil fuels and against the backdrop of uncertainty and apparently imminent chaos, the Paris Agreement was hailed by its negotiators as a triumph of political engagement.

A decade later, the world presents a very different face. An internecine conflict grinds on in Eastern Europe while West Asia mulls a tense stability after a war that invited allegations of



genocide. Both inflation and right-wing nationalism are on the rise. Four UN summits on environmental matters flopped in 2024 alone. And a new U.S. President signed an executive order to pull the country out of the Paris Agreement on his first day in office.

The Paris Agreement has nearly 200 parties but the U.S., with the world's largest and highly industrialised economy, is particularly important. After analysing multiple climate models, Carbon Brief concluded Donald Trump's second term as U.S. President could add 4 billion tonnes of carbon dioxide equivalent (or 4 GtCO<sub>2e</sub>) more to what the country is already expected to emit by 2030. This is reportedly "equivalent to the combined annual emissions of the EU and Japan, or the combined annual total of the world's 140 lowest-emitting countries".

His predecessor, Joe Biden, had pledged to lower U.S. emissions by half from 2005 levels by 2030. Under Mr. Trump, it's expected to drop by around a quarter.

Republicans in the U.S. government have also declared plans to undermine the Inflation Reduction Act, 2022, weaken the Environmental Protection Agency, do away with incentives for electric vehicles, scrutinise individual states' ability to adopt emissions standards at odds with federal ones, and increase the extraction of fossil fuels (including reversing a ban on offshore drilling). On January 24, Mr. Trump blocked federal approvals for new wind farms. The effects of these changes are expected to allow U.S. emissions to expand by 27 GtCO<sub>2e</sub> by 2050, even if they depend to a non-trivial degree on subnational climate action and global market response.

China for one will be happy to overtake the U.S. in the development of green technologies, including electric vehicles, whereas Europe may retaliate with its Carbon Border Adjustment Mechanism — already controversial among developing economies — should the U.S. hike tariffs on imports from the bloc.

#### **Threats of climate feedback**

The world just before the U.S. presidential elections last year was in no position to meet the Paris Agreement's goals nor was Mr. Biden instituting radical (by necessity) climate policies in his country. Instead, Mr. Trump's decision to withdraw from the Agreement has simply rendered worse possibilities more likely. As the temperature records reset in 2024 attested, the world is already doomed to shoot past 1.5° C. Still, clawing back every fraction of a degree is crucial because of the threats of climate feedback — natural responses to global warming that increase the rate of warming — and irreversible change.

The Agreement holds the vast majority of the world's countries to keeping "the increase in the global average temperature to well below 2° C" and to endeavour to "limit the temperature increase to 1.5° C above pre-industrial levels". Parties to the Agreement have decided to achieve this via Nationally Determined Contributions (NDCs); how each contribution adds up to the Agreement's goal will be determined through the 'Global Stocktake'. However, the NDCs aren't legally binding while governments' reports for the Stocktake are expected to have data gaps.

'1.5° C' is a figure of convenience, yet for its arbitrary origins it became significant when the Alliance of Small Island States pushed countries to include it in the Paris Agreement because the alliance's members would be devastated by the effects of a world 2° C warmer. This contention, however, ignored the latent heat accumulating in the oceans — which is released slowly and could add half a degree to current measurements — plus the idea that the planet is objectively "safe" under 1.5° C of warming rather than "less unsafe".



As such, then, the Paris Agreement was really only a political victory, but even then of the sort the world has since found lacking. To its credit, it has been used as the basis for litigation in many countries to force errant corporations and governments to restore reducing emissions as a policy priority and for sidebar deals to restrict methane emissions, improve the prospects of 'green hydrogen', and protect biodiversity.

But the fulfilment of its aspirations currently desperately needs legally binding commitments and implementation targets, which the Agreement itself doesn't provide for. At the UN COP27 climate talks in Egypt, for example, the decision to have a 'loss and damage' fund was followed by considerable disagreement over its setup and management. At COP28 UAE, countries agreed to move away from fossil fuels but without meaningful commitments. And at COP29 Azerbaijan, the talks' format itself came under criticism for its vulnerability to being 'hijacked' by the reluctance of a few countries to commit to steeper financing and emissions targets.

#### **Distrust towards wealthy nations**

In the course of trying to meet their commitments under the Paris Agreement, less wealthy countries' resentment of and distrust towards wealthier nations has increased. The world hasn't exactly come together.

At present, rich countries have committed to providing \$300 billion a year to poor ones until 2035, after missing their previous commitment to provide \$100 billion by 2020 by two years. Mr. Trump has now withdrawn from the Paris Agreement, thus ending at least for four years U.S. participation in the contentious processes that determine these targets for the world. These four years also lead up to 2030, a deadline year for many countries' commitments.

The withdrawal is thus a blow, no matter that it creates opportunities for other countries to step up depending on their political will and acumen and economic ability. However, if it also creates pressure on other countries to strengthen the Paris Agreement, such as incentivising governments to keep their promises when new parties take power or sanctioning them when they pull out, that can only be good for a vital instrument that also has considerable room for improvement.

### **RETINAL DISEASES: RNA THERAPEUTICS SHOW PROMISE BUT IS INDIA READY?**

Vision is crucial to navigate the world, connect with others, and perform everyday tasks. It helps us perceive colours, shapes, and movement, which are essential to learn, work, and keep safe.

According to the World Health Organisation, more than 2.2 billion people worldwide experience some form of vision impairment. The causes range from cataracts and diabetic retinopathy to glaucoma, age-related macular degeneration, and inherited retinal diseases (IRDs).

IRDs are genetic conditions that lead to progressive vision loss, often resulting in blindness. These diseases stem from mutations in more than 300 genes responsible for the function of the retina, the light-sensitive tissue at the back of the eye.

While some individuals may lose their sight shortly after birth, others experience gradual deterioration over time. In many cases, early intervention could slow down or even prevent the progression of blindness.

An estimated 5.5 million people suffer from IRDs around the world, with a prevalence rate of one in 3,450. However, the situation is more critical in India. Studies have revealed significantly higher



prevalence, with one in 372 individuals in rural South India, one in 930 in urban South India, and one in 750 in rural Central India affected by these conditions.

### **A treatment breakthrough**

In 2017, the U.S. Food and Drug Administration (FDA) made a historic move by approving the first gene therapy for blindness caused by mutations in the *RPE65* gene.

This approval sparked hope for patients with other genetic causes of blindness. Currently, more than 50 clinical trials are exploring gene therapy as an option to treat various inherited eye disorders.

In India, however, awareness among clinicians about the availability and potential of *RPE65* gene therapy remains limited. While gene therapy has proven revolutionary, it is not yet a universal solution for all genetic eye diseases. This is where RNA-based therapies are poised to make a significant impact.

RNA-based precision therapeutics are emerging as a game-changer for genetic disorders, including IRDs. Unlike DNA or genome-editing therapies, RNA-based therapies offer a safer alternative as they make temporary changes that don't carry over to future generations, reducing the risk of unintended long-term effects.

Recent advancements have introduced RNA-based therapies like antisense oligonucleotides (ASOs), which have already been used successfully to treat diseases such as spinal muscular atrophy and Duchenne muscular dystrophy. Medical researchers are now exploring ASO therapy for retinal conditions like Stargardt disease, Leber congenital amaurosis, and retinitis pigmentosa.

Beyond ASOs, researchers are also developing more advanced RNA-based options to address IRDs. One promising approach involves RNA-editing with ADAR enzymes, which can correct specific genetic mutations at the RNA level. This method has the potential to restore protein production in retinal cells without altering the underlying DNA, offering a new way to treat retinal degenerative diseases caused by single-point mutations.

Another innovative strategy is the use of suppressor tRNAs to bypass stop-codon mutations, which can prematurely halt protein synthesis in retinal cells. By enabling the production of full-length proteins, this approach could help restore proper retinal function in IRD patients, where stop-codon mutations disrupt vital protein production.

Another potential small molecule RNA-based therapy is PTC124, also known as ataluren, which is already being used to treat patients with cystic fibrosis and Duchenne muscular dystrophy. Recently, clinical trials have begun to investigate its use in treating a rare developmental eye disease called aniridia.

Taken together, these options offer a more targeted, personalised treatment approach that could halt the progression of IRDs and improve patient outcomes with greater precision.

### **India and precision therapeutics**

Precision medicine is an approach that tailors treatments to an individual's genetic makeup, lifestyle, and other factors, offering a more targeted alternative to the one-size-fits-all approach of traditional options.



For rare diseases like IRDs, understanding the genetic mutations prevalent in a population is essential for researchers to develop effective RNA-based therapies. Although researchers have linked more than 300 genes to IRDs, research in India has yet to fully map the genetic mutations responsible for these conditions in the local population.

In fact, there is currently no large cohort study in India (i.e. involving at least 500 patients) to describe the mutation spectrum of IRDs. Such extensive studies are vital for researchers to identify the most common genetic defects that can subsequently be targeted using precision medicine.

For example, the *ABCA4* gene is commonly mutated in IRD patients worldwide and is a popular therapeutic target. However, we lack a clear understanding of whether it is just as prevalent in Indian populations and/or whether some other mutation is expressed more often in certain ethnic groups.

India's large size and diverse population add another layer to this challenge.

Genetic mutations can vary significantly across different communities, making it difficult to identify common mutations. Accurately mapping these mutations necessitates extensive, resource-intensive research across various subgroups.

Additionally, there are several barriers, including a lack of awareness of the genetic basis of IRDs among the people at large and healthcare providers alike, limited availability of genetic counselling services, insufficient research funding, and restricted access to diagnostic infrastructure in rural areas.

Thus, to fully unlock the potential of RNA-based therapeutics, India must prioritise genetic research with a particular emphasis on understanding the mutation profiles of people with IRDs, in collaboration with local research institutions and healthcare providers.

A notable example of such a collaboration is a June 2024 study by researchers from the CSIR-Institute of Genomics and Integrative Biology, New Delhi, and the L.V. Prasad Eye Institute, Hyderabad. The teams' findings led to the development of a precision therapy for a specific form of IRD.

Expanding partnerships between global and local pharmaceutical companies, as well as research institutes, will also make these treatments more accessible to Indian patients. Raising awareness among clinicians and researchers about advances in RNA therapies will likewise be crucial to ensure they are implemented effectively.

#### PERIODS 'KEEP 20% OF SOUTH ASIAN FEMALES FROM THEIR DAILY ACTIVITIES'

Nearly 20% of women and girls in south' Asia abstain from regular daily activities during periods, according to a study published in *The Lancet Global Health* journal. Researchers, including those from the University of Melbourne, Australia, found that girls aged 15-19 years are the most affected.

They suggested that missing daily activities during menstruation can interfere with a woman's quality of life and contribute to gender inequalities. The researchers also found that using contraceptives, especially hormonal methods, reduced absences during menstruation for women of all ages, suggesting that symptoms such as heavy bleeding or pain could be keeping women



away from pursuing daily activities. The findings provide new evidence to inform future menstrual health research and public health interventions, the authors said.

## REPLACE REGULAR TABLE SALT WITH LOWER-SODIUM SALT SUBSTITUTES THAT CONTAIN POTASSIUM: WHO

The World Health Organization (WHO) released a set of guidelines on Sunday recommending use of lower-sodium salt substitutes.

While the international body had already strongly recommended reducing sodium intake to less than 2 grams a day, it has proposed a set of guidelines to replace regular table salt with lower-sodium salt substitutes that contain potassium. This recommendation is for adults (not pregnant women or children), and excludes individuals with kidney impairments or with other circumstances or conditions that might compromise potassium excretion.

The emphasis on salt — with so many recommendations on how much to consume and its constitution — is because of the huge impact it has on human physiology. Sodium (contained in salt) and water travel together in the human body, explains Priya Chockalingam, founder, Cardiac Wellness Institute, Chennai. Salt forces the body to retain water, so eating too much salt means more water in the blood vessels, raising blood pressure. Reducing salt consumption, therefore, reduces the load on the system, by significantly decreasing the volume in the blood, thus impacting directly, positively on blood pressure. This will have an ameliorative effect on cardiovascular health and prevent strokes.

### Effective way

Globally, each year, eight million deaths are associated with poor diets, and of these, 1.9 million are attributable to high sodium intake. There is enough evidence to stridently endorse reducing salt as an effective way to reduce noncommunicable diseases (NCDs) such as cardiovascular diseases (CVDs) and chronic kidney disease by lowering blood pressure. It also lowers the risks of other conditions associated with high sodium intake, such as gastric cancer, the guideline says.

It provides evidence-informed guidance on the use of lower-sodium salt substitutes, in which NaCl (sodium chloride) is partially replaced with KCl (potassium chloride) for household consumption of table salt, but not in packaged foods, or foods consumed outside of home. The recommendations are to be employed by policymakers, programme managers, health professionals among other stakeholders, to promote reduction of sodium intake.

Vivekanand Jha, executive director, The George Institute for Global Health in India, says this guideline is very significant for India, given the propensity to add extra salt to everything. This is an appreciable effort to change behaviour, he says.

“Instead of targeting individuals with messages about reducing salt, it makes sense to change what is available to them at a population level, in this case, low sodium salt, and make it affordable to all,” Prof. Jha explains. He adds that the WHO guidelines clearly keep out persons who might have to be on a low potassium diet. Regular salt may still be available for them.

Dr. Priya, while endorsing efforts to reduce salt consumption, particularly given the culture in India, also flags the issue of putting people with possibly undetected kidney disease, on a potassium-enhanced salt alternative.