

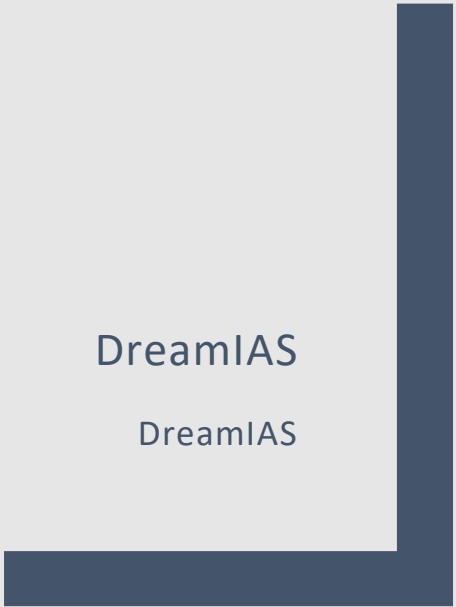


26th February to 4th March 2023

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INTERNATIONAL

THE ANTI-WOKE POPULIST

A year before the Presidential election is scheduled to begin in the U.S., a wealthy hedge fund partner and former biotechnology executive, Vivek Ramaswamy, announced his entry into the race for the Republican nomination in an appearance on the far-right talk show hosted by Tucker Carlson on the Fox News channel.

Mr. Ramaswamy is not the first Indian-American to get into the fray — former Republican Governor Bobby Jindal from Louisiana had also tried his hand at the Republican primaries in 2016 and former Governor of South Carolina, Nikki Haley, is also a contestant for the 2024 race.

Indian-Americans overwhelmingly endorse the Democratic party — a recent Asian American Voter Survey in 2022 found 68% of respondents favouring the donkey over the elephant, highest among Asian American groups. But that has not deterred high profile Indian-Americans to hitch their wagons to the Republican Party by professing an assortment of conservative values.

Mr. Ramaswamy's unique pitch is in holding fort on right-wing populism, with a special emphasis on strident opposition to what he terms "woke'ism". A word that has its origins in Black American activism of the 20th century and meant "awareness" about racial prejudice and discrimination and opposition to it, it is now invoked pejoratively by conservatives to term any position related to affirmative action, social justice and government intervention and regulation.

THE NEW START TREATY ON PAUSE

The story so far:

On February 23, on the eve of the first anniversary of his country's "special military operation" in Ukraine, Russian President Vladimir Putin announced that Moscow was unilaterally suspending the last remaining nuclear arms control treaty with the U.S., stating that the West was trying to destroy Russia. Making the announcement at the end of his nearly two-hour-long state of the nation address to Russian lawmakers, Mr. Putin said that Moscow ought to stand ready to resume nuclear weapons tests if the U.S. does. This move would end a global ban in place on nuclear weapons tests since Cold War times. In response, the U.S. Secretary of State Antony Blinken said Mr. Putin's move was "deeply unfortunate and irresponsible".

What is the New START nuclear treaty?

About half a decade before the end of the Cold War, the then leaders of the U.S. and the erstwhile Soviet Union, Ronald Reagan and Mikhail Gorbachev, declared in a historic statement: "a nuclear war cannot be won and must never be fought."

While both Moscow and Washington were aggressive in their one-upmanship of expanding nuclear arsenals in the initial decades of the Cold War, they have engaged in bilateral talks since, albeit rocky ones, and signed multiple treaties to shrink and keep checks on each other's nuclear arsenals. The first formal dialogue, the Strategic Arms Limitation Talks (SALT), started between the two countries under former U.S. President Richard Nixon in 1969. The Anti-Ballistic Missile defence systems Treaty, which provided for the shooting down of incoming missiles, was signed in 1972, but the George W. Bush administration unilaterally pulled out of the pact in 2002.



The Strategic Arms Reduction Treaty (START I), signed in 1991, expired in late 2009 and another treaty, the Strategic Offensive Reductions Treaty (SORT or Moscow Treaty), was signed in 2002. However, the New START treaty replaced the 2002 pact and was the last remaining nuclear weapons control agreement between the two powers who together hold 90% of the world's nuclear arsenal.

The New START treaty was signed in 2010 by former U.S. President Barack Obama and Russian President Dmitry Medvedev and came into force in February 2011. It was extended for five years when current U.S. President Joe Biden took office in 2021. Under the Treaty, America and Russia cannot deploy more than 1,550 strategic nuclear warheads and more than 700 long-range missiles and bombers. It also limits each country to 800 deployed and non-deployed launchers and delivery vehicles. Additionally, it allows each side to carry out up to 18 short-notice (32 hours) on-site inspections of strategic nuclear weapons sites annually to ensure that the other country had not crossed the limits of the treaty.

Under the agreement, Russia and the U.S. exchange data twice a year on ballistic missiles under the treaty's purview and on bombers, test sites, nuclear bases etc. The treaty also mandates the two parties to send notifications within five days if they change or update something in their stockpile, like moving missiles to a new base or deploying a new warhead to the system. According to The Washington Post, after first coming into effect, the pact gave Washington and Moscow seven years to reduce their stockpiles, including nuclear warheads that are launched using long-range missiles, submarines, and bombers. In 2018, both nations met the arms limits prescribed by the pact.

Inspections under the treaty, however, have stalled in the past three years. They were first put on hold in March 2020 owing to the COVID-19 pandemic. Moscow and Washington were due to discuss the restarting of inspections in November 2022, but this was postponed by Mr. Putin. There has been no development in this regard since.

Why did the Russian President suspend New START?

"I am forced to announce today that Russia is suspending its participation in the strategic offensive arms treaty," Mr. Putin said on February 23. He said the North Atlantic Treaty Organisation (NATO) and the U.S. wanted to "inflict 'strategic defeat' on Russia and "try to get to our nuclear facilities at the same time."

Mr. Putin argued that while the U.S. had pushed for the resumption of inspections of Russian nuclear facilities under the treaty, NATO allies were helping Ukraine mount drone attacks on Russian air bases hosting nuclear-capable strategic bombers. In December, the Russian military had said it shot down the drones that struck two bomber bases deep inside the country.

Mr. Putin also mocked NATO's statement urging Russia to allow the resumption of the U.S. inspections as "some kind of theatre of the absurd." "The drones used for it were equipped and modernised with NATO's expert assistance," Mr. Putin said. "And now they want to inspect our defence facilities?" He also put another condition on the table before any return could be made to negotiations. He said that the nuclear weapons of Britain and France were part of NATO's nuclear capability but weren't included in the U.S.-Russian pact. "They are also aimed against us. They are aimed against Russia," he said. "Before we return to discussing the treaty, we need to understand what are the aspirations of NATO members Britain and France and how we take it into account their strategic arsenals..."



The Russian President also accused the U.S. of rejecting Russian requests for visits to specific U.S. facilities. Meanwhile, in its New START annual implementation report 2023, the U.S. State Department stated that Moscow was not complying with the pact as it had not let Washington carry out on-site inspections.

Will it trigger an arms race?

Notably, since Mr. Putin has not withdrawn from the treaty and just 'suspended' it, which is a term not defined in the official pact, analysts are saying the move would not immediately trigger an arms race between the two powers, and could be a part of Russia's political messaging amid the West's massive assistance to Ukraine amid the year-long conflict. Evidently, the Russian administration also announced that it does not plan to breach the limits on warheads prescribed in New START. The Russian Foreign Ministry said that it would continue notifying Washington of planned test launches of inter-continental ballistic missiles (ICBMs).

John Erath, senior policy director at the Center for Arms Control and Non-Proliferation, told The Washington Post that Mr. Putin's move was entirely symbolic", adding that Russia had already not been permitting inspections. Mr. Erath said the suspension seemed to be targeted at putting pressure on President Biden and European allies "so Russia can dictate the terms under which" the war would come to an end.

Sarah Bidgood, of the James Martin Center for Nonproliferation Studies, told NPR that Russia's move is linked to the Ukraine conflict, indicating that the country no longer thinks that nuclear arms control is a separate issue from the ups and downs of bilateral relations.

What does the suspension mean for global arms control?

Following Mr. Putin's announcement, NATO Secretary-General Jens Stoltenberg said the move had made the world a more dangerous place, adding that "with today's decision on New START, full arms control architecture has been dismantled."

Observers say the move not only disturbs the fragile calculus of nuclear arms controls between the two largest nuclear powers but could also give an opportunity to other nuclear-armed countries, especially China and others like Pakistan, Iran, Israel, and India among others, to increase their arsenals.

A Reuters analysis quoted Tong Zhao, U.S.-based nuclear expert at the Carnegie Endowment for International Peace as saying that the move could hamper arms control cooperation between the U.S. and China.

"This is only going to make China even less interested in pursuing cooperative nuclear security with the United States," Mr. Zhao said. "Now even this last example of arms control cooperation is being seriously undermined."

WINDSOR FRAMEWORK: WHAT IS THE DEAL UK AND EU HAVE REACHED TO SOLVE THE NORTHERN IRELAND PROTOCOL TANGLE

The UK government under Prime Minister Rishi Sunak Monday (February 27) reached a landmark deal with the European Union (EU) on post-Brexit trade rules that will govern Northern Ireland.

The 'Windsor Framework' will replace the Northern Ireland Protocol, which had proved to be among the thorniest of Brexit fall-outs, creating problems both economic and political.

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



The Northern Ireland Protocol problem

After the UK left the European Union, Northern Ireland remained its only constituent that shared a land border with an EU-member, the Republic of Ireland. Since the EU and the UK have different product standards, border checks would be necessary before goods could move from Northern Ireland to Ireland.

However, the two Irelands have had a long history of conflict, with a hard-fought peace secured only in 1998 under the Belfast Agreement, also called the Good Friday agreement. Fiddling with this border was thus considered too dangerous, and it was decided the checks would be conducted between Great Britain (England, Scotland and Wales) and Northern Ireland (which together with Great Britain forms the United Kingdom). This was called the Northern Ireland Protocol.

Under the protocol, Northern Ireland remained in the EU single market, and trade-and-customs inspections of goods coming from Great Britain took place at its ports along the Irish Sea.

The checks made trade between Great Britain and Northern Ireland cumbersome, with food products, especially, losing out on shelf life while they waited for clearance. Some taxation and spending policies of the UK government could not be implemented in Northern Ireland because of EU rules. The sale of medicines, too, was caught between different British and EU rules.

Also, any kind of border in the Irish Sea irked those who want a united United Kingdom. Significantly, one such person was Sir Jeffrey Donaldson, leader of Democratic Unionist Party (DUP) of Northern Ireland. The DUP has not allowed Stormont, its Parliament, to function since last year, because of its opposition to the Protocol.

What the Windsor Framework proposes

The framework has two crucial aspects – the introduction of a green lane and red lane system for goods that will stay in Northern Ireland and those that will go to the EU respectively; and the ‘Stormont Brake’, which allows Northern Ireland lawmakers and London to veto any EU regulation they believe affects the region adversely.

The two lanes

British goods meant for Northern Ireland will use the green lane at the ports, and will be allowed to pass with minimal paperwork and checks. Physical checks will be conducted if the goods are deemed suspicious, in place of the routine checks now.

This is especially significant for meat products, such as sausages, travelling between the two parts of the UK, as the EU has stricter rules about animal products. Also, people in Northern Ireland can order goods online from Britain easily now. Because of the cumbersome checks, many firms had stopped deliveries to Northern Ireland. Plants and seeds can move easily now, and pets can travel without “expensive health treatments like rabies or documentation from a vet”, according to the UK government’s website.

“The same medicines, in the same packs, with the same labels, will be available across the UK, without the need for barcode scanning requirements under the old Protocol. The UK will license all medicines for all UK citizens, including novel medicines like cancer drugs, rather than the European Medicines Agency under the old Protocol,” the government website says.



Goods destined for Ireland or the rest of the EU will have to take the red lane, with the attendant customs and other checks.

What is Stormont Brake

“The new Stormont Brake means the democratically elected Northern Ireland Assembly can oppose new EU goods rules that would have significant and lasting effects on everyday lives in Northern Ireland,” says the government. For this, they will need the support of 30 members from at least two parties. The British government can then veto the law.

This provision, the Sunak government hopes, will persuade the DUP to allow Stormont to restart functioning.

How have stakeholders reacted

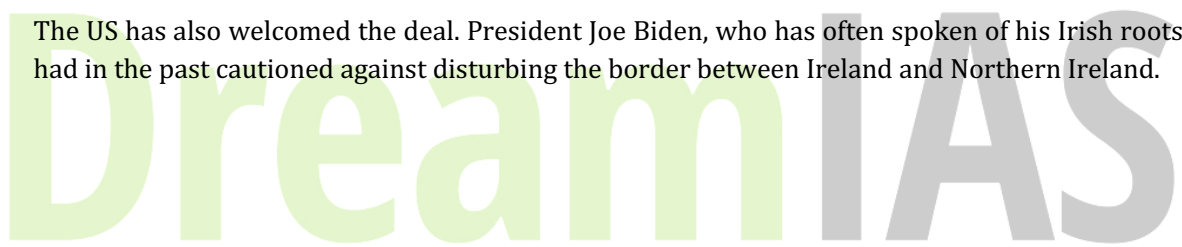
With the Windsor Framework, PM Sunak hopes to improve trade and other ties with the EU, while keeping the hard Brexiter faction of his Conservative Party happy. The deal has allowed Sunak to do away with the Northern Ireland Protocol Bill introduced by his predecessor Boris Johnson, which involved the UK government reneging on the promise it made to the EU to follow the Protocol.

Reactions to the new deal in political circles have been cautious, but not negative. Most leaders have said the agreement on the face of it looks promising, though they would properly comment only after studying it in detail.

DUP leader Donaldson told BBC on Tuesday, “I do think that what has been proposed at first reading does give Stormont the ability to apply the brake where the application of EU law for the purposes of facilitating cross-border trade impacts on our ability to trade with the rest of the United Kingdom. I have said that progress has been made. We continue to have some concerns.”

Industry associations have openly welcomed the deal. Marks & Spencer chairman Archie Norman, a strong critic of the Northern Ireland Protocol, said the new agreement was a “big step forward”, the BC reported.

The US has also welcomed the deal. President Joe Biden, who has often spoken of his Irish roots, had in the past cautioned against disturbing the border between Ireland and Northern Ireland.





NATION

ITALIAN PM MELONI TO BE CHIEF GUEST AT 8TH RAISINA DIALOGUE

Italian Prime Minister Giorgia Meloni will visit India on March 2 and 3, along with Deputy Prime Minister and Foreign Minister Antonio Tajan and a high-powered business delegation, the Ministry of External Affairs said on Monday.

Ms. Meloni will be the chief guest and keynote speaker at the 8th Raisina Dialogue. This is the first prime ministerial visit from Italy in five years.

A bilateral defence cooperation agreement is likely to be announced that will also have a framework for government-to-government deals, official sources said. "Prime Minister Meloni's visit is expected to further strengthen and deepen the long-standing relationship between India and Italy," the Ministry said in a statement.

Both sides will take stock of the progress on the key outcomes of the November 2020 Summit, strengthen security and defence cooperation, work towards closer economic ties, enhance opportunity for mobility of talent and give strategic guidance to ongoing collaboration in science and technology.

Defence deal

The bilateral defence agreement to expand defence cooperation has been in the works for a few years which, sources said, would lay the ground for taking forward cooperation into new domains, including co-development and co-production of military platforms. It will also have a framework for inter-governmental agreements, a source said.

INDIA, AUSTRALIA TO SIGN AGREEMENT ON MUTUAL RECOGNITION OF QUALIFICATIONS

The Australian Minister is on an official visit to India from February 28 to March 3, during which he will attend a student exchange programme and a series of meetings along with Union Education Minister Dharmendra Pradhan to provide momentum to bilateral relations in the domain of education.

The two Ministers will also sign the Mechanism for the Mutual Recognition of Qualifications which locks in the rules for mutual recognition to access education in both countries. "This will be the broadest and most favourable recognition agreement India has signed with another country and will enhance student mobility between both countries," the Australian Minister said in a press statement.

He also said that India's National Education Policy, which has set a target of raising enrolment in higher education and vocational education to 50% by 2035, provided a "genuine opportunity for Australian education providers to do more to collaborate with India".

His trip comes ahead of Australian Prime Minister Anthony Albanese's visit to India in early March. It is also reliably learnt that during Mr. Albanese's visit, Australia's Deakin University will announce an independent foreign campus in Gujarat's GIFT City, becoming the first international university to set up an offshore campus here.



Deakin University's vice-president (global alliances) and CEO (South Asia), Ravneet Pahwa, however, declined to comment on the development.

Education Minister's delegation also comprises Vice Chancellors and other higher-education leaders representing nearly 11 Australian universities.

CREATIVE FORMULAS

After the conclusion of two key G-20 ministerial meetings, of the Finance Ministers and Central Bank Governors (FMCBG) in Bengaluru and Foreign Ministers Meeting (FMM) in Delhi, without consensus over the Ukraine war, diplomats and G-20 officials must pause for a stock-taking exercise on the government's strategy for its G-20 presidency. The FMCBG is part of the key "Finance track" of the 20 most advanced economies, set up in 1999 to help global economic coordination after the Asian financial crisis. The other, the "Sherpa track", works on the G-20's goal setting process. With the experience India gained in Indonesia last year to bridge the Russia-West divide, the challenges for India's presidency, amid dynamic geopolitical changes, should have been clear. In Bengaluru, however, the surprise was when Russia and China refused to accept the language on the Ukraine war that they had agreed to just three months ago. As a result, Finance Minister Nirmala Sitharaman was constrained to issue only a Chair's summary and outcome document, rather than a joint communique. The government also decided to include the paragraphs that Russia and China had objected to, naming them in the document. This is something of a precedent, as last year, the Indonesian chair's joint communiqués at the Leader level and FMCBG expressed the sentiments of "many" and "most" countries. After the brinkmanship in Bengaluru, it was ambitious, if not a bit surprising, that the government chose to attempt negotiations for a joint statement for the FMM. Eventually, External Affairs Minister S. Jaishankar issued a Chairman's summary and outcome documents too, citing differences over the two Bali paragraphs. This was a first, as FMMs have not attempted to issue statements at all.

While the two meetings have given India's G-20 process a rocky start, there is a long road ahead to the Leaders' summit in September. Mr. Jaishankar has pointed out that the bulk of the statements that pertain to the critical issues for the Global South, such as food and energy security and debt management, have been ironed out. Second, there is clarity that India cannot bank on the language of the Bali Summit, and Sherpas will need to iron out a new consensus language on Ukraine. This will require a keen ear and creative formulas that take into account Russian grievances with the language, as well as the western desire to retain its successes in condemning Russia's actions in the Bali document. As host, India is in the 'hot-seat' and will benefit from enlisting those countries in the grouping other than the entrenched camps of the G-7, U.S.-led developed world, and the now-strengthened Russia-China combine, to ensure that a middle path is found.

SUPREME COURT VERDICT ON ECI APPOINTMENTS

A five-judge bench of the Supreme Court Thursday unanimously ruled that a high-power committee consisting of the Prime Minister, Leader of Opposition in Lok Sabha, and the Chief Justice of India must pick the Chief Election Commissioner (CEC) and Election Commissioners (ECs). What was the challenge before the Court and why did it radically alter the process of appointing Election Commissioners?

In 2015, a public interest litigation was filed by Anoop Baranwal challenging the constitutional validity of the practice of the Centre appointing members of the Election Commission. In October

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2018, a two-judge bench of the SC referred the case to a larger bench since it would require a close examination of Article 324 of the Constitution, which deals with the mandate of the Chief Election Commissioner. The SC had not debated this issue earlier. In September last year, a five-judge Constitution bench headed by Justice KM Joseph began hearing the case and almost a month later, the verdict was reserved.

The Bench also comprised Justices Ajay Rastogi, Aniruddha Bose, Hrishikesh Roy and C T Ravikumar.

What is the challenge?

Article 324(2) reads: “The Election Commission shall consist of the Chief Election Commissioner and such number of other Election Commissioners, if any, as the President may from time-to-time fix and the appointment of the Chief Election Commissioner and other Election Commissioners shall, subject to the provisions of any law made in that behalf by Parliament, be made by the President.”

The crux of the challenge is that since there is no law made by Parliament on this issue, the Court must step in to fill the “constitutional vacuum.” This examination also leads to the larger question of separation of powers and if the judiciary is overstepping its role in filling this gap in the law.

Two corollary issues that were also examined by the Court are whether the process of removal of the two Election Commissioners must be the same as the CEC; and regarding the funding of the EC.

As per the current process, the Law Minister suggests a pool of suitable candidates to the Prime Minister for consideration. The President makes the appointment on the advice of the PM.

What did the court decide?

Justice Joseph authored the majority opinion while Justice Rastogi authored a separate opinion agreeing with the majority view.

“The appointment of the Chief Election Commissioner and the Election Commissioners shall be made by the President on the advice of a Committee consisting of the Prime Minister, the Leader of the Opposition of the Lok Sabha, and in case no leader of Opposition is available, the leader of the largest opposition Party in the Lok Sabha in terms of numerical strength, and the Chief Justice of India,” the verdict states.

“We make it clear that this will be subject to any law to be made by Parliament,” the court added.

This means that Parliament can undo the effect of the SC verdict by bringing in a new law on the issue.

How did the court arrive at the verdict?

The Court’s verdict is based on a reading of the debates of the Constituent Assembly to ascertain what the founding members of the Constitution envisaged the process to be and an interpretation of similar provisions in the Constitution.

The verdict states that a “golden thread runs through” the proceedings of the Constituent Assembly debates on the provision. “All the Members were of the clear view that elections must



be conducted by an independent Commission. It was a radical departure from the regime prevailing under the Government of India Act, 1935,” the verdict states.

The deliberate addition of the words “subject to the provisions of any law made in that behalf by Parliament” after prolonged discussions, according to the court, indicate that “what the Founding Fathers clearly contemplated and intended was, that Parliament would step in and provide norms, which would govern the appointment to such a uniquely important post as the post of Chief Election Commissioner and the Election Commissioners.”

The ruling examined a number of provisions in the Constitution, including the ones relating to the powers of the Supreme Court and High Court; establishing the SC, ST and Backward Classes Commissions, etc. where the Constitution uses the phrase “subject to the provisions of any law made by Parliament”. The Court finds that while a legislation has been supplemented for those provisions, there is no law on appointment of the CEC even 70 years after independence.

“It is equally clear that Article 324 has a unique background. The Founding Fathers clearly contemplated a law by Parliament and did not intend the executive exclusively calling the shots in the matter of appointments to the Election Commission. Seven decades have passed by. Political dispensations of varying hues, which have held the reigns of power have not unnaturally introduced a law. A law could not be one to perpetuate what is already permitted namely appointment at the absolute and sole discretion of the Executive,” the court said.

What was the government’s stand?

The government argued that “in the absence of such a law, the President has the constitutional power.” The government has essentially asked the court to exhibit judicial restraint.

The court in its ruling discusses at length its intention to “maintain a delicate balance” on separation of powers.

“While, it is true that, ordinarily, the court cannot, without anything more, usurp what is purely a legislative power or function, in the context of the Constitution, which clothes the citizens with Fundamental Rights and provides for constitutional goals to be achieved and inertia of the Legislative Department producing a clear situation, where there exist veritable gaps or a vacuum, the Court may not shy away from what essentially would be part of its judicial function,” the ruling states. The ruling cites past instances of the Court stepping into to fill a gap in the law, including the Vishaka guidelines to curb sexual harassment at workplace, and the interpretation on the process of appointment of judges.

What are the other findings of the court?

On the issue of whether the process of removal of Election Commissioners must be the same as it is for the CEC, the Court ruled that it cannot be the same. The Constitution states that the CEC can be removed in a process similar to a judge — through a majority in both houses of Parliament on grounds of proven incapacity or misbehaviour.

“It may be true that there is equality otherwise, which exists between the Chief Election Commissioner and the Election Commissioners in various matters dealt with under the Act. However, we must bear in mind, in law, Article 324 is inoperable without the Chief Election Commissioner,” the Court said.



On the issue of funding the EC, the Court left it to the government. “We would only make an appeal on the basis that there is an urgent need to provide for a permanent Secretariat and also to provide that the expenditure be charged on the Consolidated Fund of India and it is for the Union of India to seriously consider bringing in the much-needed changes,” the ruling stated.

THE EXPRESS VIEW: LISTEN TO THE COURT

On Monday, a two-judge bench of the Supreme Court issued a timely warning against ahistorical appropriations of the past. Dismissing a PIL that sought the Court’s intervention in restoring the “original names” of places “renamed by barbaric invaders,” the bench said that the “country cannot remain a prisoner of the past”. The petitioner had contended that several roads, public places and cities in the country are named after “foreign looters” and argued that the “benevolent nature of Hinduism had resulted in it being wiped out from Pakistan and Afghanistan”. The bench admonished him for going by the playbook of those who “invoke history selectively” to create “schisms in society”. “You want to keep the country on the boil. Let us not break society with such kinds of petitions,” it said, and observed that such renaming projects take away focus from important governance-related imperatives.

Moves to rename places are rarely innocent of short-term politics. European names, for instance, were grafted onto towns, cities and countries in several parts of the world during the so-called Age of Discovery in the 15th to 18th centuries. Constantinople was renamed Istanbul in 1930, and the urge to reverse colonial legacies led to changes in the names of several places in India immediately after Independence. In recent times, such renaming exercises have become the stock-in-trade of the votaries of identity politics who obsess about “outsiders”, “invaders” and “looters”. The association of such usage with majoritarian politics is unmistakable and the erasure of historical context and nuance in such projects is conspicuous — whether it be the renaming of Aurangzeb Road in Delhi or changing the names of Allahabad and Mughalsarai in Uttar Pradesh. The petitioner to the Supreme Court spoke of Mahmud of Ghazni and Ibrahim Lodhi in the same breath, even though the two medieval kings have vastly different ancestries and are separated by nearly five centuries. “What is the relationship of Aurangzeb, Ghazni and Lodhi with India,” he asked and rued that several places in Delhi are named after these rulers, “but none after the Pandavas”. This failure to come to terms with the past rightly invited the apex court’s censure. “Can you wish away invasions from history? What are you trying to achieve?” it asked.

The apex court concluded by reaffirming the “rule of law, secularism and constitutionalism” and cautioning against bigotry. Its directive to abide by “the principle of fraternity enshrined in the Constitution’s Preamble” and its words of caution against the abuse of history must be heard.

ASSEMBLY ELECTION VERDICTS UNDERSCORE STIRRINGS IN NORTH-EAST, SUCCESS OF BJP AND REGIONAL OUTFITS

The verdicts in Tripura, Nagaland and Meghalaya suggest that the BJP’s political narrative has gained more ground in the Northeast since it first made its presence felt with the Assam victory in 2016. The party has won a second consecutive term in Agartala while its pre-poll ally, the NDDP (Nationalist Democratic Progressive Party) is poised to retain office in Kohima. The BJP could not win Meghalaya on its own but is likely to partner the National People’s Party in forming the government in Shillong. In short, all three states are set to have NDA governments. This follows the trend in Assam, Manipur and Arunachal Pradesh, where BJP governments have been re-elected since 2019.



The rise of the BJP in the Northeast is a testament to the party's drive and will to win. It is also a reflection of the failure of other national parties — the Congress and CPM among them — that had dominated the region for years in recognising the changing dynamic in the region. The regional parties, on the other hand, seem to recognise the new stirrings and are keen to align with the BJP — they have historically preferred to partner the dominant party at the Centre. Since 2014, the BJP has tried to build on the ground work done by the RSS in the region by projecting a narrative of nationalism, and schemes and promises of expanding infrastructure. Peace agreements were signed with several groups — for instance, Bodo Accord 2020, Bru-Reang Agreement 2020, National Liberation Front of Tripura Agreement 2019, Karbi Anglong Agreement 2021 — though the Naga peace accord is yet to be concluded despite the Centre and the NSCN-IM agreeing on a framework agreement in 2015. Simultaneously, there has been an expansion of road and rail links in the region. However, the privileging of majoritarian identity politics, particularly in Assam and Tripura, could disrupt this record of administrative successes. The anti-minority politics and propaganda that appears to have found state sanction in Assam and the attempt to stoke fear among Bengali speakers in Tripura over the rise of Tipra Motha, an outfit that has focused on the rights of “indigenous communities”, are deeply disturbing and raise legitimate fears of the undermining of social cohesion. The Northeast is a crucible of multiple identities and shares a long and sensitive boundary with Bangladesh, Myanmar and China. Both development and social peace are key to building the region as the centrepiece of India's Act East strategy.

The Opposition should head to the drawing board to figure out the reasons for its lacklustre performance. The Trinamool Congress had invested heavily in Meghalaya but failed to win over voters. The Tripura verdict is a lesson for the Congress and CPM that voters are unlikely to support alliances of convenience. The success of the Tipra Motha in Tripura and the Voice of the People's Party in Meghalaya suggests that the electorate is willing to give a chance to new narratives and fresh faces.

MANISH SISODIA DELHI EXCISE POLICY CASE: HOW THE RIGHT AGAINST SELF-INCRIMINATION WORKS

The Supreme Court on Tuesday refused to hear a plea by Delhi Deputy Chief Minister Manish Sisodia seeking bail in the excise policy case after a Delhi court on Monday remanded him in CBI custody till March 4. The Supreme Court disapproved of Sisodia approaching it directly under Article 32 of the Constitution when the remedy of moving the High Court under Section 482 of the CrPC was available to him.

Special CBI judge M K Nagpal had granted CBI Sisodia's custody on the grounds that he had “failed to provide satisfactory answers” during investigation. The court had rejected Sisodia's arguments that he had a right against self-incrimination.

What is an individual's right against self-incrimination?

The right against self-incrimination has its origins in Roman law, and evolved as a distinct right in the English jurisprudence. The Fifth Amendment in the United States Constitution says “No person shall be...compelled in any criminal case to be a witness against himself...without due process of law...”, a right that is colloquially referred to as “taking/ pleading the Fifth”.

Article 20(3) in Part III (Fundamental Rights) of the Indian Constitution says, “No person accused of any offence shall be compelled to be a witness against himself.”



The right to be presumed innocent until proven guilty, and the right to remain silent in an interrogation essentially flow from this constitutionally guaranteed right against self-incrimination. This right also ensures that police cannot coerce anyone to confess to a crime, and obtain a conviction based on that confession.

How does the right against self-incrimination apply in criminal cases?

Since the onus of proving the case against the accused beyond reasonable doubt is on the state, a person cannot be compelled to testify against himself or share information that might go against him in a trial.

In the landmark 1961 verdict in *The State of Bombay versus Kathi Kalu Oghad*, an eleven-judge Bench of the Supreme Court ruled that obtaining photographs, fingerprints, signatures, and thumb impressions would not violate the right against self-incrimination of an accused. The court distinguished “to be a witness” from “furnishing evidence”.

In 2019, the Supreme Court in its ruling in *Ritesh Sinha versus State of Uttar Pradesh* broadened the parameters of handwriting samples to include voice samples, adding that this would not violate the right against self-incrimination.

Earlier in 2010, in *Selvi v State of Karnataka*, the Supreme Court held that a narcoanalysis test without the consent of the accused would amount to violation of the right against self-incrimination.

However, obtaining a DNA sample from the accused is permitted. If an accused refuses to give a sample, the court can draw adverse inferences against him under Section 114 of the Evidence Act.

What happened in Manish Sisodia’s case?

The CBI told the special court that it would need custody of the accused since he was evasive during the interrogation.

Senior advocate Dayan Krishnan, who appeared for Sisodia, said that cannot be a ground for seeking remand: “Their case is I (Sisodia) did not answer in the way they wanted me to answer. I will show why that is not a ground for remand.” He argued that if the court granted remand for self-incrimination, “then that would be a travesty”.

What was the reasoning of the court?

In his order granting remand, judge Nagpal sought to differentiate between “giving legitimate answers” and protecting the right against self-incrimination. The judge did not elaborate on what would be counted as “legitimate” answers.

“It is true that he cannot be expected to make self-incriminating statements, but the interests of justice and of a fair investigation require that he should come up with some legitimate answers to the questions which are being put to him by the IO,” the order stated.

“Some of his subordinates are found to have disclosed certain facts which can be taken as incriminating against him and some documentary evidence against him has also already surfaced and a proper and fair investigation requires that some genuine and legitimate answers to the questions being put to him about the same are to be found and hence, in considered opinion of this court, this can only be done during custodial interrogation of the accused...,” the court said.



On what grounds did the SC reject Sisodia's plea on Tuesday?

The SC refused to intervene in Sisodia's arrest "at this stage". He had moved the SC under Article 32, which gives citizens the right to approach the top court when their fundamental rights are violated.

A Bench headed by Chief Justice of India D Y Chandrachud asked Sisodia to "avail alternate remedies" under Section 482 CrPC, under which no provision in the CrPC can "limit or affect the inherent powers of the High Court to make such orders as may be necessary to give effect to any order under this Code, or to prevent abuse of the process of any Court or otherwise to secure the ends of justice".

Senior advocate Abhishek Manu Singhvi argued that the SC had in other cases, including those of journalists Arnab Goswami and Vinod Dua, entertained petitions directly under Article 32. However, the CJI said that those cases involved free speech issues, while Sisodia's is under the Prevention of Corruption Act.

CM BHAGWAT MANN VERSUS PUNJAB GOVERNOR: PULL TOGETHER FOR PUNJAB'S SAKE

The Supreme Court's reminder to both Punjab Chief Minister Bhagwant Singh Mann and Governor Banwarilal Purohit to perform their constitutional duties with a "sense of decorum" and "mature statesmanship" couldn't have come at a more opportune moment. At the helm of the sensitive border state, the unpleasantries between the two men go back to last September when the state government accused the Centre of launching "Operation Lotus" to poach its legislators and the governor refused assent to an assembly session for tabling a trust motion. It is at about the same time, too, that the state saw the emergence in the public domain of a new self-styled ideologue, potentially scratching old wounds, and recalling dark days of a past the state has moved on from. The ruling Aam Aadmi Party — which came to power in Punjab with a heavy burden of high expectations after winning 92 of the 117 seats in the assembly elections last year — confronts spectres of the past amid a politics of distrust.

The disquieting incident in which a mob led by so-called preacher, Amritpal Singh, stormed a police station in the border district of Amritsar, has brought back memories of a time when the state was held hostage by young men fired up by ideologies of hate and fear, raising the bogey of a separate state. The toll this misguided movement took on Punjab and its people continues to cause immense pain even now. The wannabe-ideologue is raising old issues that have continued to linger, unaddressed. Some of these, like the division of river waters, dispute over the state capital and demand for greater devolution of powers, were at the heart of the militancy in the 1980s. There is an overlay of fresh grievances such as lack of justice in incidents of sacrilege of Guru Granth Sahib and unmet demands for the release of Sikh political prisoners, some of whom have been behind bars for over three decades now. This is capped by Punjab's continuing drug problem that has ravaged its young and that was one of the main reasons, along with the sacrilege cases, for the defeat of both the Shiromani Akali Dal, which had achieved a hat-trick with two successive wins not too long ago, and the Congress, in elections last year.

The governor has noted with dismay the toll that drugs continue to take during his tours of the state. Amritpal Singh, who is using religion as cover, is promising deliverance from the drug problem to work up support amongst the masses. The fact that he challenged state power and got the police to capitulate to his demand is bound to embolden him, although his use of the holy book has riled many in the community. It's urgent that both the Chief Minister and the Governor pull



together to nip trouble in the bud. They must address the long list of pending issues that call for their attention, instead of taking aim at each other. Both Chief Minister Mann and Governor Purohit must play their respective roles in ensuring that trouble and troublemakers are kept at bay.

WHY HARYANA SARPANCHES ARE PROTESTING AGAINST E-TENDERS FOR INFRA WORKS

Sarpanches of some villages in Haryana Wednesday tried to march to the Chief Minister's residence in Chandigarh and had to be held back by the police, which resorted to lathicharge.

The sarpanches have been protesting for the past two months against the introduction of e-tendering for development works in rural areas.

Why was the e-tendering system brought in?

The Haryana government claims it introduced e-tendering for infrastructure projects in villages to ensure transparency, accountability, and faster execution. Under the new system, introduced two years ago, the village panchayat can carry out works up to Rs 2 lakh on their own. Projects of higher value have to be carried out through e-tendering.

Why are village sarpanches opposing this?

The village heads, or sarpanches, see this as an attempt to take away the powers of panchayats. While the system was brought in two years ago, opposition to it began only around two months ago. That is because elections for sarpanches were held in November 2022 after a long gap, due to the Covid pandemic and some court cases.

The newly elected sarpanches now say that the e-tender move is aimed at taking away the power of panchayat raj institutions. Ranbir Samain, president of The Sarpanch Association of Haryana, said, "This is clear centralisation of powers. Under the new system, the government only needs to take 22 executive engineers of the state's 22 districts into confidence to control the entire tendering system of nearly 6,200 village panchayats. Politicians at higher levels are eyeing the budget of all village panchayats." Another sarpanch said the new system is an attack on their image, "seeking to create a perception that we are not honest".

What has the government said?

Khattar has said the e-tendering initiative was part of the government's zero-tolerance policy towards corruption.

PROTESTS IN PUNJAB FOR RELEASE OF 'BANDI SINGHS': WHO ARE THEY?

Punjab has witnessed protests demanding the release of Bandi Singhs (Sikh prisoners), in jail for more than three decades for various convictions.

What is the issue? Why it has come back to haunt the Punjab government?

Who are Bandi Singhs?

'Bandi Singhs' is a term given to Sikh prisoners who were convicted for involvement in militancy in Punjab and are still in jails in various parts of the country. Since the militancy was wiped out in



early 1990s, Sikh activists argue that the prisoners have already spent over three decades in jails, some are physically and mentally unfit, and hence, should be released.

How many of them are in jails?

According to Jaspal Singh Manjhpur, an activist working for their release, 20 Bandi Singhs are still in jail. Union Minister Gajendra Singh Shekhawat, during his recent visit to Punjab, had said there was a list of 11 Sikh prisoners, out of which nine had been released. Manjhpur, however, contested the minister's claim.

Why has the issue cropped up again?

The issue never has never really died down. It has become a religio-political issue in Punjab, with various political parties harping on it to either take on rivals or to get the support of radical Sikhs. This time, it has come to haunt the state government afresh after the Sikh Gurdwara Parbhandhak Committee (SGPC) launched a massive signature campaign in November last year seeking the prisoners' release.

While the SGPC is seen as allied with the Shiromani Akali Dal (SAD), the political party has also demanded the prisoners' release separately.

The BJP, which has been trying to woo Punjab voters, has said it is "sympathetic" towards the demand.

In February 2022, Union minister Shekhawat had promised that he would take up the issue of Bandi Singhs with the Centre for their release. Recently, Shekhawat, during his visit to Bathinda, filled forms meant to demand the release of Sikh prisoners who have completed their jail terms.

Why the protests against the AAP government?

The release of these Sikhs has to be considered by the governments of states where their cases had progressed. For instance, Beant Singh's assassination had taken place in Chandigarh. The Delhi bomb blast took place in Delhi. However, agitators say the AAP has yet not written to the Centre about the release of Bandi Singhs.

For now, the party, watching the mobilisation for the release of these prisoners, has played safe, by not sending for special remission the case of former PPCC chief Navjot Singh Sidhu.

SETTLING SCORES

The brief arrest of Congress leader and its Media and Publicity Department chairman Pawan Khera, after he was deboarded from a Raipur-bound flight, for an allegedly unsavoury remark against Prime Minister Narendra Modi, is yet another instance of how criminal law can be misused to settle political scores. His lawyers managed to obtain an order from the Supreme Court that ensured his interim bail, but the episode highlights the cavalier use of the power to arrest under political instruction. It is one thing to denounce a comment as offensive or hurtful, but quite another to read into it crimes such as making assertions against national integration, outraging religious sentiments or causing enmity in society. It becomes an egregious misuse of power if police from a distant State travel all the way to effect an unwarranted arrest based on a complaint by someone claiming to be offended. The Assam Police, which had arrested Gujarat legislator Jignesh Mevani in April 2022 for calling Mr. Modi 'a Godse worshipper' on Twitter and produced him before an Assam court, tried to repeat the exercise against Mr. Khera, but were thwarted by

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



the Court. It is disconcerting that the police in Bharatiya Janata Party-ruled States tend to act on complaints relating to events that have nothing to do with their jurisdiction, except for the incidental circumstance that it is reported as news in their geography too, as elsewhere.

Unwarranted insinuations against political leaders are not uncommon when party spokespersons talk to the media, and Mr. Khera's use of 'Gautamdas' as the Prime Minister's middle name may have touched a raw nerve among Mr. Modi's supporters who saw in it a sly reference to allegations about his proximity to industrialist Gautam Adani. In fact, Mr. Khera had apologised for his comment. The police often tend to register cases for strident and unsavoury remarks made against those in power. However, the need to arrest someone in such cases is questionable. In most instances, as is the case with Mr. Khera, these comments seldom amount to the serious offences mentioned in the FIRs. Malicious or threatening speech may warrant arrest, but strident criticism or tasteless comments alone should not. Multiple FIRs in different jurisdictions and attempts to arrest those involved are part of a playbook common to rulers in many States. Often lost in the controversy is the fact that effecting arrest on charges that attract less than seven years in prison amounts to a flouting of the norms of arrest. Such egregious violations will continue as long as courts of law limit their protection to grant of bail or clubbing of FIRs, instead of hauling up the police officers and bureaucrats involved for their partisan action.

WHAT IS HINDUSTHAN SAMACHAR, THE RSS-LINKED NEWSWIRE SERVICE THAT WILL PROVIDE CONTENT TO DOORDARSHAN AND AIR?

Public broadcaster Prasar Bharati has signed a two-year contract with the RSS-linked wire service Hindusthan Samachar (HS) to supply news feed for Doordarshan and All India Radio (AIR). Prasar Bharati cancelled its subscription to Press Trust of India (PTI), the nonprofit cooperative of Indian newspapers, in 2020.

What is Hindusthan Samachar?

HS was founded by Shivram Shankar Apte alias Dadasaheb Apte in 1948. Apte, a journalist who was born in Baroda in Gujarat, had a lifelong association with the RSS, and became the founding general secretary of the Vishwa Hindu Parishad (VHP) in 1964.

HS was registered as a cooperative society in 1956. In 1975, soon after the proclamation of the Emergency, Indira Gandhi's government merged the four news agencies of the time — PTI, United News of India (UNI), Hindusthan Samachar, and Samachar Bharati — into a single news agency, Samachar.

The decision was reversed by the Janata Party government that came to power after the elections of 1977, but Indira's government again targeted HS in 1983. Subhash Yadav, a senior Congress leader from Madhya Pradesh who later became Deputy Chief Minister of the state, was appointed Receiver. HS challenged the government's decision, and won the case in Delhi High Court in 1999. Thereafter, senior RSS leader Shrikant Joshi made attempts to revive the agency, and relaunched it.

Is the contract of HS with Prasar Bharati new?

No. It is only the renewal of an annual contract that HS has had with Prasar since February 2020. "We had a prior contract with Hindusthan Samachar, which was renewed this month," Prasar CEO Gaurav Dwivedi told The Indian Express on Sunday.



UNENDING ORDEAL

The death of Kashmiri Pandit and bank guard Sanjay Sharma at the hands of terrorist gunmen in Pulwama is yet another murder in a series of attacks on the minority community in the Valley. Sharma is the second Pandit to fall to terrorism in the Pulwama area after Janki Nath's death in 1990 at the peak of militancy. While the murder could be a deliberate ploy by terrorists to strike fear into the minority community in the area, it also signals the failure of security agencies to adequately protect the poor residents. The modus operandi of the radical elements who are targeting civilians has always been clear — the attacks are meant to invite state retaliation and repression, in turn fomenting discontent and disaffection to garner more recruits to the cause. On Tuesday, after follow-up operations that resulted in the death of an Army jawan and two militants, security forces have asserted that Sharma's attacker has now been slain. But this does little to mitigate the fear that has gripped Pandits in the Valley and Pulwama in particular. Last year, militant attacks resulted in the deaths of 29 civilians including three local Pandits, three other Hindus and eight non-local labourers and also caused the migration of 5,500 Pandit employees from the Valley.

All political parties including the separatists such as Hurriyat Conference, besides civil society organisations have condemned the attacks, but the repeated and brazen nature of the killings, at one level, point to a breakdown of relations between the administration and the citizenry, leading to the inability of the administration to anticipate and prevent such attacks. The fact that areas that were relatively safe for the minority community even during the peak of militancy have now become unsafe suggests that the administration must rethink its security-centric policies in the Valley. The Union Territory administration and the Union government have claimed that hard-edged moves such as the dilution of Article 370 and bifurcating the State in 2019 have helped curb militancy and were necessary to bring back normalcy in the Valley. But the repeated attacks on the minority community suggest otherwise — radical sections have sought to utilise the disaffection in the Valley to foment polarisation. Only an effective government by elected representatives of the people of the Valley can do more to rebuild trust between the administration and the citizenry. This will help isolate the radical sections and ease the workload of the security forces in Kashmir. Restoring statehood to Jammu and Kashmir and working towards the conduct of Assembly elections are now a clear imperative.

NAGALAND WOMEN: SOCIALLY EMPOWERED, ABSENT IN POLITICS

Between 2019 and 2021, about 85% of women in Nagaland over the age of 5 had attended school. India's average was only 72%. Less than 6% of Nagaland women aged 20-24 years, married before turning 18. India's average was over 23%. Only 29% Nagaland women were anaemic, while India's average was double that. Over 99% of married women in Nagaland participated in key household decisions and only about 6% had experienced spousal violence — about five times lower than India's figure.

And yet, in the 14 Assembly elections conducted between 1964 and 2018, Nagaland has not elected even one woman MLA. In this facet, Nagaland is an exception, as it is the only State that is yet to elect a woman MLA.

The dearth of women MLAs was not just because they did not win elections, but even among the candidates, representation was poor. The number of women candidates has not crossed six in any



of the 14 State polls conducted. In fact, in five elections the number of women candidates was zero. In two elections, it was just one.

Even in 2023, of the 183 candidates in the fray, only four are women. However, in the State, the number of women electors is similar to that of men. Of the 13,17,632 voters, 6,61,489 are men, and 6,56,143 are women. The four women candidates are Hekhani Jakhalu and Salhoutuonuo of the Nationalist Democratic Progressive Party (NDPP), Rosy Thompson of the Congress, and Kahuli Sema of the BJP.

In 2018, Awan Konyak of the NDPP narrowly missed making history in 2018 when her Naga People's Front (NPF) rival defeated her by 905 votes (8%) to bag the Aboi Assembly constituency.

However, notably, way back in 1977, Nagaland had chosen a woman MP; Rano Mese Shazia was elected on a United Democratic Party ticket. Last year, another woman entered Parliament from the State with the BJP nominating S Phangnon Konyak as the Rajya Sabha member from Nagaland.

This trend of being socially empowered but politically underrepresented, can be observed across most of the northeastern States.

In fact, across all indicators, the figures of most north-eastern States were better off than India's average. This data shows that women in the northeast are relatively more empowered socially. Except for Sikkim, and to an extent Assam, all other States have had a very poor representation of women in their legislatures in all the periods and are at the bottom of the table.

ARE MENSTRUAL LEAVE POLICIES IMPLEMENTED GLOBALLY?

The story so far:

On February 24, the Supreme Court refused to entertain a PIL about menstrual leave for workers and students across the country, calling it a policy matter. It highlighted that there were different “dimensions” to menstrual pain leave.

What is menstrual leave?

Menstrual leave refers to all policies that allow employees or students to take time off when they are experiencing menstrual pain or discomfort. In the context of the workplace, it refers to policies that allow for both paid or unpaid leave, or time for rest. More than half of those who menstruate experience pain for a couple of days a month; for some it is debilitating enough to hamper daily activities and productivity.

A 2017 survey of 32,748 women in the Netherlands published in the British Medical Journal found that 14% of them had taken time off from work or school during their periods. The researchers estimated that employees lost around 8.9 days' worth of productivity every year due to menstrual-cycle related issues.

What are the arguments against it?

Not everyone — not even all those who menstruate — is in favour of menstrual leave. Some believe that it is not required and that it will backfire and lead to employer discrimination against women. For example, in response to the plea filed in the Supreme Court, a caveat was filed by law student Anjale Patel, represented by advocate Satya Mitra, highlighting a potential issue with menstrual leave. “The law student says that if you compel employers to grant menstrual pain



leave, it may operate as a de facto disincentive for employers to engage women in their establishments... This has a policy dimension,” Chief Justice Chandrachud observed.

What are some of the global menstrual leave policies?

On February 16, among a host of other sexual health rights, Spain became the first European country to grant paid menstrual leave to workers. Workers now have the right to three days of menstrual leave — expandable to five days — a month.

In Asia, Japan introduced menstrual leave as part of its labour laws in 1947, after the idea became popular with labour unions in the 1920s. At present, under Article 68, employers cannot ask women who experience difficult periods to work during that time. Indonesia too introduced a policy in 1948, amended in 2003, which states that workers experiencing menstrual pain are not obliged to work on the first two days of their cycle. In the Philippines, workers are permitted two days of menstrual leave a month. Among African nations, Zambia introduced one day of leave a month without needing a reason or a medical certificate, calling it a Mother’s Day.

Are attempts being made in India?

Among State governments, Bihar and Kerala are the only ones to introduce menstrual leave to women. The Bihar government, then headed by Lalu Prasad Yadav, introduced its menstrual leave policy in 1992, allowing employees two days of paid menstrual leave every month. Recently, Kerala Chief Minister Pinarayi Vijayan had announced that the State’s Higher Education department will now grant menstrual and maternity leaves for students in universities that function under the department.

Additionally, Congress MP from Kerala, Hibi Eden announced that he will be moving a private member’s Bill seeking the right to paid leave during menstruation for working women, menstrual leave for female students, and free access to menstrual health products, in the ongoing Budget session of the Parliament.

CJI REPRIMANDS STUDENT FOR FILING A CAVEAT IN PETITION SEEKING MENSTRUAL LEAVE: WHAT IS A CAVEAT?

On February 24, an Apex Court bench headed by CJI D Y Chandrachud reprimanded a law student for filing a caveat in “Shailendra Mani Tripathi v. Union of India & Others”, a petition seeking menstrual leave for female students and working women across Indian institutions while adding that “this is a publicity-oriented caveat” and the student had “no business here.”

What is a caveat?

In common parlance, a caveat refers to “warning” or “caution”. However, legally it connotes a “formal notice requesting the court to refrain from taking some specified action without giving prior notice to the person lodging the caveat.” The person lodging the caveat is called a “caveator”.

Inserted by the Amendment Act of 1976, added after the Law Commission’s recommendation, Section 148A of the Civil Procedure Code (CPC) explains when a person has a right to lodge a caveat as “where an application is expected to be made, or has been made, in a suit or proceeding instituted, or about to be instituted, in a Court, any person claiming a right to appear before the Court on the hearing of such application may lodge a caveat in respect thereof.” The caveator or



the person lodging is also required to serve a notice of the caveat by “registered post” to the person on whose plea they are lodging the application

However, the term “caveat” is not expressly defined anywhere except in the Calcutta High Court’s 1978 ruling in “Nirmal Chandra Dutta vs Girindra Narayan Roy” where the court defined the term as a “caution or warning giving notice to the Court not to issue any grant or take any step without notice being given to the party lodging the caveat. It is a precautionary measure taken against the grant of probate or letters of administration, as the case may be, by the person lodging the caveat.”

REDUCING PAIN

Many barriers on the road to gender equality have been removed, but many roadblocks remain. Women have fought hard to get to the present when, thanks to higher education and work opportunities, they can dream of balancing work and home, though couple equity is still not a reality for many. The battle for rights related to reproductive health has been a hard-fought one but women have been successful at persuading governments to initiate policy changes to improve their health and well-being. In India, the Maternity Benefit Act that was enacted by Parliament in 1961 has been amended from time to time to give women better benefits; for instance, paid maternity leave has been extended from the earlier 12 weeks to 26 weeks. It is in this context that the Supreme Court of India’s directive to a petitioner to approach the Union Ministry of Women and Child Development to frame a policy on menstrual pain leave has to be seen. Pointing out that there are different “dimensions” to it, a three-judge Bench led by Chief Justice of India D.Y. Chandrachud said the biological process must not become a “disincentive” for employers offering jobs to women. A petition had sought the Court’s direction to States to frame rules for granting menstrual pain leave for students and working women, but there are apprehensions that these could entrench existing stigma and also result in furthering discrimination.

In India, Kerala and Bihar have menstrual pain leave; the food delivery app Zomato has also introduced it. Indonesia, Japan, South Korea, Spain and Zambia have this policy included in labour laws. Many feminists have, however, decried the move, saying it will reinforce negative gender stereotypes. Also in India, there are other problems in need of addressing such as lack of sanitation facilities in school and at the workplace, especially in the informal sector. Between 2010 and 2020 the percentage of working women dropped from 26% to 19%, according to World Bank data. To encourage more women to join the workforce, it is imperative they have access to higher education and more opportunities. Sometimes, girls have to drop out from school simply because there are no toilets. In a world that should strive to become a better place for all, it is the responsibility of the wider society and governments to ensure that no section is left behind. Many countries are trying out four-day work days for a quality life, while others are offering paternity leave so that parenting can be, rightly, equally shared, and also to ensure employers do not see recruiting women as a disadvantage. All constraints on the road to gender equality and equity must be done away with.

TAMIL NADU’S ‘CRASH COURSE’ ON NEET

A year after the Tamil Nadu Legislative Assembly historically re-adopted the Tamil Nadu Admission to Undergraduate Medical Degree Courses Bill after it was returned by Governor R.N. Ravi, the aspirants of medical courses are at the crossroads. The Bill, which seeks to dispense with the National Eligibility-cum-Entrance Test (NEET) and allow admissions for undergraduate



medical degree courses in 'government seats' on the basis of Class 12 marks, is pending presidential assent.

Against this backdrop, the M.K. Stalin government has moved an original suit in the Supreme Court for a declaration that the NEET as the sole gateway for entry into medical courses is a violation of the Basic Structure of the Constitution, of the fundamental right to equality, and an anathema to the principles of federalism. It has prayed to declare the NEET mandate as "ultra vires the provisions of the Constitution of India" and "violative of Article 14 of the Constitution." The government has argued that NEET strips the States of powers to admit students to government seats when education, despite being on the Concurrent List, is a subject within the competence of the State to legislate.

The suit, according to Health Minister Ma Subramanian, was necessitated as the previous All India Anna Dravida Munnetra Kazhagam (AIADMK) government had challenged NEET in the apex court on the basis of the repealed Medical Council Act of 1956. The DMK government has since withdrawn the earlier suit. The current suit challenges provisions of the National Medical Commission Act.

Just days earlier, Mr. Stalin had asked his Dravida Munnetra Kazhagam (DMK) MPs to raise, among other things, in both House of Parliament the prolonged pendency of the NEET exemption Bill. The DMK government's launch of a legal battle at this stage, parallel to a political and constitutional fight, has expectedly led to apprehensions among medical aspirants about their fate; in Tamil Nadu, entrance examinations for professional courses were abolished in 2007 to facilitate equitable social justice. If the President defers her decision on the anti-NEET Bill, saying the matter is sub judice, it would heighten anxieties. Besides, a question would arise whether Tamil Nadu, in a parallel proceeding, can challenge the NEET in its entirety when its Bill only seeks exemption from the NEET for filling up government medical seats. If the court, which has previously dismissed Tamil Nadu's plea for NEET exemption, rejects the latest suit, the President could cite it to decline assent for the Bill. For aspirants, the litigation by the government itself could present false hopes of an exemption from NEET, thereby disrupting their preparations for this year's competitive exam.

Critics wonder if the DMK is conceding "political defeat" and mounting a "legal challenge" after failing to get timely presidential assent for the Bill. DMK leaders had accused the then Edappadi K. Palaniswami regime of being "servile" to the BJP at the Centre and not "pressuring it enough" to get exemption from NEET. They had claimed medical aspirants would be "instantly" spared the ordeal of an entrance test the moment Mr. Stalin became Chief Minister. Curiously, the decision to file the fresh suit came just days before the February 27 Erode East Assembly bypoll.

The State BJP is openly advocating for the NEET. It is clear that the Narendra Modi government is in no mood to help Mr. Stalin score political points. While seeking the opinions of the Ministries of Health and AYUSH, the Ministry of Home Affairs had pointedly asked whether the provisions of the Bill "endanger the sovereignty, unity and integrity of the nation." The AYUSH Ministry had replied in the affirmative. Details of the Centre giving a 'national threat' angle to an education subject would have remained buried had not the State Platform for Common School System (Tamil Nadu) sought details of the status of the Bill using the Right to Information Act.

It is well-documented that the NEET as a determinant of inter se merit is a weak narrative since students with lower scores but with paying capacity have also entered medical colleges. Yet it



continues to be imposed. Politically, the Stalin government has taken a gamble. If its legal suit succeeds, it will boost the Chief Minister's image; else he could face a tough challenge.

PORTAL OPENED FOR COMPLAINTS AGAINST DECISIONS OF SOCIAL MEDIA PLATFORMS

The Ministry of Electronics and Information Technology on Tuesday launched the Grievance Appellate Committee (GAC) portal under the IT Rules, 2021, allowing people dissatisfied with resolution of complaints to social media companies on content takedown requests, to be heard by one of the three committees constituted by the government.

This marks a shift in how social media content is moderated in India. The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 were amended last year to require social media companies to "respect all the rights accorded to the citizens under the Constitution, including in the articles 14, 19 and 21," signalling that social media platforms may now have to allow speech that is not allowed on their platforms, but are otherwise legal to express in public.

Three committees were formed in January to receive complaints to put these amendments into action. The website of the GACs is now accepting appeals from the public. The IT Rules already require platforms to have a process for accepting complaints against content and appeals against takedowns from users; companies' decisions in response to these appeals, though, will now ultimately be subject to the GACs' orders. India is not the only country moving away from treating platforms such as Facebook and Twitter as mere private "intermediaries".

The IT Ministry has indicated that it is working on a "Digital India Bill" to give a firmer statutory backing to the IT Rules.

RELATIVELY FEW TOBACCO USERS IN THE SOUTHERN STATES

In the north-eastern States of India, consumption of tobacco among men — in both smokable and chewable forms — was higher than the rest of India in 2019-21. If only the smokable forms were considered, the share was higher in the northern States of Himachal Pradesh, Uttarakhand, Haryana, J&K U.T. and the eastern State of West Bengal. If only the chewable forms were considered, the share was higher in the east — Jharkhand, Bihar and Odisha — and in Uttar Pradesh, Madhya Pradesh and Gujarat.

In the southern States, the share was relatively low with regard to both forms of tobacco consumption. However, among those who smoked, the share of those who consumed more than five sticks a day was much higher in many southern States. So, while smokers were fewer in the south, those who smoked did so heavily.

Overall, in India, the share of cigarette/bidi smokers was coming down. Compared to 2005-06, the share of smokers came down by over 10% points in 2019-21. Also, the rural-urban gap became negligible by 2019-21. However, among those who chewed tobacco, there was no change among rural users whereas among urban users there was a decline, although to a smaller extent compared to the drop in smokers.

Also, among smokers, the share of those who smoked more than nine sticks a day reduced significantly and those who smoked less than five has increased.



According to health economist Rijo M. John, the reduction in cigarette smoking may be attributed to the increase in the prices of the commodity over time. On the other hand, the prices of bidis and other chewable forms have not increased much, and so consumption too has not reduced much. “Worryingly, after GST implementation, cigarette prices have not increased much. In future surveys, we may see an increasing trend in smoking,” he said.

ON REGULATING ONLINE SALE OF DRUGS IN INDIA

The story so far:

In early February, the Ministry of Health pulled up at least twenty companies including Tata-1mg, Flipkart, Apollo, PharmEasy, Amazon and Reliance Netmeds, by issuing them a showcause notice, for selling medicines online. This happened after the All India Organisation of Chemists and Druggists (AIOCD), a powerful lobby of over 12 lakh pharmacists, threatened to launch a country-wide agitation if the government didn't act. Health Minister Dr. Mansukh Mandaviya in close door meetings with senior officials of the Ministry has made clear the pitfalls of selling medicines virtually. The Minister went so far as to say that e-pharmacies should be closed down.

Is banning e-pharmacies a viable option?

The Ministry of Health has adopted a 'blow hot blow cold' approach towards online pharmacies. The acute need for door step delivery of drugs was felt during COVID-19. The year of 2020 marked a watershed moment for the growth of e-pharmacies as the Ministry of Home Affairs issued orders for them to continue to operate. It saw nearly 8.8 million households using home delivery services during lockdown.

A senior official from the Health Ministry told The Hindu, “Banning e-pharmacies would be like throwing the baby out with the bath water. The demand for online delivery of drugs is burgeoning. There is a possibility that some of these businesses will go underground if banned, because people are not going to stop ordering medicines online anytime soon.” One can't wish away the sale of drugs online by threatening to ban businesses, instead of regulating the sector, the official added.

The draft e-pharmacy rules, which were originally intended to whip e-pharmacy businesses into shape were floated by the Ministry of Health in 2018. The rules were finalised, public comments were taken into consideration and they were almost on the brink of being notified. But the proposal was abruptly shoved into cold storage, after being referred to a Group of Ministers including Amit Shah (home) and Rajnath Singh (defence) as the matter was considered 'sensitive'. It ran the risk of irking a substantial vote bank of offline pharmacists.

Since then, multiple court orders including those from Bombay, Madras, Delhi and Patna High Court have called for regulating e-pharmacies. The latest in the line is the 172nd Parliamentary Standing Committee report released in June last year, which found it 'appalling,' that e-pharmacy rules had not been notified even after four years of the draft being introduced.

How are e-pharmacies competing with mom-and-pop chemist shops?

Flush with billions of dollars of private equity money to infuse, e-pharmacies made a bang in the market in 2015 and started offering hefty discounts on medicines in a bid to garner more market share. But they didn't just stop at the discounts.



E-pharmacies call themselves facilitators of doorstep delivery. They claim tie-ups with retail chemists for vending medicines. However, since profit margins in the drug retail industry are very thin, just about 15% to 16%, every player in the supply chain is struggling to make money. Therefore, companies like PharmEasy, in a move to circumvent retail chemists are building a supply chain from the ground up by buying out big and small wholesale drug distributors like Ascent Health, Desai Pharma, Eastern Agencies Healthcare among others.

Reliance bought out a Bengaluru-based software company C-Square Info Solutions, which caters to the software needs of local pharmacists since the past twenty years. But this aggressive growth is coming at a cost. It is to be noted that since 2015, e-pharmacies have recorded losses year-on-year. Tata-1 Mg posted a loss of ₹146 crore in FY22, whereas PharmEasy's losses widened to ₹2,700 crore in the same fiscal.

What next?

Both e-pharmacies and offline retail pharmacists have realised that in a climate where drug delivery is driven by consumer sentiments, it is futile to stick to any one way of doing business. "In the past eight years, the market penetration of e-pharmacies has seen single digit growth from 3% to 5%. It is just one additional option for consumers for buying chronic care medicines for diabetes, high blood pressure, cardiac issues and so on," said a leading e-pharmacy player who did not wish to be quoted.

For acute care and emergency, patients still rely on their neighbourhood pharmacy stores.

This has led e-pharmacy players to now open capital-intensive brick and mortar stores. Until March 2021, Reliance had opened 114 pharmacies inside their Smartpoint grocery stores. It plans to open 2,000 more outlets. Apollo Pharmacy which has nearly 4,000 physical stores also caters to online sales. "PharmEasy has close to 600 of its own stores while Tata-1Mg has over fifty stores and is adding more," the aforementioned player said.

Stiff competition has forced mom and pop pharmacists to also offer home delivery options to their customers by introducing their own store apps. They even give customers options to order medicines over Whatsapp. In an eco-system that is moving towards a hybrid mode, all eyes are on the Ministry of Health which will have to effectively regulate the new way of doing e-commerce in the drug space.

A CLEAN GAMBLE

The Centre is expected to clarify, later this year, the specifics of a carbon trading market in India. An amendment to the Energy Conservation Act, passed in 2022 and, separately, approval by the UN Framework Convention on Climate Change via the Paris and Glasgow agreements ensured that carbon markets (where 'carbon credits' and 'emission certificates' can be traded) have acquired greater global currency. 'Carbon markets' are a catch-all term and need clarity, especially in the Indian context. A decade or more ago, they meant stock-market-like exchanges that traded in 'carbon offsets' made legitimate under the Clean Development Mechanism. Here, industrial projects in developing countries that avoided greenhouse gas emissions were eligible for credits that, after verification, could be sold to European companies that could buy them in lieu of cutting emissions themselves. Alongside are the EU-Emissions Trading Systems (ETS) where government-mandated emission limits on industrial sectors such as aluminium or steel plants require industries to either cut emissions or buy government-certified permits from companies



that cut more emissions than required or were auctioned by governments. Carbon credits became valuable because they could be used as permits in EU-ETS exchanges. Such permits are a 'right to pollute' and being tradeable on an exchange, akin to shares, are expected to fluctuate in value depending on a company's need to balance profitability and comply with pollution norms.

The objective of such markets is to incentivise investments in renewable energy sources. While India has maintained its right to grow its carbon emissions in the near future, it has committed to cutting the emissions intensity (emissions per unit of GDP) of its growth by 45% (of 2005 levels) by 2030. It has been doing this, partly, via the Perform, Achieve and Trade (PAT) scheme, where around 1,000 industries have been involved in procuring and trading energy saving certificates (ESCs). Since 2015, various cycles of the PAT have shown emission reductions of around 3%-5%. The European Union, which runs the oldest emission trading scheme since 2005, had cut emissions by 35% from 2005-2019 and 9% in 2009, over the previous years. Whether carbon trading can meaningfully lead to emissions reductions in the Indian context is a question that can be answered only decades later. It would, however, be a victory in itself, if it is able to mobilise domestic finance and accelerate the shift away from fossil fuel. With that end in mind, the government must intervene to bring in the right amount of pressure on industry to participate in the market but not ignore proven non-market initiatives to achieve greenhouse gas reductions.

THE SOPHISTICATED ANATOMY OF HEAT WAVES

The story so far:

Last week, the India Meteorological Department (IMD) warned that the maximum temperatures over northwest, west, and central India would be 3-5°C higher than the long-term average. On February 21, the national capital recorded its third hottest February day (33.6° C) in more than five decades.

What is a heat wave?

According to the IMD, a region has a heat wave if its ambient temperature deviates by at least 4.5-6.4°C from the long-term average. There is also a heat wave if the maximum temperature crosses 45°C (or 37°C at a hill-station).

Heat waves are expected to become longer and more intense and frequent over the Indian subcontinent. In 2022 itself, the heat waves started early and were more numerous. They also extended further south into peninsular India due to a north-south pressure pattern set up by the La Niña, a world-affecting weather phenomenon in which a band of cool water spreads east-west across the equatorial Pacific Ocean.

The last three years have been La Niña years, which has served as a precursor to 2023 likely being an El Niño year. (The El Niño is a complementary phenomenon in which warmer water spreads west-east across the equatorial Pacific Ocean.) As we eagerly await the likely birth of an El Niño this year, we have already had a heat wave occur over northwest India. Heat waves tend to be confined to north and northwest India in El Niño years.

How do heat waves occur?

Heat waves are formed for one of two reasons — warmer air is flowing in from elsewhere or it is being produced locally. It is a local phenomenon when the air is warmed by higher land surface



temperature or because the air sinking down from above is compressed along the way, producing hot air near the surface.

A study published on February 20, 2023, in Nature Geoscience offers explanations as to how different processes contribute to the formation of a heat wave. (The study's findings have been adapted here to the Indian context.)

First of all, in spring, India typically has air flowing in from the west-northwest. This direction of air-flow is bad news for India for several reasons. In the context of climate change, West Asia is warming faster than other regions in latitudes similarly close to the equator, and serves as a source of the warm air that blows into India. Likewise, air flowing in from the northwest rolls in over the mountains of Afghanistan and Pakistan, so some of the compression also happens on the leeward side of these mountains, entering India with a bristling warmth.

While air flowing in over the oceans is expected to bring cooler air, the Arabian Sea is unfortunately warming faster than most other ocean regions.

Next, the strong upper atmospheric westerly winds, that come in from the Atlantic Ocean over to India during spring, control the near-surface winds. Any time winds flow from the west to the east, we need to remember that the winds are blowing faster than the planet itself, which is also rotating from west to east. The energy to run past the earth near the surface, against surface friction, can only come from above. This descending air compresses and warms up to generate some heat waves.

Finally, the so-called lapse rate — the rate at which temperatures cool from the surface to the upper atmosphere — is declining under global warming. In other words, global warming tends to warm the upper atmosphere faster than the air near the surface. This in turn means that the sinking air is warmer due to global warming, and thus produces heat waves as it sinks and compresses.

Given that these are the processes that contribute to the formation of a heat wave, and the ways in which global warming affects them, it is clear why once-a-decade heat wave events have started to occur once every few years, and are also more intense.

How does air mass contribute to heat waves?

The other factors that affect the formation of heat waves are the age of the air mass and how far it has travelled. The north-northwestern heatwaves are typically formed with air masses that come from 800-1,600 km away and are around two days old. Heat waves over peninsular India on the other hand arrive from the oceans, which are closer (around 200-400 km) and are barely a day old. As a result, they are on average less intense.

In sum, heat waves have a sophisticated anatomy with important implications for how well we can predict them. Nonetheless, early-warning systems can take advantage of the processes, modes of formation, location, and age of the air mass to improve the quality of warnings and also increase how soon they can be issued. Sizeable investments in human and computational resources have already increased India's forecast skills in the last decade.

For reasons that we are yet to fully understand, mortality over India due to heat waves are substantially lower than those in other mid-latitude regions (including potentially significant under-reporting). We should further improve forecast warnings, issue them as soon as possible, and couple them with city-wide graded heat action plans to protect the vulnerable.



WILL INDIA WITNESS AN EL NIÑO FORECAST THIS YEAR?

The story so far:

India is experiencing a colder than normal winter thanks to the north-south winter flow set up by the climate phenomenon known as La Niña. The La Niña itself is going on for a record-breaking third consecutive year. Now, forecasts for the 2023 fall and winter are predicting that there is a 50% possibility for its companion phenomenon, the El Niño to occur.

What are El Niño and La Niña?

El Niño refers to a band of warm water spreading from west to east in the equatorial Pacific Ocean. The years in which an El Niño occur are called 'El Niño years', and global weather patterns in that year tend to be anomalous in certain ways. Similarly, a La Niña occurs when the band of water spreads east-west and is cooler. Both phenomena can have drastic effects on economies that depend on rainfall.

The first thing to note is that El Niño forecasts before spring tend to be notoriously unreliable because the climate system is quite noisy in spring — the Sun transitions across the equator, from one hemisphere to the other, creating noise in predictions. However, in a La Niña year, the tropical Pacific Ocean soaks up heat and accumulates warm water. During the El Niño, this warm water spills from the western part of the Pacific Ocean to the eastern part. Earth has had three straight La Niña years, which means the Pacific's warm-water volume is fully loaded and likely to birth an El Niño soon. An El Niño year creates a miniature global-warming crisis, since the warm water spreading across the tropical Pacific releases a large amount of heat into the atmosphere.

What will happen to cyclone formation and monsoons?

A transition from a La Niña winter to an El Niño summer historically tends to produce a large monsoon deficit, on the order of 15%. This means pre-monsoon and monsoon circulations tend to be weaker in an El Niño year. The vertical shear (change in the intensity of winds from the surface to the upper atmosphere) tends to be weaker as well. This in turn can favour enhanced cyclone formation. But, of course, the global climate system is not so simple. Intraseasonal or subseasonal timescale variability in sea-surface temperature and winds is also very important for cyclogenesis over the northern Indian Ocean. These timescales denote the durations for which certain temperature and wind characteristics persist in the pre- and post-monsoon periods. That said, the net effect is for cyclogenesis to be subdued in an El Niño year.

As for monsoons — if an El Niño state does emerge by summer — we will likely have a deficit in 2023. Some research has indicated that the Indian Ocean dipole — a seesawing of sea-surface temperature over the tropical Indian Ocean — could compensate for the negative effects of an El Niño. But we don't yet know whether there is a robust relation between the dipole and the summer monsoon, nor whether the dipole will evolve the 'right' way this year.

Additionally, there are the monsoon's vagaries themselves. For example, pre-monsoon cyclones are susceptible to warming in the Arctic region, and could in turn affect the onset of the summer monsoon. For another, the Bay of Bengal has of late been receiving freshwater from heavy rains and anomalously high river-runoffs. These waters tend to sneak into the Arabian Sea, produce surface warming, and build up subsurface heat. These changes together may create favourable conditions for the formation of bigger and badder cyclones, especially if the circulation and the vertical shear are weak.



All things considered, India will have to wait for the El Niño forecast to be updated in the coming weeks.

ICAR DEVELOPS WHEAT THAT CAN BEAT THE HEAT

On Monday, the Union Agriculture Ministry announced that it had set up a committee to monitor the situation arising from the increase in temperatures and its impact, if any, on the current wheat crop.

This comes even as cereal inflation soared to a record 16.12 per cent year-on-year in January – driven primarily by wheat and atta (flour), whose consumer prices registered an annual increase of 25.05 per cent. The situation has been rendered worse by wheat stocks in government godowns: These, at 154.44 lakh tonnes on February 1, were the lowest in six years for the same date.

However, a bigger source of uncertainty has to do with the wheat now in farmers' fields, due for harvesting only in April. Last year, a spike in March temperatures singed the crop just when the grains were accumulating starch and proteins, leading to a significant drop in output as well as government procurement.

There are fears of a repeat this time, with both maximum and minimum temperatures already 3-5 degrees Celsius above normal in many wheat-growing areas. But whether or not March 2022 will happen again, climate change – specifically, the tendency for the early onset of summer with hardly any spring break – has definitely made India's wheat crop vulnerable to terminal heat stress during the final grain formation and filling stages.

Is there a way out? One “beat-the-heat” solution put forth by scientists at the Indian Council of Agricultural Research (ICAR) is to advance the time of sowing.

Wheat is a typically a 140-145 days crop planted mostly in November – before the middle of the month in Punjab, Haryana, Rajasthan and Madhya Pradesh (post the harvesting of paddy, cotton and soyabean) and the second half and beyond in Uttar Pradesh and Bihar (after sugarcane and paddy). If sowing can be preponed and taken up from around October 20, the crop isn't exposed to terminal heat, with much of the grain-filling being completed by around the third week of March. It can, then, be comfortably harvested by the month-end.

But the solution is easier said than done – for the simple reason that the wheat sown before early-November is also prone to premature flowering.

“The crop seeded in the first half of November normally takes 80-95 days to come to heading (i.e. for the ‘baali’, or earheads bearing the flowers and eventually grain, to fully emerge from the wheat tillers). But if you sow in October, heading is cut short by 10-20 days and occurs in 70-75 days. This affects yields, as the crop does not get enough time for vegetative growth (of roots, stems and leaves),” explained Rajbir Yadav, principal scientist and wheat breeder at the ICAR's New Delhi-based Indian Agricultural Research Institute (IARI).

To get around the problem, IARI scientists have bred wheat varieties with what is termed “mild vernalisation requirement” or the need for a certain minimum period of low winter temperatures for initiation of flowering. In this case, the crop, when sown in October 20-25, will come to heading only in 100-110 days. Adding another 4-5 days for pollination, it leaves a long window from mid-February for grain formation and filling.



Maximum temperatures should ideally be in the early-thirty degrees range during the 30-40 days when the kernels are formed, take in nutrients from the stems and leaves, and ripen after hardening and drying. The early-sown IARI varieties not only have a longer window for grain development, but also for vegetative stage growth between germination and flowering. “By not heading early despite early sowing, the new varieties are able to accumulate more biomass along with grain weight,” Yadav pointed out. And they can beat the heat.

The IARI scientists have developed three varieties, all of them incorporating genes that are responsible for the mild vernalisation requirement preventing premature flowering and early heading.

The first, HDCSW-18, was released and officially notified in 2016. Although having a potential wheat yield of over 7 tonnes per hectare – as against 6-6.5 tonnes for existing popular varieties such HD-2967 and HD-3086 – its plants grew to 105-110 cm. Being tall, compared to 90-95 cm for normal high-yielding varieties, made them prone to lodging or bending over when their earheads were heavy with well-filled grains.

The second variety HD-3410, released in 2022, has higher yield potential (7.5 tonnes/hectare) with lower plant height (100-105 cm).

But it’s the third one, HD-3385, which looks most promising. With the same yields as HD-3410, plant height of just 95 cm and strong stems, it is least lodging-prone and most amenable for early sowing. This variety, sown this time at IARI’s trial fields on October 22, has reached pollination stage – while the emergence of the earheads is yet to start for the wheat that was planted in the normal time.

IARI has registered HD-3385 with the Protection of Plant Varieties and Farmers’ Rights Authority (PPVFRA). It has also licenced the variety to the DCM Shriram Ltd-owned Bioseed for undertaking multi-location trials and seed multiplication. “This is our first ever such public-private partnership experiment. By registering the variety with PPVFRA, we are ensuring full protection of our intellectual property rights,” said IARI’s director A.K. Singh.

The director-general of ICAR Himanshu Pathak told The Indian Express that involving the private sector in commercialisation of publicly-bred crop varieties will benefit farmers through faster adoption and diffusion of technology. “It is also beneficial for ICAR because our institutes will earn royalty on every kg of seed sold by the licensee, which they can plough back into research. And the country gains through higher production from climate-smart varieties,” he added.

RHODODENDRONS CARPET DARJEELING AND SIKKIM HIMALAYAS

The Darjeeling and Sikkim Himalayas are home to more than one-third of all types of rhododendrons found in India, reveals the latest publication of the Botanical Survey of India (BSI). The publication, titled Rhododendrons of Sikkim and Darjeeling Himalaya — An Illustrated Account, lists 45 taxa of rhododendrons (36 species, one subspecies, two variety and seven natural hybrids).

There are 132 taxa (80 species, 25 subspecies and 27 varieties) of rhododendrons found in India. Of the 45 taxa recorded in the publication, 24 are found in the Darjeeling Himalayas and 44 in the Sikkim Himalayas.



“Darjeeling and Sikkim Himalayas comprise only 0.3% of India’s geographical area but the region is home to one-third (34%) of all rhododendron types. This highlights the ecological significance of the region as far as an indicator species like rhododendron is concerned,”

Under threat

Of the 45 taxa documented by the BSI, five are facing a high threat due to anthropological pressures and climate change, according to scientists. *Rhododendron edgeworthii*, with white campanulate flowers, recorded a huge habitat decline in both Darjeeling and Sikkim. *Rhododendron niveum*, with big purple flowers, found in the Lachung area of north Sikkim is facing threats from rampant construction. *Rhododendron baileyi*, *Rhododendron lindleyi* and *Rhododendron maddenii* are also under threat.

Rhododendron, meaning rose tree in Greek, is considered an indicator species for climate change. The BSI in 2017 published *Rhododendron of North East India: A Pictorial Handbook*, suggesting that there are 132 taxa.

According to A.A. Mao, Director of BSI and fellow author of the publication, the flowering season for rhododendrons starts in March and continues till May. However, recently, flowering was found to begin as early as in January for some species. “This is an indication that those areas are getting warmer. The phenology of rhododendrons can be an important indicator of climate change,” he added.

The history

Rhododendrons have a prominent place in the country’s botanical history. They were first recorded by Captain Hardwick in Jammu and Kashmir in 1776 where he spotted *Rhododendron arboreum*. However, it was a visit by the British botanist Joseph D. Hooker to Sikkim between 1848 and 1850 that revealed the rhododendron wealth of the Sikkim and Darjeeling Himalayas.

Mr. Mao added that the first species *Rhododendron* from northeast India — *Rhododendron dalhousiae* — was reported from Sikkim by Hooker in 1848 in his book *The Rhododendrons of Sikkim Himalaya*.

The authors of the BSI publication include scientists and researchers Norbu Sherpa, Samuel Rai and Subrata Gupta. The authors are working on a book on rhododendron, with which they hope to reach not just researchers but the common man too, to promote ecotourism from a conservation perspective.

INDIA CAN BECOME A BIODIVERSITY CHAMPION

The sum and variation of our biological wealth, known as biodiversity, is essential to the future of this planet. The importance of our planet’s biodiversity was strongly articulated at the United Nations Biodiversity Conference in Montreal, Canada. On December 19, 2022, 188 country representatives adopted an agreement to “halt and reverse” biodiversity loss by conserving 30% of the world’s land and 30% of the world’s oceans by 2030, known as the 30×30 pledge. India currently hosts 17% of the planet’s human population and 17% of the global area in biodiversity hotspots, placing it at the helm to guide the planet in becoming biodiversity champions.



Programmes with potential

In response to this call, the Union Budget 2023 mentioned “Green Growth” as one of the seven priorities or Saptarishis. The emphasis on green growth is welcome news for India’s biological wealth as the country is facing serious losses of natural assets such as soils, land, water, and biodiversity.

The National Mission for a Green India aims to increase forest cover on degraded lands and protect existing forested lands. The Green Credit Programme has the objective to “incentivize environmentally sustainable and responsive actions by companies, individuals and local bodies”. The Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI) is particularly significant because of the extraordinary importance of mangroves and coastal ecosystems in mitigating climate change. The Prime Minister Programme for Restoration, Awareness, Nourishment, and Amelioration of Mother Earth (PM-PRANAM) for reducing inputs of synthetic fertilizers and pesticides is critical for sustaining our agriculture. Finally, the Amrit Dharohar scheme directly mentions our biological wealth and is expected to “encourage optimal use of wetlands, and enhance biodiversity, carbon stock, eco-tourism opportunities and income generation for local communities”. If implemented in letter and spirit, Amrit Dharohar, with its emphasis on sustainability by balancing competing demands, will benefit aquatic biodiversity and ecosystem services. The recent intervention by the Ministry of Environment, Forest and Climate Change to stop the draining of Haiderpur, a Ramsar wetland in Uttar Pradesh, to safeguard migratory waterfowl is encouraging.

THE EXPRESS VIEW: ROBOT-ELEPHANT WORSHIP IN KERALA

A pachyderm with a dark, gleaming coat and handsomely proportioned ears is all the news at the Irinjadappilly Sree Krishna Temple in Kerala’s Thrissur district. Irinjadappilly Raman, as he is known, is an 800-kilo, 11-foot “robotic elephant”, made of an iron frame and rubber coat. He was donated to the temple by People for Ethical Treatment of Animals (PETA) India along with actor Parvathy Thiruvothu. The temple authorities have welcomed the new addition and at Raman’s Nadayiruthal ceremony (in which elephants are dedicated or offered to the deity), reportedly many more people turned up to catch a glimpse of the robot elephant than to pray. For some time, at least, it seems like Raman will be the cynosure of all eyes in and around Irinjadappilly and both the donors and the temple are hoping that his example would encourage other temples around the state to use robot elephants as well.

This may not be so simple. While there is little doubt that captive elephants are all too frequently subjected to abuse — in a statement, PETA expressed the hope that Raman’s use will show more temples that it is possible to have “cruelty-free” ceremonies — the state’s temples have used the animals for ritual purposes for so long that they’re now considered integral to the ceremonies. This is besides the deep emotional resonance that elephants have in a state where their grace and beauty is eulogised in song and poetry, and individual animals are big enough celebrities to have their own fandoms.

In appearance, Raman is surprisingly like the flesh-and-blood originals. But once the novelty wears off, would devotees still be willing to accept blessings from a mechanical elephant? Stricter action against abuse is needed, as is wider dissemination of the message that rituals can and do change over time. Elephants should perhaps be spared the trouble of standing for hours at a time amidst the loud music and crowds at temple ceremonies and festivals.



1,300-YEAR-OLD BUDDHIST STUPA FOUND IN ODISHA'S JAJPUR

The Archaeological Survey of India (ASI) stumbled upon a 1,300-year-old stupa right in the middle of a mining site in Odisha's Jajpur district from where Khondalite stones were supplied for the beautification project around the 12th century Shree Jagannath Temple in Puri.

"We have managed to unearth a Buddhist stupa at the Khandolite mining site at Parabhadi in Sukhuapada hamlet in Jajpur district. Another smaller stupa has been completely destroyed due to mining at the site," said Dibishada Brajasundar Garnayak, Superintending Archaeologist of ASI's Puri circle, on Monday.

Mr. Garnayak said the stupa could be 4.5-metre tall and initial assessment showed that it may belong to the 7th or 8th century.

The archaeological asset was found at Parabhadi, which is situated near Lalitagiri, a major Buddhist complex, having a large number of stupas and monasteries. After discovery of the Buddhist stupa from the mining site, the ASI intervened and asked the Odisha government to stop mining through its Odisha Mining Corporation (OMC). The mining has since stopped.

The newly discovered stupa was possibly disfigured in an earlier period. The ASI would now attempt to fully retrieve the structure's archaeological heritage, restore it to its original form and undertake protection of the site.

"The State government must conduct heritage assessment of a site, particularly when it is situated near any place of archaeological interest, before giving permission for mining. The smaller stupa, which was destroyed, cannot be restored," said Mr. Garanyak.

Local people and Buddhist scholars had warned the State government against mining in the Sukhuapada hamlet as the site was part of the Lalitgiri Buddhist site. Even local artisans expressed concerns that their livelihood would be hit by the mining of Khondalite stones at an industrial scale.

"Those who approved the plan for carrying out quarrying at Sukhuapada should have applied their mind. Knowing well that many massive Buddha statues were discovered from Sukhuapada and preserved in the museum inside the Lalitgiri archaeological site, they should not have allowed such big mining machines to be deployed there," said Subhendu Bhuyan, member of the Jajpur Cultural Council.

Khondalite stones were widely used in ancient temple complexes. The State government had come up with an ambitious plan to spend ₹3,208 crore under the Augmentation of Basic Amenities and Development of Heritage and Architecture (ABADHA) scheme in three years to transform Puri into a world heritage city.

Khondalite stones are proposed to be used widely to maintain aesthetic value of some projects such as the heritage security zone, the Jagannath Ballav pilgrim centre, Puri lake development project, the Atharnala heritage project and the Matha Development Initiative.

Sukhuapada was the biggest of six Khondalite stone blocks reserved for the OMC. While Khondalite mining is being undertaken across 78.3 acres at Sukhuapada, other sites include Teligarh (27.5 acres), Gobindpur (20.3 acres), Chandia (4 acres), Kundakundi Kunda stone quarry (4.67 acres) and Kurumpada decorative stone quarry (1.67 acres) in Khordha district.



With the ASI taking control of Sukhuapada site, the OMC may find it difficult to supply Khondalite stones for the State government's ambitious temple development programmes. It may trigger another round of confrontation between the Centre and the State government. Violation of the ASI guidelines was a major controversy surrounding the redevelopment project in Puri.

WRITER VINOD KUMAR SHUKLA WINS 2023 PEN/NABOKOV LIFETIME ACHIEVEMENT AWARD

Vinod Kumar Shukla, at 87, has won the PEN America award for lifetime achievement in literature, one of the most coveted literary prizes worldwide, after decades of composing acclaimed novels like *Naukar Ki Kameez* (1979) and poetry collections like *Sab Kuch Hona Bacha Rahega* (1992).

Shukla, whose works incorporate magic-realist elements and have won the Sahitya Akademi award and the Atta Galatta-Bangalore Literature Festival Book Prize, was born on January 1, 1937 in Rajnandgaon, Chhattisgarh (then Madhya Pradesh). His first published work was a poetry collection *Lagbhag Jai Hind* (1971), followed by *Vah Aadmi Chala Gaya Naya Garam Coat Pehankar Vichar Ki Tarah* (1981). *Naukar Ki Kameez* was his first novel, adapted into a 1999 Hindi film by Mani Kaul, telling the story of a clerk in a government office who is found to fit into the shirt of a domestic help who runs away from his employer's house. Forced to do errands outside his job description, the narrative follows his journey into the life of the upper class and the tensions that emerge therein.

Described by comedian and past host of the awards, Seth Meyers, as "the Oscars for books", the PEN/Nabokov Award for Achievement in International Literature is given annually to a living author "whose body of work is of enduring originality and consummate craftsmanship." Previous winners include Ngũgĩ wa Thiong'o, Anne Carson, M. NourbeSe Philip, Sandra Cisneros, Edna O'Brien, and Adonis.

DreamIAS



BUSINESS & ECONOMICS

EXPLAINSPEAKING | HOW TO READ Q3 GROWTH DATA

The Ministry of Statistics and Programme Implementation (MoSPI) Tuesday released economic growth data — Gross Domestic Product (GDP) and Gross Value Added (GVA) — for the third quarter (Q3 or October to December) of the current financial year (2022-23 or FY23), as well as the so-called Second Advance Estimates (SAEs) for the full year.

What are GDP and GVA?

Both GDP and GVA measure India's economic growth.

The GDP does this by adding up who spent how much; it thus captures the “demand” in the economy.

The GVA calculates the same national income from the supply side. It adds up the value added (in money terms) by the different sectors of the economy.

Under GDP, there are four main heads:

- Private Final Consumption Expenditure (PFCE) or the money spent by people on goods and services for personal consumption; this is the biggest contributor of GDP, accounting for almost 55%-60%
- Government Final Consumption Expenditure (GFCE) or the money spent by governments towards its daily needs; this accounts for 10% of GDP.
- Gross Fixed Capital Formation (GFCF) or the money spent by private firms and governments towards building productive capacities (investments); this accounts for 30%-32% of GDP
- Net of exports and imports; this is typically a negative impulse to GDP because imports are more than exports, implying money going out of the country.

GDP and GVA are related as follows: $GDP = GVA + \text{Tax} - \text{Subsidy}$ (excise duties, sales tax, service tax, import and export duties) – subsidies provided by government on products (food, petroleum and fertiliser subsidies)

Typically, the absolute level of GDP is more than the absolute level of GVA because taxes received are more than subsidies spent by the government.

What data has been released?

For any financial year, say 2019-20, the GDP estimates go through several rounds of revisions. Each year in January, MoSPI releases the First Advance Estimates for that financial year. In February end, after incorporating the Q3 data, come the Second Advance Estimates. By May-end come the Provisional Estimates (PEs) after incorporating the Q4 (Jan to March) data.

Then with each passing year, the PEs are revised to give the First Revised Estimates, the Second Revised Estimates and the Third Revised Estimates before settling on the “Actuals”. Each revision benefits from more data, making the GDP estimates more accurate and robust.



On Tuesday, apart from the Q3 and SAEs for FY23, the MoSPI also released the scheduled revisions to the economic growth rate for three preceding financial years — FY20 (pre-Covid), FY21 (the Covid year), and FY22.

What does the data for Q3 show?

On the GDP front, the growth rate has decelerated to just 4.4% in Q3. This is below the expected level.

The main growth impulse has come from the spending towards investments in the economy. At one level this is heartening news. Increase in investments typically augurs well for sustaining an economy's growth momentum.

However, economists such as Pranjul Bhandari of HSBC have characterised the growth in investments as “fragile”. “It is true that central government capex has picked up (for instance the post-monsoon rise in road construction), but on the other hand, state capex has been weak,” she states in a research note.

The biggest worry has been on the personal consumption front. A slowdown in private consumption, the biggest engine of GDP growth, can eventually disincentivise investments. The contraction of government's expenditures is likely the result of the government trying to meet fiscal deficit parameters.

On the GVA front, the biggest story is the contraction in manufacturing. This is the second consecutive quarter when manufacturing, which is often viewed as a source of creating jobs, has contracted. But robust growth in the construction sector, as well as services (both financial and non-financial), are a relief.

What do the SAEs for FY23 show?

For the full-year, the economy is still expected to grow by 7% — same as the First Advance Estimates predicted in January. However, not only has the economy grown slower than expected in Q3, even Q1 GDP growth has been revised down— suggesting India is rapidly losing its growth momentum. As such, achieving the 7% for the full year appears difficult. HSBC's Bhandari, for instance, expected a growth rate of 6.8% for FY23.

What about the revised estimates for the past years?

In contrast to the deceleration in growth in FY23, the government has revised up the GDP growth numbers for each of the past three years. As such, GDP grew by 3.9% in FY20 as against 3.7%; it fell by just 5.8% in FY21 instead of 6.6% as previously reported and it grew by 9.1% in FY22 as against a growth of 8.7% reported earlier.

In other words, while India's economy may be slowing now, it grew at a faster pace than previously reported.

What's the outlook?

India's economy was fast losing momentum before Covid-19 led to a contraction. Coming out of the Covid pandemic, India's economy has reclaimed the mantle of the fastest-growing major economy in the world. However, data suggests that India is losing this momentum, whereby it is



likely to slow down from 9.1% in FY22 to under 7% in FY23 and further decelerate to well under 6% in the coming financial year.

“Based on today’s numbers and our study of other activity indicators, we believe that overall growth momentum is softening, as pent-up demand from the lockdown period fades, exports weaken, and tighter fiscal and monetary policy rate take their toll. We expect GDP growth to slow from 6.8% in FY23 to 5.5% in FY24,” states Bhandari.

RBI’S NEW PILOT PROJECT ON COIN VENDING MACHINES

The story so far:

RBI Governor Shaktikanta Das had stated during the last Monetary Policy Committee (MPC) address that the apex banking regulator, in collaboration with banks, would be launching a pilot project to assess the functioning of a QR-code based coin vending machine.

What is the project about?

In simple words, the vending machines would dispense coins with the requisite amount being debited from the customer’s account using United Payments Interface (UPI) instead of physical tendering of banknotes. Customers would be endowed the option of withdrawing coins in required quantities and denominations. The central idea here is to ease the accessibility to coins.

On the supply side of things, T. Rabi Shankar, Deputy Governor at the Reserve Bank of India (RBI) had stated that the situation with respect to coins was “peculiar” with the supply being “very high”. “It is taking up a lot of storage space and it is not getting properly distributed. At the same time, there is demand in pockets,” added the Deputy Governor.

The proposed mechanism for coin dispensation would be a departure from the conventional machines which relied on banknotes for facilitating coin exchanges. Further, the proposed machine would eliminate the need for physical tendering of banknotes and their authentication. It was observed that the currency being fed into the machines (for coin exchange) were often found to be fake and could not be checked right at that point of time. Thus, the mandate to eliminate the physical tendering of banknotes. The pilot is initially planned to be rolled out at 19 locations in 12 cities across the country. With particular focus on ease and accessibility, the machines are intended to be installed at public places such as railway stations, shopping mall and marketplaces.

Are coins significant in our ecosystem?

As per the latest RBI bulletin, the total value of circulation of rupee coins stood at ₹28,857 crore as of December 30 last year. The figure is an increase of 7.2% from the year-ago period. Circulation of small coins remained unchanged at ₹743 crore. For perspective, coins in India are issued in denominations of 50 paise, one rupee, two rupees, five rupees, ten rupees and twenty rupees. Coins of up to 50 paise are called ‘small coins’ while those of one rupee and above are called ‘rupee coins’.

The figures above could be compared to the volume of digital payments until December 2022 which stood at approximately ₹9,557.4 crore, as per the Digidhan Dashboard. The number is inclusive of mobile banking, internet banking, IMPS, BHIM-UPI and NEFT, among others. The reliance on UPI for dispensing coins is particularly noteworthy and it must be recalled that the



payments interface for feature phones was launched in March last year. The apex regulator is also in the midst of a pilot for the Central Bank Digital Currency (CBDC).

Is it going against the digital push?

According to Vipul Kharbanda, non-resident fellow at the Centre for Internet and Society (CIS) the proposal should not be viewed as a “zero-sum game of digital versus cash.” The two can easily supplement each other. “This should not be looked at from a very dogmatic point of view rather a pragmatic one. If digitalisation is not solving a particular problem at this given point of time, then it is very much within RBI’s purview to use other means available to achieve its ultimate objective that is to operate the currency system of the country,” Mr. Kharbanda argues.

WHO WILL BENEFIT FROM THE UPI-PAYNOW LINK?

The story so far:

On Tuesday, India’s Unified Payments Interface (UPI) and Singapore’s PayNow were officially connected to allow for “real-time payment linkage”. Singapore is the first country with which cross-border Person to Person (P2P) payment facilities have been launched. The plan was first announced by the Reserve Bank of India (RBI) and the Monetary Authority of Singapore (MAS) in September 2021 to facilitate instant low-cost, cross-border fund transfer.

How will it help?

When the scheme was announced, the RBI had said that the cross-border interoperability of payments using cards and QR codes between India and Singapore would further anchor trade, travel and remittance flows between the two countries. The initiative is a part of the government’s push towards a UPI-based payment ecosystem. In January 2023, the National Payments Corporation of India (NPCI) enabled international phone numbers to be able to transact using UPI. The Union Cabinet had approved incentivisation schemes for promoting low-value BHIM-UPI transactions in April 2022.

On February 21, Prime Minister Narendra Modi and his counterpart, Singapore Prime Minister Lee Hsien Loong, attended the virtual launch. The Ministry of External Affairs said this would help the Indian diaspora in Singapore, especially migrant workers and students and “bring the benefits of digitalisation and fintech to the common man through instantaneous and low-cost transfer of money from Singapore to India and vice-versa.”

How will the scheme work?

For users at the Indian end, State Bank of India, Indian Overseas Bank, Indian Bank and ICICI Bank will facilitate both inward and outward remittances, while Axis Bank and DBS India will only facilitate inward remittances for now. DBS-Singapore and Liquid Group, a fintech company, will facilitate the service for users in Singapore. More banks will be included in the linkage with time, the RBI said in a press release. Account holders of listed banks can transfer funds to/from India using their UPI ID, mobile number, or Virtual Payment Address (VPA). To begin with, Indian users can remit up to ₹60,000 per day. This is equal to around \$ (Singapore) 1,000. Cross-border remittances to Singapore can be done through the bank’s mobile application or internet banking facilities. Apps of participating Indian banks will have an opt in/opt out feature for receiving remittances from Singapore. Currently, only UPI IDs registered with the same bank where an account is held can be used to receive remittances in accounts of participating banks. The P2P



remittances between India and Singapore are only allowed for purposes of “maintenance of relatives abroad” and “gifts”. According to the RBI, participating banks will roll out updates to allow global remittances in their UPI apps in a phased manner.

India has also considered allowing UPI remittances from other countries like the United Arab Emirates (UAE) which hosts a large Indian population. In November 2022, India and UAE discussed allowing cross-border remittances through UPI platforms during a meeting between External Affairs Minister S. Jaishankar and UAE Foreign Minister Sheikh Abdullah bin Zayed Al Nahyan in New Delhi.

What are real-time payments (RTP)?

As the name suggests, real-time payments are money transfers that are mostly settled as soon as they are performed. RTPs are allowed 24x7, 365 days a year. They help simplify the process of fund transfer as well as ease communication between the payer and the payee. P2P payments involve the transfer of funds from one user’s bank account to another through a digital medium. Common examples of P2P mobile apps in India include GPay and Paytm. Using P2P payments eliminates the risk of sharing bank account details. In 2022, UPI payments worth ₹8,31,993.11 crore were recorded in January. This figure climbed to ₹12,81,970.86 crore in December.

HOW IS THE STOCK MARKET REGULATED IN INDIA?

The story so far:

On February 10, the Supreme Court asked the Securities and Exchange Board of India (SEBI) and the government to produce the existing regulatory framework in place to protect investors from share market volatility. After short seller Hindenburg Research published a report in January accusing the Adani Group of stock market manipulation and accounting fraud, its shares plummeted and investors were reported to have lost lakhs of crores.

What are the laws governing the market?

The securities market in India is regulated by four key laws — The Companies Act, 2013, the Securities and Exchange Board of India Act, 1992 (SEBI Act), the Securities Contracts (Regulation) Act, 1956 (SCRA) and the Depositories Act, 1996. The framing of these laws reflect the evolution and development of the capital market in India.

The SEBI Act empowers SEBI to protect the interests of investors and to promote the development of the capital/securities market, besides regulating it. SEBI was given the power to register intermediaries like stock brokers, merchant bankers, portfolio managers and regulate their functioning by prescribing eligibility criteria, conditions to carry on activities and periodic inspections. It also has the power to impose penalties such as monetary penalties, including suspending or cancelling the registration. The SCRA empowers SEBI to recognise (and derecognise) stock exchanges, prescribe rules and bye laws for their functioning, and regulate trading, clearing and settlement on stock exchanges. As part of the development of the securities market, Parliament passed the Depositories Act and SEBI made regulations to enforce the provisions. This Act introduced and legitimised the concept of dematerialised securities being held in an electronic form. Today almost all the listed securities are held in dematerialised form. SEBI set up the infrastructure for doing this by registering depositories and depository participants. The depository regulations empower SEBI to regulate functioning of depositories and depository participants by prescribing eligibility conditions, periodic inspections and powers



to impose penalties including suspending or cancelling the registration as well as monetary penalties.

Can SEBI step in to curb market volatility?

While SEBI does not interfere to prevent market volatility, exchanges have circuit filters — upper and lower — to prevent excessive volatility. But SEBI can issue directions to those who are associated with the market, and has powers to regulate trading and settlement on stock exchanges. Using these powers, SEBI can direct stock exchanges to stop trading, totally or selectively. It can also prohibit entities or persons from buying, selling or dealing in securities, from raising funds from the market and being associated with intermediaries or listed companies.

What are the guidelines on fund-raising?

The Companies Act, which regulates companies incorporated/registered in India, has delegated the authority to enforce some of its provisions to SEBI, including the regulation of raising capital, corporate governance norms such as periodic disclosures, board composition, oversight management and resolution of investor grievances. In order to regulate fund-raising activities, SEBI first brought out a set of guidelines called the Disclosure and Investor Protection Guidelines which were thereafter subsumed into a more comprehensive Issue of Capital and Disclosure Requirement Regulations. In order to ensure that listed companies followed corporate governance norms, SEBI notified the Listing Obligations and Disclosure Requirements Regulations in 2015.

Besides these regulations, the Collective Investment Regulations define a CIS (collective investment scheme) and provide for penal actions against those running unregistered CIS schemes. Entities involved in fund-raising through issue of capital such as merchant bankers are also regulated through specific regulations.

What about stock exchanges?

The SCRA has empowered SEBI to recognise and regulate stock exchanges and later commodity exchanges in India; this was earlier done by the Union government. In fact, the term “securities” is defined in the SCRA and powers to declare an instrument as a security remain vested in SEBI. The rules and regulations made by SEBI under the SCRA relate to listing of securities like equity shares, the functioning of stock exchanges including control over their management and administration. These include powers to determine the manner in which a settlement is done on stock exchanges (and to keep them with the times for e.g. T+1) and recognising and regulating clearing corporations, which are central to the management of the trading system.

An important aspect of the regulation of stock exchanges is also the provision for arbitrating disputes that arise between stock brokers who trade on stock exchanges and investors who are clients of such stock brokers. The Act also seeks to protect the interests of investors by creating an Investor Protection Fund for each stock exchange.

What are the safeguards against fraud?

Fraud undermines regulation and prevents a market from being fair and transparent. SEBI notified the Prohibition of Fraudulent and Unfair Trade Practices Regulations in 1995 and the Prohibition of Insider Trading Regulations in 1992 to prevent the two key forms of fraud, market manipulation and insider trading. These regulations, read with provisions of the SEBI Act, define species of fraud, who is an insider and prohibit such fraudulent activity and provide for penalties



including disgorgement of ill-gotten gains. It must be noted that violation of these regulations are predicate offences that can lead to a deemed violation of the Prevention of Money Laundering Act. SEBI has been given powers of a civil court to summon persons, seize documents and records, attach bank accounts and property and to carry out investigations. Using these powers, SEBI has acted against entities and individuals like Satyam, Sahara India, Ketan Parekh and Vijay Mallya.

Corporate activities include acquisition of other companies, merger of companies and buy back of shares; SEBI has notified the Substantial Acquisition of Shares and Takeovers Regulations to ensure that acquisitions and change of management are done only after giving an opportunity to public shareholders to exit the company if they want to. The wealth of investors includes a portfolio of securities. SEBI ensures protection of investors' interests by regulating the listing and trading of equity shares and other securities, and by registering and regulating institutions handling public funds. Appeals against orders of SEBI and the stock exchanges can be made to the Securities Appellate Tribunal (SAT) comprising three members. Appeals from the SAT can be made to the Supreme Court.

AXIS MF FRONT-RUNNING CASE: WHAT IS THE MATTER AND WHY DID SEBI BAR VIRESH JOSHI, 20 OTHERS FROM MARKETS?

The Securities and Exchange Board of India (Sebi) Tuesday barred former chief dealer of Axis Mutual Fund, Viresh Joshi, and 20 other individuals from accessing the securities markets in a case of alleged front-running of the trades of Axis Mutual Fund. In its investigation, Sebi concluded that these individuals wrongly earned Rs 30.56 crore from the front-running activities.

What is the matter?

The surveillance system in Sebi generated certain alerts which indicated that a few suspected entities executed trades that were in the nature of front-running the trades of Axis Mutual Fund (Axis MF or Big Client) between September 1, 2021 to March 31, 2022.

These alerts also showed that not only numerous entities were suspected to be front-running the trades of Axis MF but several trading members of stock exchanges were also suspected to be involved with those suspected entities in executing these trades.

Based on these alerts, the capital market conducted an investigation and found that these suspected entities and trading members worked in close coordination with each other to allegedly front-run the trades of Axis MF during the period. It was found that the leakage of information about the impending orders, which Axis MF was placing through diversified trading members, was possibly done at the end of the Big Client.

The investigation showed that soon after the Axis MF orders were placed, these individuals, who were connected to Viresh Joshi, the then chief dealer of Axis MF, squared off their earlier trade positions taken on the exchange platform, Sebi's Whole Time Member S K Mohanty said in the interim order issued in the matter on February 28.

In the process, substantial proceeds of profit were seen to have been generated in the trading accounts of these connected individuals, by placing orders ahead of and in anticipation of the price movement of scrips in a certain direction on account of the impending large buy or sell orders of Axis MF. Similar trades were executed on numerous occasions during the investigation period.



What is front running?

Front-running refers to buying or selling securities ahead of a large order so as to benefit from the subsequent price move. Under this illegal trading practice, a broker's or analyst's use of nonpublic information to acquire securities or enter into options or futures contracts for his or her own benefit, knowing that when the information becomes public, the price of the securities will change in a predictable manner.

CD ISSUANCES BY BANKS JUMP OVER 4 TIMES IN APR-JAN TO TO RS 5.35 LAKH CRORE

Fund raising by banks through issuances of Certificate of Deposits (CDs) has jumped by over four-fold in April-January of fiscal 2023, with total issuances rising to Rs 5.35 lakh crore in the first ten months compared to Rs 1.28 lakh crore in the year-ago period.

The spike seen in the CD issuances is largely attributed to short-term funding needs of banks to meet the rising loan demand, which has expanded by 12 per cent so far in fiscal 2023. Certificate of Deposit is a negotiable, unsecured money market instrument issued by a bank as a usance promissory note against funds deposited at the bank for a maturity period up to one year. CDs can be traded either in over-the-counter (OTC) markets, including on electronic trading platforms, or on recognised stock exchanges with the approval of the Reserve Bank.

What is a Certificate of Deposit

Though banks have been raising retail and bulk term deposits to meet the rising loan demand, it takes some time for deposits to flow into the system. To bridge the short-term funding needs, banks are issuing CDs, which also provide them a cheaper avenue to raise funds, according to Care Ratings' Associate Director – BFSI Research Saurabh Bhalerao.

"Since the deposit base in the banking system is yet to increase, banks are using non-deposits routes such as issuances of CDs, tier-I and tier II and infrastructure bonds to raise money," rating agency ICRA's Senior Vice President, Co Group Head – Financial Sector Ratings, Anil Gupta said.

After the 250 basis points hike in repo rate by the Reserve Bank of India (RBI) since May 2022, banks have increased lending and deposit rates. However, the pace of increase in deposit rates has been slower. The weighted average domestic term deposit rate on fresh deposits and outstanding deposits increased by 213 bps and 75 bps respectively between May and December 2022.

The CDs issued by banks are subscribed by corporates and mutual funds. Corporates find CDs more attractive compared to parking funds with banks in bulk deposits due to higher interest rates offered by the former. "For all companies, the preferred route is certificate of deposits. The CDs are issued above the market rate and fixed deposit rates often lag the market rate," said Abheek Barua, Chief Economist and Executive Vice President, HDFC Bank.

According to the RBI data, in the fortnight ended January 27, 2023, banks issued CDs at 6.82-7.3 per cent. However, this data does not give interest rates on CDs of different tenure. When compared to this, the country's largest lender State Bank of India (SBI) offers an interest rate of 5.5 per cent for bulk deposits (₹2 crore and above) maturing between 46 days and 179 days. Similarly, for deposits maturing in between 180 days to less than one-year, SBI's rates vary between 6 per cent to 6.25 per cent.



Since CDs are liquid and tradable, the mutual fund industry also subscribes to these instruments to meet their redemption pressure.

WHY ONION PRICES HAVE CRASHED IN LASALGAON WHOLESALE MARKET

Farmers on Monday forced the suspension of trading at Lasalgaon, India's largest wholesale market for onions located in Maharashtra's Nashik district, following a crash in prices. The president of the Maharashtra State Onion Growers' Association, Bharat Dighole, has threatened the stoppage of auctions in other markets as well.

Why have onion prices crashed?

First, some background.

Farmers grow three crops in the bulk: kharif (transplanted in June-July and harvested in September-October), late-kharif (transplanted in September-October and harvested in January-February) and rabi (transplanted in December-January and harvested in March-April). The harvested crop isn't marketed in one go; farmers usually sell in tranches, ensuring no price collapse from a bunching of arrivals.

The kharif onions are marketed right up to February and the late-kharif till May-June. Both kharif and late-kharif onions contain high moisture, which allows them to be stored for a maximum of four months. This is unlike the rabi onions, which, grown during the winter-spring months, have low moisture content and can be stored for at least six months. It is the rabi crop that feeds the market through the summer and monsoon months, till October.

The current price collapse has primarily to do with a sudden rise in temperatures from around the second week of February. Onions containing high moisture are prone to quality deterioration from heat shock, with the abrupt drying-up leading to shrivelling of the bulbs.

"Normally, farmers would have been selling only the kharif crop now. But the extreme heat this time has forced them to offload even the late-kharif onions, which can no longer be stored. Since both kharif and late-kharif onions are arriving at the same time, prices have fallen," said Suresh Deshmukh, a commission agent who operates from the Dindori market, which is about 50 km from Lasalgaon.

How much have prices fallen?

Till February 9, onion was fetching Rs 1,000-1,100 per quintal at Lasalgaon, a price that farmers claim is just above break-even. Prices dropped below Rs 1,000 on February 10 and further to Rs 800/quintal by February 14. They have continued to slide since with the last average traded price, before Monday's forced shutdown, at Rs 500-550 levels. "Every degree rise in the mercury has resulted in prices tumbling," added Deshmukh.

Is there any other reason for the drop in prices?

Maharashtra accounts for about 40 per cent of India's annual onion production of 25-26 million tonnes (mt), out of which 1.5-1.6 mt tonnes is exported. Besides Maharashtra, Madhya Pradesh (16-17 per cent share) Karnataka (9-10 per cent), Gujarat (6-7 per cent), Rajasthan and Bihar (5-6 per cent each) are major producers.



Improved water availability from good monsoon rains this time has induced farmers in MP, Rajasthan, Karnataka and Gujarat to plant onions over a larger area. The influx of the bulb from all these states, together with the forced offloading of the late-kharif crop, triggered the price collapse.

Can the government help?

Dighole has demanded that the government fix a floor price of Rs 1,000/quintal and not allow any purchase to happen below that rate. Further, it should direct the National Agricultural Cooperative Marketing Federation of India Ltd (Nafed) to start procuring.

This comes amid social media flooding with stories of farmers being forced to make distress sales. One that made headlines was of Tukaram Chavan, a grower from Borgaon village in Solapur district's Barshi taluka. He received a cheque of Rs 2 after the deduction of all expenses towards the sale of his 500-quintal produce at the Solapur wholesale market. This caught the attention of many, with former Maharashtra Deputy Chief Minister Ajit Pawar and other Opposition leaders seeking government intervention.

On Saturday, Nafed issued a statement that it would open procurement centres in Nashik district this week. "Farmers are requested to bring their good quality and dried stock to avail of better rates at these centres. Payment will be made online," it said, adding that procurement of the rabi onions would begin from April this time.

How effective will these measures be?

As already pointed out, nothing much can be done with the late-kharif onions, which cannot be stored for long. Any effective government procurement is possible only with the rabi crop, which also accounts for roughly 70 per cent of the country's total annual production.

This crop looks to be in good condition as of now, and farmers have planted 20 per cent more area compared with last year. The buffer stock to be created from Nafed's procurement of rabi onions should ensure no tears for either farmers or consumers in the months ahead.

COAL LEVY 'SCAM': WHY ED IS SEARCHING PLACES LINKED TO CHHATTISGARH CONGRESS LEADERS

Days ahead of the Congress plenary in Raipur, the Enforcement Directorate (ED) Monday launched searches at multiple locations in Chhattisgarh linked to Congress leaders and some officials. The searches are being conducted in a case of money laundering the central agency is probing, regarding "illegal levy" on transportation of coal in the state.

What is the case?

It has been alleged by the ED that an illegal levy of Rs 25 per tonne of coal was being collected in the state from coal-consumption companies, by certain middlemen in connivance with key politicians and bureaucrats. The agency has alleged that in the past few years, more than Rs 540 crore was collected in this manner, with part of the money going to Congress politicians.

The agency began probing the case in October last year on the basis of an FIR by the Income Tax department. It has since conducted multiple search operations, arrested nine people and attached assets to the tune of Rs 170 crore.



Why is the case significant?

During the course of its investigations, the ED has not only raided top bureaucrats in the state, but also arrested and chargesheeted some. The investigations reached the doorsteps of state Chief Minister Bhupesh Baghel when in December last year, the agency arrested his deputy secretary Saumya Chaurasia. Chaurasia, a state service official, was said to have had considerable clout in Baghel's office.

Apart from Chaurasia, the agency has raided the premises of 2004 batch IAS officer P Anbalgan, currently Secretary of the Water Resources Department, Tourism and Culture; and arrested IAS officer Sameer Vishnoi. It also raided the house of Raigarh collector Ranu Sahu in October last year and declared that she was "missing". Three IPS officers, too, have been named in a prosecution complaint — equivalent to a chargesheet — filed by the agency earlier this month.

What has the probe found?

The agency, while arresting one Laxmikant Tiwari, businessman Sunil Kumar Agarwal of the Indramani Group, and IAS officer Vishnoi last year, had claimed that the illegal levy was generating Rs 2-3 crore per day.

"The cartel led by Mr Suryakant Tiwari with the assistance of very Senior Officers created a network of extortion, by which each buyer/transporter of Coal had to first pay Rs25 per tonne before getting the NOC from the DM's office. They kept men who would collect and move money and share the exploits between the kingpins, workers, Senior IAS-IPS Officers and politicians. It is estimated that around Rs2-3 crore was generated on a daily basis," ED said in a statement then.

On P Anbalgan, the ED claimed that it was during his tenure as mining secretary that the system of coal transportation was changed from online to manual, allowing for the illegal levy to be charged.

How was the levy collected?

According to the ED, on July 15, 2020, the state's Geology and Mining Department modified the online process of e-permits for transporting coal from Chhattisgarh's mines, making the issuance of a manual No Objection Certificate (NOC) necessary. No SOP or procedure was circulated in this regard, the ED has claimed.

TAX NOTICE TO CPR: THE STATE'S PATTERN OF BULLYING

At a time when India, in the year of its G20 presidency, draws the world's attention to its strength, which is the power of soaring ideas, vaulting innovation and its rapidly changing place in the global order, a discordant note is struck. The Centre for Policy Research, one of the country's most respected public policy think tanks, is bearing the brunt of a two-pronged attack. Its FCRA registration has been suspended — the Foreign Contribution (Regulation) Act, 2010, is the law that regulates financial contributions from abroad to individuals and organisations. This freeze on foreign funds comes amid a bid to squeeze — last year in September, the Income Tax Department conducted "surveys" on CPR alongwith Oxfam India and the Bengaluru-based Independent and Public-Spirited Media Foundation. The surveys were followed by summons to its staff, culminating in a show-cause notice threatening cancellation of tax exemption that it has had as a non-profit under Section 12A of the I-T Act since 1976, valid till 2027. Even a cursory glance at the allegations against the CPR is enough to see the obvious — the charges play with technicalities



and the elaborate state action yields no major discoveries of wrongdoing. The CPR is being slapped with process as punishment.

That the organisation is being asked to take responsibility for I-T returns not filed or filed irregularly by staffers including the office peon, that it is asked to explain how the publication of books, among its pivotal functions, is not an overstepping of its mandate, and that the I-T Department, which includes in its notice observations and allegations not directly related to its ambit of operations, presumptuously arrogates to itself the power to restrictively define the think tank's mandate, is not incidental. The CPR itself has been dignified in its response. It has said that it has followed due process and continues to comply with the law. It has pointed out that it has been routinely scrutinised and audited by government authorities. But its current predicament is part of a larger dismal pattern — a political establishment that weaponises the rule-book's small print to shrink spaces for free expression.

The government must dispel that spectre. And the CPR must be left alone, in fact enabled, to do what it does, and which is an essential part of a deliberative democracy. It must continue to conduct, as it said in its statement after the September raids, "research that contributes to high quality scholarship, better policies and a more robust public discourse". Not far from CPR, G20 foreign ministers were exchanging ideas on the stage of another think tank, this one "in partnership" with the Ministry of External Affairs. It shouldn't be the tax inspector who gets to decide what a think tank should do.

INCOME TAX 'RAIDS' SURGE AMID POOR CONVICTION RATE

A survey conducted by the Income Tax Department in the BBC's offices in Delhi and Mumbai over the last week has raised many questions, especially since it was done barely a month after the public broadcaster released a two-part documentary titled 'India: the Modi Question'. The government disabled online access to the documentary immediately after its release and also blocked related tweets.

This is not the first time that the Income Tax Department has visited news media houses after publication of critical coverage. Barely a month after the national editor of the Dainik Bhaskar Group wrote an editorial in The New York Times criticising the government's "failures and deceptions" during the pandemic, Income Tax officials searched over 32 business and residential premises connected to the Group across nine cities for "tax evasion." They visited Newsland and Bharat Samachar's offices in 2021. Both media houses published reports critical of the pandemic.

While the recent survey has put the spotlight on press freedom in particular, there is growing concern that Income Tax "raids" in general are used to intimidate people who are critical of the Union government. Though the term "raid" has become popular, the Income Tax Act does not contain this expression.

The Income Tax Act allows two types of operations — search and seizure actions, and survey actions. The power to conduct a survey, such as the one conducted in the BBC's offices, comes from Section 133A of the Act. The number of search and seizure actions has jumped 1.5 times between FY11 to FY15 and FY16 to FY20. While both these types of actions have surged in recent years, conviction rates have reduced significantly. The rate reduced by 5% points from 7.3% to 2.4%.



Another factor that can be considered is the compounding of cases. Compounding is a provision where the tax defaulter is allowed to avoid major legal problems by paying a monetary fine in certain cases. The number of cases compounded is half of those initiated in the latest three years, while it formed a much higher share of cases initiated in the FY11-FY13 period. It must be noted that cases compounded may also include those initiated in previous years.

The case count has increased sharply in recent years. There were only 23 convictions in the 5,422 cases filed until March 2022.

AI'S JUMBO ORDER BARES PILOT PINCH

Amid all the jubilation over the erstwhile flag carrier's historic order, the big question on everyone's mind within the airline and the larger industry is, "Where will the 7,000-8,000 pilots needed to fly these aircraft come from?", especially at a time when India's airlines have been dogged by delays and cancellations and even forced to look for parking space for their planes due to a paucity of cockpit crew to fly them. And the flying crew shortage is already taking its toll with pilots complaining of rising levels of fatigue, a less-than-reassuring trend in an industry where the margins for safety are negligible.

For the 470 aircraft alone, Air India and its sister airlines will require "7,000 to 8,000 pilots over the next decade, or nearly 700-800 pilots in a year," says an industry official closely involved with the process. "This is a massive challenge. When we don't have enough pilots to manage the present scale of operations, where will new pilots come from," asked the official, who spoke on the condition of anonymity.

The order includes 70 wide-bodied or twin-aisle jets: 40 Airbus 350s, 20 Boeing 787s and 10 Boeing 777-9s, and 400 narrow-bodied aircraft: 210 Airbus 320/ 321Neos and 190 Boeing 737 Maxs, with the planes set to arrive "over the next decade", according to a social media post by Air India's Chief Commercial and Transformation Officer Nipun Aggarwal. As many as 31 aircraft are set to arrive in the second half of 2023, with a large chunk of the remainder due to come from 2025.

Air India recently faced cancellations and delays of its highly remunerative flights to the U.S. and Canada due to paucity of crew. "When an airline is forced to cancel 30 flights per day due to pilot shortage, it can incur a loss of ₹3 crore per day, or ₹1,000 crore a year," says Hemant D.P., CEO, Asia Pacific Flight Training Academy and ex chief commercial officer and chief operations officer, GMR Airports.

"For an airline that operates 1,500 flights every day, 30 flights is equivalent to 2% of its total flights and a similar percentage in loss in revenue from operations. But at the same time you are paying support crew to stay home or in a hotel, paying engineering staff and your planes are grounded. Lack of pilots, pushes operational costs up, resulting in airfares rising and harming the airline and end users," he added. In February 2019, IndiGo was forced to cancel a large number of flights due to pilot shortage.

Though the new planes are expected to replace the airline group's present fleet strength of almost 200 planes, the industry official said that the substitution would happen over a period of time. "Current fleet is going to run simultaneously for a period of time, and is also being refurbished," he noted. At the same time, there would be many pilots who would be retiring, he observed, describing the situation as "a nightmare".



Since the order is staggered over a 10-year period, the delivery of 470 aircraft over this period will mean nearly “3-4 aircraft per month”. An average of 12 sets of pilots (12 co-pilots and 12 pilots per aircraft) for ultra long haul flights such as to the U.S., and 8.5 sets of pilots for long haul flights such as to Europe, alongside an average of 7 sets of cockpit crew for every narrow body, gives a total of nearly 7,000 pilots and co-pilots, according to a back of the envelope calculation.

To add to the challenge is the fact that Air India has placed an order for A350s, which is a new type of aircraft in its fleet, and will require a fresh batch of crew as pilot training is specific to each type of aircraft. Many closely involved with flight operations at some of the leading airlines in the country say this will prove to be an operational challenge as crew cannot be shuffled around from Boeing 777 or 787-9 fleet, say if there are delays due to inclement weather.

According to the DGCA data for 2021-2022, there are a total 8,573 pilots in the country for nearly 700 aircraft. Apart from Air India, IndiGo will receive nearly 500 aircraft ordered with Airbus, and the 17-plane strong recent entrant Air Akasa plans to reach the target of 72 by March 2027, as well as order more planes.

A shortage of pilots also has implications for pilot fatigue, an issue often brought up by them, as well as passenger safety.

AMAZON JOINS ONDC, THE E-COMMERCE NETWORK THAT PLANS TO CHALLENGE THE GIANT ITSELF

Amazon has announced that it will join the Indian government’s ONDC (Open Network for Digital Commerce) platform, a government-backed project aimed at enabling small merchants and kirana stores in parts of the country to access processes and technologies typically deployed by large e-commerce platforms

The development is particularly interesting given that ONDC’s very purpose is to “democratise” e-commerce in India which is largely captured by Amazon and Flipkart. An ONDC strategy paper published last year had flagged the rising dominance of global players in India’s e-commerce ecosystem, pointing out that the large quantum of investment required to build competitors to the integrated solutions offered by the big players has become an entry barrier for digital marketplaces.

It also flagged the inability of marketplace sellers to move out of the platform ecosystem, given that the value created by these small players is stored with the larger platforms.

Amazon said that it will integrate its logistics network and its software suite called SmartCommerce with ONDC. SmartCommerce is an Amazon Web Services-powered suite of SaaS products that enables MSMEs in India to build and scale their business across digital mediums and will have enablers for onboarding to the ONDC network.

ONDC is to be based on open-sourced methodology, using open specifications and open network protocols independent of any specific platform. It is being developed as a counter to the current duopoly in the Indian e-commerce market which is largely dictated by Amazon and Walmart-owned Flipkart.

In May 2022, the Department for Promotion of Industry and Internal Trade (DPIIT) went live with a test run of ONDC in cities like Delhi-NCR, Bengaluru, Coimbatore, Bhopal, and Shillong where it plans to onboard 150 sellers. In August, Microsoft became the first big technology company to join



the network with an intention to introduce social e-commerce — group buying experience — in the Indian market.

A number of other participants are also currently live on the ONDC network, offering a number of services in the e-commerce supply chain such as buying, selling and offering logistics services. Among those that are live are Paytm, which has joined the platform as a buyer, and Reliance-backed Dunzo, which is offering logistics services for hyperlocal deliveries.

LESSONS FROM HINDENBURG'S 'SKIN IN THE GAME' APPROACH

During election season, television is replete with election surveys by various pollsters predicting winners, vote shares and the seat tally of political parties. Suppose there are two television channels, A and B, making forecasts for a particular election but channel B qualifies its prediction with a bet using its own money. It stands to gain big if its predictions come true but loses all if they go wrong. Which pollster are you likely to believe more, A or B? Chances are you may trust channel B more because its incentives are aligned with its predictions. In the words of Lebanese mathematician and philosopher Nassim Taleb, channel B has 'skin in the game', an ethical principle of symmetric incentives and accountability.

A moral dilemma

Extending this thought experiment, assume that channel B's predictions come true and it makes a significant profit from its bet. It is perhaps possible that channel B's predictions may have influenced some voters to vote in a manner that reinforced its prediction. But an election outcome is dependent on a multitude of various factors. Should the fact that channel B gained financially from its predictions change your view about the merits of its survey? Would you rather have channel A's survey or regardless of its profits, is channel B's 'skin in the game' survey more preferred? The moral dilemma posed by this thought experiment is at the root of the ongoing Hindenburg Research versus Adani saga.

Hindenburg, a firm that places bets in the stock and bond markets, published a voluminous research report that raised grave allegations about the business ethics of the Adani group of companies and manipulation of share price to inflate the value. Hindenburg also took a large financial bet on the veracity of its report by engaging in a 'short sale' of Adani shares that gain when prices fall. Adani shares plummeted and Hindenburg ostensibly made a financial killing.

The Solicitor General of India questioned the motives of Hindenburg in the Supreme Court of India and argued that its report is a fallacious alibi to drive the share price down deliberately and profit from this. Commentators empathetic towards the Modi government (this includes a former Vice Chair of NITI Aayog, a former Chief Economic Adviser, a former Foreign Secretary and many others) have jumped in to cast aspersions on Hindenburg's motives, notwithstanding the fact that Hindenburg would have lost a lot of money had it been proven wrong. The irony is that Hindenburg's report has alleged that the Adani Group had deployed a grand scheme using offshore entities and related parties to manipulate its share price and gain from its rise, which is now being castigated as a mischievous report to manipulate the same Adani shares to profit from its fall. This prompts the counterfactual question: had Hindenburg published the exact same research report without making a financial bet, would it be deemed more credible?

There is empirical evidence to show that it may have been Hindenburg's 'skin in the game' approach that helped establish its credibility among market participants. In August 2022, another



foreign research firm, CreditSights, published a similar report raising questions on the governance practices and share valuations of the Adani Group. The group responded to those allegations, albeit without any reference to 'Jalianwalla Bagh' or a national flag (tapping into nationalism), as it did in its response to the Hindenburg report. The CreditSights report did not elicit much of an uproar and the stock market brushed it off with no impact on the share price of the Adani companies.

In fact, there have been at least eight such news or research reports in the last four years by similar foreign publications (Bloomberg, The Guardian and Morgan Stanley) about the Adani Group's alleged dubious business practices and share price movements. None of them seemed to have had the impact that the Hindenburg report has had. Arguably, it is because of Hindenburg's willingness to take a financial bet that lent credibility to its findings than a mere report.

A sign of veracity

The idea that one stands to lose if wrong is a very important signal of veracity, especially in times of fake and motivated news. To claim that the Hindenburg report is a grand devious plot to engineer a fall in the share price and profit is akin to claiming that a pollster engineered an entire election's outcome to ensure his prediction comes true and he gains financially. The financial market, like the electoral marketplace, is too complex and multivariate to be manipulated so easily.

Illegality versus immorality

In essence, Hindenburg alleged that the Adani Group inflated its stock price illegally to gain. Adani's backers allege that Hindenburg deflated its stock price immorally to gain. While the charge of immorality is baseless, nevertheless, it is important to make a distinction between the two, as the Supreme Court deliberates this matter soon. Illegality is profoundly different from immorality. One can have a legitimate debate over whether it is ethically reasonable to profit from a fall in the share price as it is to profit from its rise — but that is beyond the scope of the Hindenburg versus Adani matter and 'short sale'.

Taleb posits that the philosophical idea of 'skin in the game' of symmetrical rewards and penalties is very important to cultivate trust and trustworthiness in societies. Contrary to the argument of Adani's backers, Hindenburg's 'short sale' bet signalled confidence and trust in its research and played a critical role in the exposé of Adani's alleged financial shenanigans. This was neither illegal nor unethical. If any, such a 'skin in the game' approach where journalists, scientists and commentators are held accountable for their words and actions can help reduce the menace of fake news, 'hit jobs' and the 'tyranny of experts', and instead enhance trust in society and reduce discord.



LIFE & SCIENCE

WHAT IS ALMA TELESCOPE, THAT WILL SOON GET A 'NEW BRAIN'?

The Atacama Large Millimetre/submillimetre Array (ALMA) — a radio telescope comprising 66 antennas located in the Atacama Desert of northern Chile — is set to get software and hardware upgrades that will help it collect much more data and produce sharper images than ever before, the journal *Science* reported recently. It added that the upgrades would take around five years to finish and cost \$37 million.

The most significant modernisation made to ALMA will be the replacement of its correlator, a supercomputer that combines the input from individual antennas and allows astronomers to produce highly detailed images of celestial objects.

As ALMA is operated under a partnership among the United States, 16 countries in Europe, Canada, Japan, South Korea, Taiwan, and Chile, the announcement came after all the partners cleared the funding required for the improvements.

Fully functional since 2013, the radio telescope was designed, planned and constructed by the US's National Radio Astronomy Observatory (NRAO), the National Astronomical Observatory of Japan (NAOJ) and the European Southern Observatory (ESO). Over the years, it has helped astronomers make groundbreaking discoveries, including that of starburst galaxies and the dust formation inside supernova 1987A.

What is ALMA?

ALMA is a state-of-the-art telescope that studies celestial objects at millimetre and submillimetre wavelengths — they can penetrate through dust clouds and help astronomers examine dim and distant galaxies and stars out there. It also has extraordinary sensitivity, which allows it to detect even extremely faint radio signals.

As mentioned before, the telescope consists of 66 high-precision antennas, spread over a distance of up to 16 km.

Why is ALMA located in Chile's Atacama Desert?

ALMA is situated at an altitude of 16,570 feet (5,050 metres) above sea level on the Chajnantor plateau in Chile's Atacama Desert as the millimetre and submillimetre waves observed by it are very susceptible to atmospheric water vapour absorption on Earth. Moreover, the desert is the driest place in the world, meaning most of the nights here are clear of clouds and free of light-distorting moisture — making it a perfect location for examining the universe.

What are some of the notable discoveries made by ALMA?

With ALMA's capability of capturing high-resolution images of gas and dust from which stars and planets are formed and materials that could be building blocks of life, scientists are trying to find answers to age-old questions of our cosmic origins.

One of the earliest findings came in 2013 when it discovered starburst galaxies earlier in the universe's history than they were previously thought to have existed. "These newly discovered



galaxies represent what today's most massive galaxies looked like in their energetic, star-forming youth", NRAO said in a statement.

Next year, ALMA provided detailed images of the protoplanetary disc surrounding HL Tauri — a very young T Tauri star in the constellation Taurus, approximately 450 light years from Earth — and "transformed the previously accepted theories about the planetary formation", ESO said.

In 2015, the telescope helped scientists observe a phenomenon known as the Einstein ring, which occurs when light from a galaxy or star passes by a massive object en route to the Earth, in extraordinary detail.

More recently, as part of the Event Horizon Telescope project, a large telescope array consisting of a global network of radio telescopes, it provided the first image of the supermassive black hole at the centre of our own Milky Way galaxy. The image was unveiled by scientists in May 2022.

HOW SPACEX AND OTHER COMPANIES' SATELLITES ARE SPOILING IMAGES TAKEN BY HUBBLE TELESCOPE

The Hubble Space Telescope, known for recording awe-inspiring images of the cosmos while advancing the field of astronomy, is under threat.

Private companies are launching thousands of satellites that are photobombing the telescope — producing long bright streaks and curves of light that can be impossible to remove. And the problem is only getting worse.

A study, published Thursday in the journal Nature Astronomy, reveals an increase in the percentage of images recorded by the Hubble that are spoiled by passing satellites. And the data goes only through 2021. Thousands more satellites have been launched since then by SpaceX and other companies, and many more are expected to go to orbit in the years ahead, affecting the Hubble and potentially other telescopes in space.

"We're going to be living with this problem. And astronomy will be impacted," said Jonathan McDowell, an astronomer at the Harvard-Smithsonian Center for Astrophysics who was not involved in the study. "There will be science that can't be done. There will be science that's significantly more expensive to do. There will be things that we miss."

The Hubble Space Telescope's legacy cannot be overstated. Because of the observatory, we now know, for example, that the universe is 13.8 billion years old, that galaxies contain a supermassive black hole at their centers and that stars form in violent processes. The Hubble's images — including the gorgeous clouds of gas and dust in the "pillars of creation" and the view of nearly 10,000 galaxies in the "Hubble ultra deep field" — never fail to inspire.

But the number of satellites in orbit has significantly increased since the Hubble launched in 1990, and now it is staring at the cosmos through a field of satellites.

In May 2019, SpaceX launched its first batch of Starlink satellites, designed to broadcast internet signals across the globe. Soon after, an outcry emerged among astronomers who were concerned that Starlink's streaks would jeopardize a number of campaigns to observe the universe from telescopes on Earth.

In response, Elon Musk, SpaceX's founder and CEO, suggested that astronomers bypass the issue by moving telescopes to orbit.



But Hubble, which lives in low-Earth orbit roughly 335 miles above Earth's surface, actually resides less than 10 miles below most Starlink satellites. That means that the observatory and other orbital space telescopes are still facing interference from satellite constellations.

"Not only do you have to put your telescopes in space, but you also have to put them above all the other traffic," McDowell said.

"I think we'll be forced to do that in the decades to come," he said. But that isn't possible for current telescopes in low-Earth orbit or spacecraft that governments are building and launching in the coming years.

What are the findings of the study?

To quantify the effect of satellite constellations on Hubble, Sandor Kruk, an astronomer at the Max Planck Institute for Extra-terrestrial Physics in Germany, and his colleagues analysed an archive of images taken from 2002 through 2021.

They had help from hundreds of citizen scientists who pored through images to tag those with clear satellite streaks. That data set was then used as a training set for a machine-learning algorithm that analysed more than 100,000 individual Hubble photos. Their results show that the chance of seeing a satellite in a Hubble image from 2009 to 2020 is only 3.7 per cent. But the chance of seeing one in 2021 is 5.9 per cent — an increase that they say corresponds to Starlink. By the date of the analysis, 1,562 Starlink satellites were in orbit. Another company, OneWeb, had lofted 320 satellites.

Mark McCaughrean, an astronomer at the European Space Agency and a co-author on the new study, is confident in their analysis but notes that this is only a minor issue at the moment. Typically, Hubble takes multiple images that are stacked on top of one another — a technique that will erase any satellites.

And NASA agrees. "While such analyses may show a gradual increase in detected satellite trails over time, most of these streaks are readily removed using standard data reduction techniques, and the majority of affected images are still usable," a spokesperson said in regard to the latest study. "Satellite streaks do not currently pose a significant threat to Hubble's science efficiency and data analysis."

That threat is higher when the Hubble surveys a large swath of the sky. Then it might take only one or two images before redirecting its camera. If a satellite photobombs one of those images, the image might have to be tossed.

Threats posed by SpaceX satellites

In addition, the satellites could pose a serious threat to a telescope that hasn't launched yet. At the end of this year, China plans to send Xuntian, also known as the Chinese Survey Space Telescope, into low-Earth orbit. Xuntian will have a larger field of view than Hubble, making it much harder for satellites to slip by undetected.

And Xuntian can't simply launch into a higher orbit. China's plan is for the telescope to share an orbit with the Tiangong space station so that astronauts can refurbish it if necessary.

A spokesperson from SpaceX declined to comment on the new study but pointed toward the company's past efforts to mitigate the effects of Starlink. The company has tried a variety of



methods to darken its satellites, including a mirror film designed to direct light away from the ground. But Meg Schwamb, a planetary scientist at Queen's University Belfast who was not involved in the study, worries that the light will be directed up instead and could potentially worsen the situation for space-based telescopes.

There are simply too many unknowns at the moment, including the ultimate number of satellites.

SpaceX hopes to eventually expand the size of its fleet to 42,000 Starlink satellites. Many other companies are in the market, too: Amazon, the British satellite provider OneWeb, a Chinese company called Galaxy Space, and even governments. A combined 431,713 satellites are planned to launch in the coming years.

"It's a bit of a feeding frenzy at the moment," McCaughrean said.

That estimate is based on filings with the U.S. Federal Communications Commission and the International Telecommunication Union. But even if only 100,000 satellites launched, that would increase the number of satellites in orbit by a factor of 10 since the new study took place — meaning that roughly 50% of Hubble's images would spot a satellite. And if every other image had a satellite streak, the researchers worry about how much usable science could be gathered.

"When will Hubble not be useful anymore?" McCaughrean asked. "That might be 10 or 20 years away, but it's not inconceivable that there's a point at which you say, 'Let's not bother anymore.'"

CAN WE USE MOON DUST TO SLOW DOWN GLOBAL WARMING?

There is some reason to believe that the 'summerless year' that followed the eruption of Mt. Tambora in 1816 inspired the novels *Frankenstein* and *The Vampyre*. A sufficiently powerful volcanic eruption can spew sulphates and other aerosols into the stratosphere, cooling the air there. This fact has motivated people to artificially do the same thing to slow global-warming.

Moon dust coolers

A recent media buzz on this front is from a paper published in the journal *PLoS Climate* on February 8. Researchers from the U.S. have proposed that billions of tonnes of dust can be launched from the moon to a point in space where the earth's and the Sun's gravitational fields cancel each other out. The dust will thus be 'parked' there, casting a shadow on earth and dimming sunlight to offset carbon emissions.

While aerosols in the stratosphere, especially radiation-scattering ones such as sulphates, do have a cooling effect, let's not forget the consequences of the 1816 eruption. The 'cool' summer sent crop yields plummeting worldwide, leading to disease and starvation. Many climate models have confirmed that dimming the amount of incoming sunlight with stratospheric aerosols will have similar outcomes. Some studies have argued that the resulting drought won't be as harmful and that the GDPs of most countries will be positively affected by such solar radiation management (SRM). But even state-of-the-art climate models are skilled only at simulating the temperature response to changes in solar radiation. These projections are also best at the continental scale and not at the regional scale, which matters when it comes to heatwaves and drought.

Concerns about SRM models

Climate models are still woefully inadequate at estimating the precipitation response to solar radiation perturbations at all scales. Any projections related to changes in rainfall, as a result of



blocking sunlight, will be highly uncertain. Therefore, concluding that SRM won't have unintended consequences in the form of drought and crop losses, based on models that can't reliably predict precipitation, would be foolhardy.

Many natural as well as social scientists have expressed grave concerns about SRM science and governance. Who will decide when and where to deploy aerosols, and how much? Who will monitor unintended consequences? If one country conducts an experiment that affects rainfall in another country, who will bear liability? Will there be compensation for the damages caused? We are still struggling with the concept of 'loss and damage' under the UN Framework Convention on Climate Change, an instrument to compensate countries for the harm caused by climate change. Compensation for the accidental outcomes of SRM will be more contentious. The University of Oxford and the Asilomar Conference have proposed some guiding principles for attempts to geoengineer the climate. These include that those involved must clearly and explicitly report the science and technology of these approaches along with their consequences; deployment and monitoring, verification, and reporting mechanisms should be democratic and inclusive; and stakeholders must agree on compensation mechanisms for any harm beforehand. Finally, a major caveat of the aerosol-loading approach is that there will be a rebound effect once spraying stops and the aerosols are washed out of the atmosphere. So, when the temporary cooling effect is on, we must still reduce emissions. If we don't, the cooling effect will end and the heating period will recommence.

INTERNATIONAL COURTS AND CLIMATE CHANGE

A group of 16 countries has launched a gallant effort to fight the problem of climate change — an existential threat to human civilisation — at the United Nations (UN). Led by Vanuatu — an island country in the South Pacific Ocean — the group seeks an advisory opinion from the International Court of Justice (ICJ) on the issue of climate change.

The ICJ has two types of jurisdictions: contentious and advisory. While contentious jurisdiction refers to resolving legal disputes between consenting states, under advisory jurisdiction, the UN General Assembly (UNGA), the Security Council (SC) and other specialised bodies of the organisation can request the ICJ for an opinion on a legal question. Unlike decisions given under the contentious jurisdiction, the ICJ's advisory opinions are non-binding. Yet, they carry normative weight and clarify international law on a relevant issue. The ICJ's advisory opinion on climate change will also be handy in climate-related litigation at the national level.

Vanuatu's initiative

Notwithstanding the presence of several international legal instruments on climate change such as the UN Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement, the international community has fallen short of delivering concrete solutions to the problem of climate change.

The recently concluded 27th UN Climate Change Conference (COP-27) where countries failed to narrow their differences on critical issues such as reducing greenhouse gas emissions perfectly exemplifies the failure of the international community to get its act together on the issue of climate change.

Small Island Developing (SID) states such as Vanuatu are most vulnerable to rising temperatures and sea levels. Accordingly, in September 2021, Vanuatu launched an initiative, through the UNGA,



to seek an advisory opinion from the ICJ to “clarify the legal obligations of all countries to prevent and redress the adverse effects of climate change”. Since then, the initiative has gathered momentum with more than 100 countries backing the idea.

Legal questions

Specifically, the draft resolution piloted by Vanuatu seeks answers to the following questions from the ICJ.

First, what are the international law obligations of countries toward the protection of the climate system from anthropogenic emissions of greenhouse gases for the present and future generations? In answering this question, expectedly, the ICJ will not only interpret and clarify the existing international climate change law enshrined in various international environmental treaties but, as several scholars argue, also use the general and customary international law (CIL) to fill the gaps in these treaties. Thus, the ICJ can use the ‘no-harm’ principle (states are under an obligation that activities within their jurisdiction do not damage other countries) — an important part of CIL — to shed light on equivocal provisions of the Paris Agreement.

Second, given these international legal obligations, what are the legal consequences for states that have caused significant harm to the climate system, the SID states and other people of the present and future generations? This question seeks to determine the price that states should pay for not honouring their international legal obligations on climate change.

As part of climate justice, there is a long-standing demand for climate reparations, that is, the rich countries that have historically caused maximum greenhouse gas emissions should compensate developing countries bearing a disproportionate brunt of climate change.

At COP-27, while it was agreed to establish a “loss and damage” fund to financially assist vulnerable developing countries, there is little clarity on which countries will provide the funding. Moreover, the connection between funding and the historical responsibility of developed countries in emissions is yet to be determined. In this regard, the ICJ’s answer to the second question can predictably elaborate on the legal principles that might help the operationalisation of the ‘loss and damage’ fund.

Role of ITLOS

It is not just the ICJ whose advisory opinion is being sought. The Commission of Small Island States on Climate Change and International Law, comprising countries like Antigua and Barbuda and Tuvalu, has sought the advisory opinion of the Hamburg-based International Tribunal for the Law of the Sea (ITLOS). ITLOS has been requested to determine the specific obligations of the countries under the United Nations Convention on the Law of the Sea about preventing, controlling, and reducing pollution of the marine environment. The challenges of ocean warming, sea level rise and ocean acidification are all linked to the marine environment.

These advisory opinions are not a panacea. They may even turn out to be double-edged swords depending on the kind of verdict delivered. Nonetheless, as part of a multi-pronged approach to saving our planet, one should welcome the role of international courts. Developed countries and groupings like the G-20 should support these laudable initiatives of the SID states. Environment and climate sustainability are important themes of G-20. India, as the president of the G-20, should take a lead given its relentless emphasis on LiFE (developing environment-friendly lifestyle) campaign.



FOSSIL FUELS FIRMS FAILED TO CURB METHANE EMISSION: WHAT IEA'S ANNUAL REPORT SAYS

According to the International Energy Agency's (IEA) annual Methane Global Tracker report, fossil fuel companies emitted 120 million metric tonnes of methane into the atmosphere in 2022, only slightly below the record highs seen in 2019. It added that these companies have done almost nothing to curb the emissions despite their pledges to find and fix leaking infrastructure.

The report said 75 per cent of methane emissions from the energy sector can be reduced with the help of cheap and readily available technology. The implementation of such measures would cost less than three per cent of the net income received by the oil and gas industry in 2022, but fossil fuel companies failed to take any substantial action regarding the issue.

The report has come just weeks after energy giants such as Shell, BP, ExxonMobil and others reported record profits last year as the Russia-Ukraine war drove up oil and natural gas prices, Associated Press reported.

"Our new Global Methane Tracker shows that some progress is being made but that emissions are still far too high and not falling fast enough – especially as methane cuts are among the cheapest options to limit near-term global warming. There is just no excuse," said IEA Executive Director Fatih Birol.

What are the findings of the report?

The energy sector accounts for around 40 per cent of the total average methane emissions from human activity, as oil and natural gas companies are known to release methane into the atmosphere when natural gas is flared or vented. The greenhouse gas is also released through leaks from valves and other equipment during the drilling, extraction and transportation process.

"More than 260 billion cubic metres (bcm) of natural gas (mostly composed of methane) is wasted through flaring and methane leaks globally today," the report said. Although it's impossible to avoid all of this amount, the right policies and implementation can bring 200 bcm of additional gas to markets.

"In the oil and gas sector, emissions can be reduced by over 75 per cent by implementing well-known measures such as leak detection and repair programmes and upgrading leaky equipment," the report pointed out. It further mentioned that 80 per cent of the available options to curb the release of methane could be implemented by the fossil fuel industry at net zero cost.

"Based on average natural gas prices from 2017 to 2021, we estimate that around 40 per cent of methane emissions from oil and gas operations could be avoided at no net cost because the outlays for the abatement measures are less than the market value of the additional gas that is captured," the report explained.

Ultimately, reducing 75 per cent of the wastage of natural gas could lower global temperature rise by nearly 0.1 degree Celsius by mid-century. This would have the same effect on the soaring global temperatures as immediately stopping greenhouse gas emissions from vehicles such as cars, trucks, buses and two- and three-wheeler vehicles across the world. However, fossil fuel companies have done little to tackle the problem.



How are methane emissions driving climate change?

Methane is a greenhouse gas, which is responsible for 30 per cent of the warming since preindustrial times, second only to carbon dioxide. A report by the United Nations Environment Programme observed that over a 20-year period, methane is 80 times more potent at warming than carbon dioxide.

In recent years, scientists have repeatedly sounded the alarm regarding the increasing amount of methane in the atmosphere. Last year, the US National Oceanic and Atmospheric Administration (NOAA) said that the atmospheric levels of methane jumped 17 parts per billion in 2021, beating the previous record set in 2020.

“While carbon dioxide remains in the atmosphere for much longer than methane, methane is roughly 25 times more powerful at trapping heat in the atmosphere, and has an important short-term influence on the rate of climate change,” the agency said.

EGYPT UNVEILS NEWLY DISCOVERED CHAMBER INSIDE GREAT PYRAMID

Egypt Great Pyramid new chamber: Egypt’s antiquities authorities on Thursday unveiled a newly discovered, sealed-off chamber inside one of the Great Pyramids at Giza, just outside of Cairo, that dates back some 4,500 years ago. The corridor — on the northern side of the Pyramid of Khufu — was discovered using modern scanning technology.

It measures 9 meters (nearly 30 feet) in length and is 2 meters (over 6 feet) wide, perched above the main entrance of the pyramid. Archaeologists do not know what the function was of the chamber, which is not accessible from the outside. In 2017, scientists announced the discovery of another sealed-off corridor, a 30-meter chamber — or about 98 feet — also inside the Pyramid of Khufu.

Egyptian archaeologist Zahi Hawass and the country’s Minister for Tourism Ahmed Eissa, announced the discovery Thursday at an unveiling ceremony outside the pyramid. The Scan Pyramids project, an international program that uses scans to look at unexplored sections of the ancient structure, was credited for the find. Scientists from the project — which began in 2015 — attended the unveiling.

According to Christian Grosse, Professor of Non-destructive Testing at the Technical University of Munich and a leading member of the project, various scanning techniques were deployed to locate the chamber, including ultrasound measurements and ground penetrating radars. He hopes these techniques will lead to further findings within the pyramid. “There are two large limestones at the end chamber, and now the question is what’s behind these stones and below the chamber,” Grosse said.

The Pyramid of Khufu — named after its builder, a Fourth Dynasty pharaoh who reigned from 2509 to 2483 B.C. — is one of three pyramids that make up the Great Pyramids at Giza complex. The Egyptian pyramids are the only one of the ancient Seven Wonders of the World that have survived to this day. Experts are divided over how the pyramids were constructed, so even relatively minor discoveries generate great interest. Authorities often publicly tout discoveries to attract more tourists, a major source of foreign currency for this cash-strapped Middle eastern country. Egypt’s tourism sector suffered a long downturn after the political turmoil and violence that followed the 2011 uprising that ousted the country’s longtime autocratic President Hosni Mubarak, and further setbacks following the outbreak of the coronavirus pandemic.



HUMAN ANCESTORS

Along the shores of Africa's Lake Victoria in Kenya roughly 2.9 million years ago, early human ancestors used some of the oldest stone tools ever found to butcher hippos and pound plant material, according to new research (Science).

Though multiple lines of evidence suggest the artifacts are likely to be about 2.9 million years old, the artifacts can be dated to between 2.6 and 3 million years old. The study presents what are likely to be the oldest examples of a hugely important stone-age innovation known to scientists as the Oldowan toolkit, as well as the oldest evidence of hominins consuming very large animals.

Excavations at the site, named Nyayanga and located in western Kenya, produced a pair of massive molars belonging to the human species' close evolutionary relative, Paranthropus. The teeth are the oldest fossilised Paranthropus remains yet found, and their presence at a site loaded with stone tools raises intriguing questions about which human ancestor made those tools.

STUDIES IN MICE REVEAL NEURAL MECHANISM OF FEAR CONDITIONING

Researchers have, for the first time, demonstrated in mice the underlying neural mechanism that allows mice to feel empathy. In mice, observational fear, a form of emotional contagion, provokes an emotional response in the form of empathy.

The findings about empathy in mice may turn out to be true in the case of humans too, but further studies are needed in humans to conclusively prove this.

The capacity to sense the feelings of others is not unique to humans, and its biological mechanisms are shared with other mammals, including rodents. Observational fear, which is a rodent model for emotional contagion, is the basic form of affective empathy.

During the observational fear experiment, a demonstrator mouse is given an electric shock, while an observer mouse watches from behind a transparent screen. When witnessing another animal receiving a shock, the observer mouse displays an immediate fear response, as demonstrated by its freezing behaviour. The observer mouse is also known to be able to recall the experience at a later time. Thus, observational fear is considered as a basic form of affective empathy.

Brain-imaging studies in humans have shown that the neuronal activities of the anterior cingulate cortex (ACC) and the amygdala change during observation of others experiencing fear or others' fearful facial expressions. It was also known that another region of the brain — basolateral amygdala (BLA) — is essential for observational fear.

"ACC is considered an important region of the brain for the convergence of sensory and emotional information," says Dr. Gireesh Gangadharan, DBT-Ramalingaswami Fellow at the Department of Cell and Molecular Biology at Manipal School of Life Sciences, Mahe and a co-author of a paper published in Neuron.

So, a team led by Dr. Shin Hee-Sup at the Institute for Basic Science (IBS) in Daejeon, South Korea, began to study the neural circuits involving the ACC and basolateral amygdala (BLA) in both the right and left hemispheres of the brain to understand the neural mechanism underlying observational fear.



MOSQUITOES

In a bid to understand why mosquitoes may be more attracted to one human than another, researchers have mapped specialised receptors on the insects' nerve cells that are able to fine-tune their ability to detect particularly 'welcoming' odours in human skin (Cell Reports).

Receptors on mosquito neurons have an important role in the insects' ability to identify people who present an attractive source of a blood meal. Mosquitoes detect odours mostly through their antennae, and scientists have long observed that variations in odours, heat, humidity and carbon dioxide are factors in attracting mosquitoes to some individuals more than others.

For example, *Anopheles gambiae*, which causes malaria, has three types of receptors that study the surface of neurons in their organs that sense odour: odorant, gustatory and ionotropic receptors.

It is thought that different levels of acids on human skin might be a reason for some people to be more attractive to mosquitoes than others, says a release.

14 PILOT WHALES STRANDED IN SRI LANKA: WHAT IS WHALE STRANDING AND WHY DOES IT HAPPEN?

Earlier in February, 14 pilot whales were stranded near the shore of Kalpitiya, a town located on Sri Lanka's west coast. With the help of a navy team and local fishermen, 11 of them were rescued but three died, AFP reported.

Speaking to the news agency, wildlife officer Eranda Gamage said, "They (the stranded pilot whales) had to be taken into the deeper seas so that they would not come back to the shore. The navy took them in their boats and dropped them."

Whale strandings aren't uncommon in Sri Lanka. In 2020, the country witnessed one of the biggest whale strandings in recent history when more than 100 pilot whales beached on the western coast of Panadura. Three of them died during the rescue operations. In 2017, around 20 pilot whales were stranded on the eastern coast before being saved by the navy and local fishermen.

Apart from Sri Lanka, Australia's Tasmania has also seen mass beaching of whales. Last year in September, more than 230 pilot whales were stranded on the west coast of the region. Around 170 of them died even before the rescuers arrived at the spot.

What is whale stranding and why does it happen?

Whale stranding is a phenomenon in which whales are stuck on land, usually on a beach. Other aquatic animals like dolphins and porpoises are also known to beach. Most of the stranding events involve single animals but sometimes, mass strandings, consisting of hundreds of marine animals at a time, can happen.

Although mass strandings have been occurring since the times of Aristotle — back then, they were considered a gift from the gods as the stranded whales and dolphins were a rich source of food and oil — experts don't know exactly why they take place.

Among the major hotspots for the beaching of aquatic animals are Tasmania, New Zealand's Golden Bay and Massachusetts's Cape Cod in the United States. Pirota explained that these areas



witness several instances of stranding possibly because the deep water here quickly becomes shallow due to tidal variations.

How might human activities be causing whale strandings?

Experts believe that mass strandings could be becoming more common as the health of oceans continues to deteriorate due to human interference. One of the prime reasons for such incidents could be an increase in noise pollution in the oceans.

According to a report published by Mongabay, the latest whale beaching event in Sri Lanka might have been caused due to the “recent seismic activity in the Indian Ocean”.

Several studies have shown that noise from large commercial ships, military sonars or offshore drilling severely impacts whales’ and other marine animals’ ability to use sound to navigate, find food and protect themselves. This can drive them ashore by deafening, disorienting, or frightening them.

Pirotta said, “For some, this (noise pollution) can reduce the available space to talk to each other. It becomes too loud. For others, it might be a sudden sound that spooks individuals, causing them to rise from the depths at speed.”

Another factor could be the rising temperatures of the oceans that cause changes in prey and predator distribution, resulting in whales coming closer to shore.

“Whales and dolphins often travel where there is food. Changes in prey movements due to environmental changes like sea temperature and currents may play a role in where whale and dolphin food is located,” Pirotta explained

Can we prevent mass strandings?

It’s very difficult to prevent them. Also, as strandings happen due to several reasons, no one-size-fits-all solution would work. However, “taking more care of our actions in the ocean to try and minimise human activities which might impact marine life” might help reduce the chances of such incidents, Pirotta said.

‘MILLIONS’ IN INDIA, PAKISTAN AT RISK OF FLOODING FROM GLACIAL LAKES: WHAT A NEW STUDY SAYS

Around 15 million people across the world face the risk of sudden and deadly flooding from glacial lakes, which are expanding and rising in numbers due to global warming, according to a new study. More than half of those who could be impacted live in four countries: India, Pakistan, Peru and China.

Published in the journal Nature, the study, ‘Glacial lake outburst floods threaten millions globally’ has been conducted by Caroline Taylor, Rachel Carr and Stuart Dunning of Newcastle University (UK), Tom Robinson of the University of Canterbury (New Zealand), and Matthew Westoby of Northumbria University (UK).

Glacial lakes result from shrinking glaciers. Once the water is released from them, it could cause flooding in the downstream areas. This is known as glacial lake outburst floods or GLOF. Although GLOFs have been taking place since the ice age, the risk has increased multifold due to climate change, researchers of the latest study said.



GLOFs can prove to be catastrophic as they mostly arrive with little warning and result in large-scale destruction of property, infrastructure, and agricultural land. They can also lead to the death of hundreds of people.

What exactly are glacial lake outburst floods or GLOFs?

Glacial lakes are large bodies of water that sit in front of, on top of, or beneath a melting glacier. As they grow larger in size, they become more dangerous because glacial lakes are mostly dammed by unstable ice or sediment composed of loose rock and debris. In case the boundary around them breaks, huge amounts of water rush down the side of the mountains, which could cause flooding in the downstream areas. This is called glacial lake outburst floods or GLOF.

Robinson said that GLOF can be triggered by several reasons, including earthquakes and ice avalanches.

“These lakes are also often found in steep, mountainous regions, which means landslides or ice avalanches can sometimes fall directly into the lakes and displace the water, causing it to over-top the natural dam and flood downstream,” he added.

In 2013, one such event took place in Uttarakhand’s Kedarnath when the region witnessed flash floods along with a GLOF caused by the Chorabari Tal glacial lake, killing thousands of people.

How can GLOFs be prevented?

According to Robinson, reducing the risk of GLOFs is complex and no single solution would work.

“Limiting climate change and keeping warming under 1.5 degree Celsius is a big one as this will help slow the growth of glacial lakes, but unfortunately a certain amount of ice loss is already ‘locked in’ – if we stopped all emissions today GLOF hazard will continue to increase for several decades,” he added.

Robinson further explained that there is a need to find effective measures by working with national and regional governments, as well as communities themselves. This includes working at the local level and finding appropriate measures for the threatened populations.

WHY VENICE’S FAMOUS CANALS ARE NOW DRYING

With some of Venice’s secondary canals almost drying up in the past few days, images of docked water taxis, gondolas and ambulance boats have garnered a lot of attention on social media. Experts believe that a prolonged long spell of low tides and lack of rain are responsible for the issue in the city, AP reported.

The low water levels have come as a surprise because Venice is known to suffer from frequent flooding. In 2019, it witnessed the worst floods since 1966, which resulted in damages worth hundreds of millions of euros.

What are the famous canal and gondolas of Venice?

Located in northern Italy, the city of Venice has a unique geography. It is a collection of over 118 small islands spread over a lagoon, which is a kind of water body that is separated from a larger water body through some kind of land formation. Covering 70,176.4 ha., the Venetian lagoon is



separated from the Adriatic Sea. A NASA image shows the red tile roofs of buildings in the Venetian Lagoon.

According to UNESCO, temporary settlements in the 5th century gradually became permanent here, comprising land-dwelling peasants and fishermen. “Venice and its lagoon landscape is the result of a dynamic process which illustrates the interaction between people and the ecosystem of their natural environment over time,” UNESCO states.

Why have some Venetian canals gone dry?

At present, the near waterless canals have disrupted everyday life in the city because they’re responsible for carrying a bulk of transportation — automobiles are banned throughout much of Venice.

The AP report said the situation has forced medical crews to tie up ambulance boats farther away from their destination. The crews have to “sometimes hand-carry stretchers over long distances since their vessels can’t progress up canals, reduced to a trickle of water and muck,” the report added.

Apart from this, tourists have also been left disappointed as gondolas, the flat-bottom long boats that travel under the famous bridges of Venice, can’t navigate the dried-up routes. According to weather analysts, a high-pressure system is stuck over the city, creating low tides, which has led to low water levels. However, many say the root cause behind the issue is the drought-like situation across Italy.

What is the water crisis in Italy?

Since last summer, the region has been seeing a severe shortage of water in its rivers and lakes. On Monday (February 20), Legambiente, an Italian environmentalist association, said the water crisis might worsen in coming months with Italy already “suffering at a time of year when water supplies should be plentiful”, ANSA news agency reported.

The association also pointed out that the Italian Alps have received nearly half of the normal snowfall during this winter. “This is worrying as snow is an important source of water in spring and summer when, by melting, it ensures water supplies in the months it is most needed,” the news agency said.

Meanwhile, Italy’s longest river, the Po, which travels from the Alps to the Adriatic, has 61 per cent less water than normal at this time of year. To make matters worse, Italy’s largest lake, Lake Garda, is also suffering from low water levels.

Some experts suggest that the region hasn’t been able to recuperate from the after-effects of last year’s drought. In 2022, Italy experienced its worst drought in 70 years, with authorities declaring a state of emergency in five northern areas: Emilia-Romagna, Friuli-Venezia Giulia, Lombardy, Piedmont and Veneto.

Scientists have been sounding the alarm for decades regarding the impact of climate change on Italian rivers and lakes but successive governments have failed to take action, a 2022 report in the journal Nature said. Stefano Fenoglio, professor of zoology and hydrobiology at the University of Turin, told the journal, “Italy is very exposed to climate change, especially the Alpine region and facing this crisis should be a priority.”



'ORGAN ON A CHIP': A TECH WHICH MIMICS DISEASE SYSTEMS IN LABORATORY CONDITIONS

Last year, the U.S. government passed the Food and Drug Administration Modernization Act 2.0. The move is expected to boost the research and development of 'organ chips' — small devices containing human cells that are used to mimic the environment in human organs, including blood flow and breathing movements, serving as synthetic environments in which to test new drugs.

Introducing a new drug

Bringing a new drug into the market is an expensive process riddled with failure. First, researchers identify chemical compounds that can be used to treat a condition using modelling and other techniques. Then they shortlist those that perform well and test them on cells grown on plastic dishes in the lab or on animals that can mimic the disease in certain conditions.

At this stage, called the preclinical trial, scientists determine whether these drugs are toxic and if they can efficaciously treat the condition. Animals used here include mice, rats, hamsters, and guinea pigs, depending on the drug being tested. Researchers also use pigs when testing implant devices like stents. If the trial results are favourable, researchers can begin human clinical trials.

Today, fewer than 10% of new drugs complete preclinical studies and fewer than 50% of these eventually successfully complete clinical trials. Some researchers blame the use of animal models in preclinical studies for this enormous failure rate. The current consensus is that animals can mimic some human diseases well but not others. In cases where they can't, a new drug that seems promising in preclinical studies is almost certainly bound to fail in human clinical trials.

These challenges have led scientists to look for alternative models that mimic human diseases. One such is the organ-on-a-chip model, which has garnered a lot of attention in the last decade.

Organ chips

Donald Ingber, a professor of bioengineering and director of the Wyss Institute at Harvard University, and his colleagues developed the first human organ-on-a-chip model in 2010. It was a 'lung on a chip' that mimicked biochemical aspects of the lung and its breathing motions.

In 2014, Wyss Institute members launched a startup called Emulate Inc. to commercialise their technology. The group has since created several different chips, including of the bone marrow, epithelial barrier, lung, gut, kidney, and vagina. Recently, Emulate's liver chips could successfully predict the ability of drugs to cause liver injury with 87% sensitivity and 100% specificity. The researchers used liver chips to evaluate the toxic effects of 27 drugs known to be either safe or cause liver injury in humans.

Organ chips in India

A few research groups in India have also been developing organ-on-chip models.

Prajakta Dandekar-Jain is an assistant professor of pharmaceutical sciences and technology at the Institute of Chemical Technology, Mumbai.

Her group has developed a skin-on-chip model together with the team of Abhijit Majumdar, an associate professor of chemical engineering at IIT Bombay. The model is currently being tested



for studying skin irritation and toxicity. The two groups are also developing a retina-on-chip model together.

Dr. Majumdar and his team are also separately developing a placenta-on-chip model with Debjani Paul, a professor of bioscience and bioengineering at IIT Bombay, and Deepak Modi, a scientist at the ICMR-National Institute for Research in Reproductive and Child Health, Mumbai.

According to Dr. Majumder, these models better predict treatment outcomes than conventional cell-culture systems, where researchers grow cells in plastic dishes in the lab, since they model different aspects of the human body, including its three-dimensional geometry and the flow of fluids like blood and lymph.

Apart from organs, researchers are also trying to mimic different disease states using chips. Kaushik Chatterjee, an associate professor of materials engineering, and Deepak K. Saini, a professor of developmental biology and genetics at the Indian Institute of Science, Bengaluru, are doing this for the lung.

The group of Karishma Kaushik, an assistant professor of biotechnology at the Savitribai Phule Pune University (SPPU), has developed an infection-on-a-chip model to recreate a human skin wound infection state. The goal is to mimic an infection that doesn't heal despite prolonged and repeated antibiotic treatment.

"If the cells are isolated from patients and used to create biomimetic tissues, the resulting organ chips can be used to develop personalised therapies for individual patients," Dr. Dandekar-Jain said.

Ready to use?

Some of these organs-on-chips that Indian scientists have developed are ready for use as drug test-beds in lab settings, but they could be a decade away from featuring in preclinical trials, with a push, according to Dr. Kaushik. However, Dr. Dandekar-Jain said it should only be a matter of a couple years before the industry adopts these technologies, provided it can forge good collaborations with academia, access training programmes to popularise the technology, and get government support.

Researchers and biomedical companies in the West have started to build larger human-on-chip models — assemblies of different organ chips containing nutrients for the cells flowing across them, mimicking the flow of blood and nutrients across different organs in the body. The idea is to predict the efficacy of a drug against a particular disease in the presence of messy organ interactions instead of cleanly isolated systems.

PROTON BEAM THERAPY OUT OF REACH FOR MANY WITH CANCER

Cancer patients in India face twin challenges when it comes to accessing proton beam therapy (PBT): not enough facilities offering the treatment and cost running into many lakhs of rupees.

The PBT is considered a viable alternative to radiation for treating solid tumours, especially head and neck cancers.

The privately-run Apollo Hospital said on Tuesday that it has treated up to 900 patients in its Chennai-based Proton Cancer Centre, and 47% of those cases are brain tumours. Patients with cancers of the prostate, ovaries, breast, lungs, bones and soft tissues have also seen promising

3RD FLOOR AND 4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



results in terms of recovery through the therapy, said Sapna Nangia, radiation oncologist at Apollo Proton Cancer Centre.

Unlike radiation which uses X-rays, the PBT uses protons to tackle cancer. While radiation can prove toxic to the whole body, protons can destroy cancer cells precisely by targeting tumours, thus saving adjoining organs.

Benefits for women

“This has proved useful in the cases of young women whose ovaries and reproductive function could be salvaged through the therapy,” Dr. Nangia said.

Apollo Hospital is the only centre in the whole of South and West Asia offering the PBT. With the Indian government shelving a project to install a PBT unit in the All India Institute of Medical Sciences (Jhajjar), there is a huge unmet need for access to the treatment, official sources told The Hindu.

Another project that is yet to see the light of day is the proposed PBT unit at the National Hadron Beam facility of Tata Memorial Hospital in Navi Mumbai. The foundation stone for the project was laid by former Prime Minister Manmohan Singh in 2014.

Over 24,000 people die each year because of brain tumours, according to the International Association of Cancer Registries. “In India, the estimated number of cancer incidence cases in 2022 was over 14 lakh,” said Harish Trivedi, CEO of Apollo Proton Cancer Centres. Even if the PBT can be helpful in select cases of cancer among these, the estimate is substantial,” Dr. Nangia says.

According to another estimate drawn by Tata Memorial Hospital, approximately 40,000 children in India are diagnosed with cancer every year and up to 1,400 of them would potentially benefit from the PBT.

Currently there are 42 PBT machine installations in the U.S., followed by Europe (35), Japan (26), China (seven), Taiwan (three) and South Korea (two), while India has only one.

Skewed ratio

“In the U.S., each unit of proton beam therapy serves a population of 7.9 million, while in India there is one unit for 1,412 million people. The ratio is very skewed,” Dr. Nangia explained.

The PBT unit in the AIIMS was meant to benefit poor patients as the treatment would have been free of cost. Currently, Apollo Hospital has been able to reduce the cost from nearly ₹1.2 crore (as charged in the U.S.) to between ₹5 lakh and ₹30 lakh, Mr. Trivedi added.

But setting up a PBT centre is fraught with infrastructural and regulatory challenges stemming from safety concerns from the Department of Atomic Energy. A PBT machine is a huge contraption, up to three storeys tall and costs nearly ₹500 crore.

“Apollo has imported the machine from France-based Ion Beam Applications. Other companies like Japanese MNC Hitachi and U.S.-based Varian Medical Systems manufacture the high-end expensive contraption,” Dr. Nangia said.

Mr. Trivedi added, “Also, there are concerns of safety, as hydrogen is a highly volatile element and we have to run daily checks to prevent leak.”



WHY ENVIRONMENTAL SURVEILLANCE FOR AVIAN INFLUENZA IS VITAL

The world's largest northern gannet colony at the Bass Rock, an island off the coast of North Berwick, Scotland has been recently decimated by avian influenza (H5N1) or bird flu. H5N1 has caused unprecedented loss of tens of thousands of birds in the U.K. The annual congregations on breeding grounds quickly turned into a super-spreader event as highly pathogenic H5N1 ripped through bird colonies, leaving many lying dead on the beaches or remote islands.

The impact of this disease is very serious for bird conservationists. Recently, intra-mammal transmission of H5N1 in captivity in mink farms was recorded, posing a bigger concern in relation to zoonotic potential.

In India, the latest major avian flu outbreak in 2020-2021 swept through many States causing mass mortality of wild birds which brought the concerns on the lack of active surveillance to the forefront, and how wetland and waterfowl habitats at the interface of poultry need to be monitored.

While the avian flu outbreaks coincide with the peak migratory season leading to post-outbreak surveillance and culling, there are also reports of outbreaks in the off-season suggesting endemic transmission within the poultry sector. India is the fastest growing egg producer in the world, but unlike in Europe, poultry birds here are not vaccinated against flu. Furthermore, the farms with a diversity of animals or in the vicinity of nearby wetlands increases the potential for the viruses to undergo reassortment that can potentially generate more virulent strains—H5N1 or H7N9—which could then infect humans.

Despite this potential, there is no active surveillance in the poultry sector. There may be no efficient human-to-human transmission mechanism yet, however, the risk cannot be ruled out as the virus continues to evolve.

We need an active and passive year-round surveillance network under One Health which connects monitoring of human and animals in a shared environment.

The importance

Wastewater-based epidemiology or pathogen surveillance has become an integral component of environmental surveillance providing near real-time information on health and community exposure to pathogens. While environmental surveillance is not a new concept and has been used widely for monitoring several pathogens, it offers an excellent tool.

Birds infected with avian influenza virus shed large quantities of virus in their faeces, saliva and nasal secretions for about a week. Wild aquatic birds in the Orders Anseriformes and Charadriiformes are the primordial reservoir for the virus. The transmission of the virus within these wild bird populations is dependent on faecal/oral transmission via contaminated water.

Avian influenza viruses have been isolated from unconcentrated water in lakes in the U.S., Canada and China. Recurrent infections of animal hosts with the virus have posed a persistent threat. Having a large-scale influenza A virus surveillance network in place across multiple sites is crucial for improving our understanding on the diversity, seasonal and geographical distributions of the virus in environments associated with poultry and wild birds.



Avian influenza viruses can remain viable for extended periods of time in surface water and carcasses, suggesting that lakes and wetlands can act as environmental reservoirs at variable temperatures for several months. In a study in Hong Kong, an H3N2 virus was isolated from faeces and pond water every month during a one-year period, and the maintenance of this virus was proposed to be dependent on environmental persistence and the continued introduction of susceptible ducklings.

Domestic ducks are recognised as an important reservoir for H5N1. Environmental surveillance is an important area that can enhance the information on prevalence diversity of avian influenza viruses in free-ranging domestic flocks or under confinement conditions where faeces or other effluent are deposited into the environment.

Virus surveillance

Currently, virus surveillance is reactive and relies on sampling dead birds. Environmental surveillance would be a great non-invasive tool that can be done without disturbing the birds and can be used to obtain both host and viral genetic material.

Most importantly, environmental surveillance should be complemented with effective carcass collection and testing, and better biosecurity on poultry farms to improve preparedness and response in the future.

HOW SHOULD VEGETARIANS AND NON-VEGETARIANS WITH DIABETES TAKE CARE OF PROTEIN AND VITAMIN B 12 DEFICIENCY

A 65-year-old frail man with diabetes and weak muscles asked me, “Doc, should I switch over to vegetarian diets in my condition as I am a non-vegetarian? People say vegetarian diets are better for me.” Another patient of mine, a 56-year-old woman with diabetes, deranged kidney functions and a family history of colon cancer asked, “Since I am a vegetarian, should I switch over to non-vegetarian diets in my condition?” So, I have decided to answer both their questions.

What are the various types of vegetarian diets?

There is an increasing popularity of vegetarian diets in countries, which are predominantly non-vegetarian. The reasons are endorsement by celebrities and protective sentiments for animals. Vegetarian diets, although lumped under a single name, are heterogenous.

Lacto-vegetarian diets: These exclude meat, fish, poultry and eggs as well as foods that contain them and include dairy products (milk, cheese, yogurt and butter).

Ovo-vegetarian diets: Eggs are allowed but exclude meat, poultry, seafood and dairy products.

Lacto-ovo vegetarian diets: Allow dairy products and eggs and exclude meat, fish and poultry.

Finally, vegan diets exclude meat, poultry, fish, eggs and dairy products — and foods that contain these products.

Most Indians are lacto-ovo vegetarians. The essence and goodness of vegetarian diets are in consumption of plants, nuts, legumes and fruits.

A plant-based vegetarian diet is good and has multiple benefits. It decreases the risk of heart disease, lowers blood cholesterol and weight. In addition, intestinal diseases (diverticulitis),



kidney stones, cataracts and possibly some cancers are also lower in vegetarian/vegan diets. Curiously, these diets do not decrease the risk of stroke, and may even increase it. Even short-term (up to three months) use of vegan diets may decrease blood sugar levels in a patient with diabetes. Then why do many vegetarian Indians have diabetes, heart and liver disease?

Just taking a “vegetarian diet” is not good enough. Ingredients have to be balanced and should be conducive to metabolism. There are two major flaws in Indian vegetarian diets. First, there is a high intake of refined carbohydrates (rice, naan, etc), in major meals. This majorly upsets all metabolic elements (sugar, triglycerides) post-meal. Second, the high intake of saturated fat/trans fats (ghee, butter, high fat milk, coconut oil, oils derived from palm, partially hydrogenated vegetable oils), which get thickly layered in liver and arteries, prevent smooth functioning of cells and blood circulation, and even block it. Besides other problems (see below), these two issues alone can lead to diabetes, heart and liver disease.

What are the downsides of vegetarian diets and what can we do about them?

Several deficiencies may occur because of prolonged consumption of vegetarian diets. These include that of vitamin B12, which is primarily obtained from non-vegetarian diets. Its deficiency can cause nerve damage, which is also prevalent in diabetes. So, patients with diabetes who are vegetarians, should get their B12 levels checked, if possible. If they are low, or they are on a drug called Metformin, then supplementation with this vitamin is warranted.

There is a possibility of deficiency of iron, zinc, calcium (especially in those who do not take dairy), and Omega-3 fatty acids (primarily derived from fish). The latter are essential for nerves and blood triglycerides. To some extent, these micro-nutrients can be supplemented by using canola and soy oils in cooking, and walnuts, ground flaxseed and soybeans, but the body needs more. Some sources of iron include beans and dark leafy green vegetables, peas, lentils, enriched cereals and dried fruits. However, iron absorption from plant sources is inefficient. For better absorption of iron, foods rich in vitamin C are needed. This includes citrus fruits like oranges, cruciferous vegetables like cabbage and broccoli and tomatoes. These are to be taken at the time that iron-containing foods are being eaten. Zinc is essential for survival of cells and builds immunity. Like iron, it is poorly absorbed from vegetarian diets. Intake of cheese, whole grains, soy products, legumes, and nuts could improve zinc status in the body. Vegans may be at risk of iodine deficiency and may even develop goitre. Iodine could be obtained from iodised salt and from dairy, eggs, and some yoghurt. Finally, because of the absence of dairy in vegan/similar diets, their followers are prone to weakening of bone and fractures.

Importantly, vegetarians are short of high quality protein, especially if they do not take eggs and dairy products. In many Indians, whose muscles are weak (sarcopenia), this further causes low muscle functions and also affects bones. In selected individuals, especially elderly vegetarians whose food intake is low, protein supplementation is required. Good sources of protein include soybeans, lentils, cowpeas, peanuts, almonds, Bengal gram, flax seeds, oats, pumpkin seeds and so on.

So, my answer to the 65-year-old man with diabetes and weak muscles is that he should not give up non-vegetarian diets because these are good sources of protein. On top of it, he could add good vegetarian sources of protein. These would benefit his muscles and bones. Second, I told my 56-year-old woman patient to continue with her vegetarian diet and adjust protein intake (with the help of a nutritionist) according to her kidney functions. I discussed that she should avoid non-vegetarian foods, especially red meat, which has been linked to colon cancer.



A balanced vegetarian diet will do wonders to the health and metabolism provided it does not contain a dirty bag of refined carbs and saturated fats, and care is taken to avoid possible deficiencies of vitamins and minerals.

COVID-19 OF 'NATURAL ORIGIN' OR 'LAB LEAK'? A TALE OF TWO THEORIES

The debate over the origins of SARS-CoV-2 has been reignited with revelations that the United States Department of Energy has changed its opinion and now believes that the virus that caused the Covid-19 pandemic most likely leaked from a laboratory in Wuhan, China, and did not emerge organically.

The department was previously undecided on this issue, according to a report in the Wall Street Journal, which also said that this assessment, apparently based on new evidence, was made with “low confidence”.

Then in a television interview on Tuesday, Christopher Wray, Director of the Federal Bureau of Investigation (FBI) said his agency too was of the opinion that the origins of the pandemic was “most likely” a “potential lab incident in Wuhan”.

These are just the latest assessments of the origins of the coronavirus, which has been the subject of fierce contestation and political discussion since the beginning of the pandemic in early 2020. The World Health Organisation (WHO) has studied it, and so have several scientific groups, individual scientists, government agencies, and independent researchers.

The matter has not been settled — and it is unlikely to be settled now, given how contentious it has been. China’s foreign ministry responded to Wray’s statements by accusing the US of “political manipulation”, and declared “the conclusions they have reached have no credibility to speak of”.

A tale of two theories

The debate is over whether the coronavirus emerged naturally — possibly jumping from an animal host to humans in the same way as the SARS-1 virus in 2002 — or accidentally ‘escaped’ or ‘leaked’ from the Wuhan Institute of Virology (WIV), the institute in the city where researchers had been working with coronaviruses for several years.

There are people who even believe that the virus was a bio-weapon deliberately released by China, but this theory has not received backing from any serious quarters.

The reason why the origin question is relevant and important is that it helps tremendously in the efforts to prevent another such virus outbreak.

The fact that the first infections were reported from Wuhan, home to the WIV, a well known centre for coronavirus research, presented itself as the obvious, and not entirely unreasonable, basis for the assertion that an engineered virus had spilled over from the laboratory.

But this coincidence is not the entire foundation for this theory. Over the subsequent months, plenty of scientific facts were unearthed, which can be explained far better, and with much greater probability, by the ‘lab leak’ theory.

What gave the most credence to this theory was the vehemence with which it was sought to be denied, and the rather deceitful conduct of a few scientists involved in the denial.



A statement by a group of scientists published in The Lancet on February 18, 2020 called it a “conspiracy”, and claimed that evidence was “overwhelmingly” conclusive that the virus had emerged naturally.

In an article in Nature Medicine on March 17, 2020, another set of scientists claimed that their analysis “clearly” showed that the virus was “not a laboratory construct or a purposefully manipulated virus”.

These two articles, published in reputable scientific journals very early in the pandemic when sufficient information or analysis could not have been available, almost completely discounted the possibility of the virus escaping from the laboratory, and shaped the narrative around the origins of the virus.

Dishonesty — and evidence

It emerged only later that The Lancet statement was signed, and organised, by Peter Daszak, a scientist with deep connections to the WIV. Daszak was president of New York-based EcoHealth Alliance, which directly funded coronavirus research at WIV. This conflict of interest was never questioned by the colleagues who signed the letter, the editors of the journal, or the wider scientific community which was aware of Daszak’s connections with WIV.

The statement still remains on the website of the journal, and Daszak has not been reprimanded in any way for wilful concealment of facts and misleading scientific opinion. Daszak, in fact, was part of the WHO team that was sent to Wuhan to investigate the origins question in 2021.

Thanks to some enterprising and inquisitive researchers, including a few based in India, a lot more information and data was released on the Internet that added evidence to the ‘lab leak’ theory, and also exposed efforts to hide or remove access to relevant Chinese databases and information by Chinese authorities.

While the evidence for a ‘lab leak’ is still not conclusive — and the recent disclosures by US agencies are unlikely to change that — it does remain the far simpler explanation, not least because unlike in the case of SARS-1 or MERS, the theory of ‘natural emergence’ of the virus is yet to be established more than three years after the outbreak.

In fact, the evidence for natural emergence continues to be far more disingenuous, despite the publication of two comprehensive studies last year that strongly favour the theory that the virus passed on to humans from animals.

Value of scientific opinion

The origins controversy is not the only episode during the Covid-19 epidemic in which scientists have indulged in questionable behaviour.

As is becoming increasingly evident, scientific assessments and opinion offered by individual scientists as well as some scientific institutions on a variety of issues relating to the pandemic — mask mandates, vaccine effectiveness, mortality estimations and more — was not based entirely in science.

There have been instances when scientists have been economical with the truth, have seemingly batted for corporate interests, or have simply fallen to the temptation of narrative-building. These are things that usually journalists and politicians are accused of, not scientists.



The damage from this could come in the form of erosion of trust in scientists. Some of this is already evident, with even straightforward scientific advice being questioned or ridiculed. Scientists take pride in holding themselves to higher standards, and justifiably so. But the fact that there has been no condemnation or reprimand, or even acknowledgement of certain kinds of behaviour, makes a dent in that image.

THE EXPRESS VIEW ON FOUR-DAY WORKWEEK EXPERIMENT: IS BRITAIN TURNING EUROPEAN AFTER BREXIT?

Much is being made about the “major breakthrough” in one of the largest-ever experiments with a four-day workweek in Britain. Sixty-one companies were part of the six-month trial and 56 of them have opted to continue with the programme, while 18 have made it permanent. The brainchild of 4 Day Week Global, a not-for-profit organisation founded in New Zealand, the trial was overseen by the think tank Autonomy and a team of academics. Workers were allowed to work four days instead of five, with the same salary and workload. “Work-life balance”, a buzzword if ever there was one, is the goal of the trial.

Before the UK, Belgium and France have seen the widespread deployment of the four-day work week. But Britain, trying to find its place in the world on its own again, need not have followed them. After all, wasn't the argument behind Brexit that the hard-working citizen was unable to work enough thanks to Europe's open borders and policies? And, that British culture was so unique that it was chafing under the yoke of Brussels? As it turns out, people on the Island are just fond of less work and more leisure as their counterparts in the Mediterranean. It seems that while it's possible to leave Europe in a huff, Europe doesn't leave you.



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