



CURRENT AFFAIRS FOR UPSC

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INTERNATIONAL

INDIAN-AMERICAN ENGINEER WHO WAS FIRED FOR TALKING WITH DYING RELATIVE IN HINDI FILES LAWSUIT

WASHINGTON: A 78-year-old Indian-American engineer was fired from his long-time job with a missile defence contractor in the US state of Alabama for speaking in Hindi with his dying relative in India over a video call, a media report quoted a lawsuit filed by him.

Anil Varshney, a Senior Systems Engineer with Huntsville missile defence contractor Parsons Corporation, recently filed a federal lawsuit alleging systemic discriminatory actions that left him jobless in October last year.

A white co-worker heard Varshney speaking in Hindi on a telephone call with his dying brother-in-law in India, AL.COM reported on Monday.

Varshney on September 26, 2022 received a video call from his elderly brother-in-law K.C.Gupta, [who] was on his deathbed in India and called to say goodbye to Varshney".

"Knowing the dire situation and that he may never have the opportunity to speak to (Gupta) again, Varshney stepped into an empty cubicle and accepted the call," the suit said.

"Before doing so, he made sure there were no classified materials or anything else pertaining to MDA's (Missile Defence Agency) or Parsons' work anywhere near him," said the lawsuit, which also names Secretary of Defence Lloyd J.Austin as legal representative for the MDA.

The two spoke for approximately two minutes in Hindi when another worker interrupted Varshney and asked whether he was on a video call, which he confirmed, according to the suit that was filed in June in the northern district of Alabama. (The other worker) told Varshney that the call was not allowed and Varshney immediately hung up. The call was the last time they spoke before Gupta passed away.

The suit claims the other worker was "intimidated by Varshney speaking in a language he did not understand" and "falsely and intentionally" reported that the Indian-American "committed a security violation by revealing confidential information and/or accepting this call during a confidential meeting or with confidential information in the background".

"Varshney accepted the call from his brother-in-law in an empty cubicle and spoke to him for approximately two minutes," reads the lawsuit. "Despite there being no policy prohibiting the call, and without any investigation, the defendants claimed Varshney committed a serious security violation and fired him. Worse, they blackballed him from future [Missile Defence Agency] work, effectively ending his career and life of service to MDA and the US government," the lawsuit said.

The suit added that Parsons in a call informed Varshney that his "privileges at MDA [had] been revoked" and told him to meet the supervisor at the office. "When Varshney arrived, (the supervisor) and MDA security personnel met him in the lobby, escorted him to his cubicle, and instructed him to pack up his personal belongings," the suit said.

"MDA security personnel opened and searched through every file in his cubicle and through his personal belongings. Varshney was humiliated and defendants were essentially accusing him of being a spy simply for speaking in a foreign language to a dying family member."



Parsons in a response filed with the court on July 24 said it "denies it engaged in any of the wrongdoing alleged by plaintiff or that plaintiff is entitled to any relief whatsoever."

Parsons also asked for the suit's dismissal with prejudice and demanded Varshney pay its attorneys' fees and costs, the report says.

Varshney immigrated to the US in 1968 and settled in Huntsville where they became American citizens. His wife Sashi has worked at NASA since 1989.

Varshney was once lauded as "Contractor of the Year" in systems engineering and received a letter of MDA recommendation "for saving USD 5 million on the ground-based missile defense programme."

The lawsuit said he provided "engineering support for the development of integrated and layered missile defence systems which defend the United States and allied partner forces against ballistic missile threats".

The suit says Varshney seeks reinstatement to a position "comparable to his former position", the reinstatement of privileges, and the revocation (or removal) of any disciplinary records in his file.

If he is not reinstated to his job level, Varshney seeks "front pay including benefits".

He also seeks compensatory damages for "mental anguish and emotional distress", along with punitive and liquidated damages and attorneys' fees, according to the report.

ALEXEI NAVALNY SENTENCED TO NINETEEN MORE YEARS IN PRISON: WHO IS HE, WHY IS HE IN PRISON

Alexei Navalny, Russia's most prominent opposition leader and a vociferous Putin critic, was sentenced to 19 more years in prison by a Russian court earlier today (August 4).

Russian state prosecutors had asked the court to sentence Navalny to another 20 years in prison on a battery of new charges against him.

Navalny is currently incarcerated in Penal Colony No 6 at Melekhovo, roughly 240 km east of Moscow. He is serving sentences totalling eleven and a half years for parole violations, fraud and contempt of court – charges he believes are "completely politically motivated."

Who is Alexei Navalny and how did he get to this point?

Anti-corruption crusader

A former lawyer, Navalny rose to prominence with blogs that exposed what he said was vast corruption in Russia. He says the country is ruled by "crooks and thieves".

When demonstrations against Putin flared in December 2011, he was one of the first protest leaders arrested. In 2013 he ran for mayor of Moscow and won 27 per cent of the vote despite getting little or no coverage from state media. Since then he has been barred on various grounds from running for office.

Navalny and his team have lampooned Putin and produced slick videos, watched millions of times on YouTube, to expose the opulent lifestyles of Russia's elite.



“Corruption is the foundation of contemporary Russia, it is the foundation of Mr. Putin’s political power,” Navalny told Reuters in an interview in 2011.

Navalny has long forecast Russia could face seismic political turmoil, including revolution, because he says Putin has built a brittle system of personal rule that is reliant on sycophancy and corruption.

“Please consider and realize that by jailing hundreds, Putin is trying to intimidate millions,” he said on the eve of the verdict in the latest case.

Persecution and poisoning

The Kremlin, however, has dismissed Navalny’s claims about corruption and Putin’s personal wealth. His movement is outlawed and most of his senior allies have fled Russia. Russian officials portray him as an extremist and a puppet of the CIA.

Navalny has been detained countless times for organising public rallies, and prosecuted repeatedly on charges including corruption, embezzlement and fraud.

In August 2020, he fell ill on a flight from Siberia to Moscow. The pilot made an emergency landing, saving his life. Navalny was then flown to Berlin, where he was treated for the effects of a neurotoxin that lab tests in three countries showed to be Novichok, a poison developed in the Soviet Union and commonly used by Russian agencies.

A joint media investigation said it had identified a team of assassins from Russia’s FSB security service. Putin, however, dismissed the investigation as a smear, saying: “If someone had wanted to poison him, they would have finished him off.”

Navalny voluntarily returned to Russia in 2021 and was arrested immediately on arrival. The latest charges

Creation of an extremist organisation; Rehabilitation of Nazism;

Two counts of public calls for extremism (one at a rally and another online);

Creation of a non-governmental organisation (Navalny’s Anti-Corruption Fund) whose activities are alleged to be associated with incitement to commit crimes;

Involvement of a minor in committing illegal acts (stemming from the fact that people under 18 attended Navalny’s rallies);

Raising funds to finance extremism.

Navalny says these charges, like all the ones before, have been fabricated to keep him out of public life and politics. He pleaded not guilty.

WHY HAS ISRAEL PLUNGED INTO A CRISIS?

The story so far:

On July 24, Israel’s governing coalition passed a critical part of its judicial overhaul plan in the Knesset that would curtail the Supreme Court’s oversight powers of government decisions. The Bill was passed with 64 votes against zero in the 120-member Knesset with all Opposition



members staging a walkout and thousands protesting outside Parliament. Israel has seen months of protests against the right-religious government's plans to overhaul the judiciary. Prime Minister Benjamin Netanyahu agreed in March to delay the voting of the Bills amid mass protests and then held several rounds of talks with the Opposition. But as the talks collapsed, the government went ahead with the voting.

What was the Bill passed in the Knesset?

The Knesset legislation abolishes the "reasonable doctrine", which the top court has often employed to assess key government decisions and ministerial appointments. Reasonableness is a legal standard used in several countries such as Australia, Canada and the U.K. by the top courts to assess the government's decisions. In Israel, which does not have a written Constitution, courts cannot measure government decisions constitutionally but the reasonability doctrine has worked as a critical judicial check on executive decisions. The court could determine whether a government decision or a ministerial appointment is sensible and fair and nullify it if needed. For example, Mr. Netanyahu had to drop Aryeh Deri, leader of the ultra-Orthodox Shas, as a Minister from his Cabinet earlier this year after the Supreme Court termed his appointment "highly unreasonable". Supporters of the government say the reasonability standard is too abstract and allows judicial overreach. Hence, they wanted to strike it down.

What are the other proposals in the plan?

The original overhaul plan has different parts which together would strengthen the hands of the government over the courts. One of them was the abolition of the reasonability doctrine. Mr. Netanyahu's government also proposed to curtail judicial review over legislation and then empower Parliament to override court decisions with an absolute majority of 61 votes (out of 120). The government also seeks to take greater control of judicial appointments. Under the current system, judges are chosen by a nine-member panel — three Supreme Court judges (including the court president), two members of the Israeli Bar Association, two members from Parliament and two from the government (Ministers). According to the proposed reforms, the members of the Bar Association would be replaced by two "public representatives" picked by the government, which means the government will have a majority of votes in the committee and decide on who should be the judges.

Another proposal seeks to do away with the legal obligation for Ministers to follow the advice given by their legal advisers (which in turn are guided by the Attorney-General). The far-right parties in the coalition want other Bills also to be pushed through the Knesset.

Who is behind the overhaul?

Israel's current government, composed of Likud (right-wing), United Torah Judaism and Shas (ultra-Orthodox) and Religious Zionist and Jewish Power (extreme right), is the most right-wing government in the country's history. Over the years, Israel's polity (and its Parliament) has shifted rightward, while the judiciary did not. The Right has criticised the judiciary for blocking its legislative and governmental pushes aimed at transforming Israeli society and expanding settlements in the Palestinian territories. Overhauling the judiciary (in other words, bringing the courts within the ambit of Parliament) has long been a right-wing agenda. Far-right leaders such as Itamar Ben-Gvir and Bezalel Smotrich have been pushing for the overhaul and Mr. Netanyahu, who himself is facing charges of bribery, fraud and breach of trust, has thrown his weight behind the plan.



The faces of the overhaul have been Mr. Netanyahu's Likud party colleague Yariv Levin, Minister of Justice, and Simcha Rotman of Religious Zionism, who is the chair of the Knesset's Constitution, Law, and Justice Committee. The right-wing politicians were aided by Kohelet Policy Forum, a think tank backed by American and Israeli billionaires. For years, Kohelet, run by Moshe Koppel, who grew up in New York and moved to Israel in 1980, and Arthur Dantchik, another New Yorker who donated millions to the organisation, has worked on policy reforms in Israel. In 2019, Mr. Koppel claimed in an interview that "we are the brains behind Israel's rightwing".

Why did it trigger protests?

Israel's Opposition and civil society accuse the government of trying to undermine the country's democracy from within. Though the trigger of the protests was the judicial plans, there are bigger questions at stake such as the country's identity and tensions between liberal and Orthodox Jews. Critics fear that if that system is torn down, it would leave Israel's government, controlled by rightwing and religious parties, very powerful, turning the country into a de facto authoritarian theocracy. Though the protests started from the liberal sections of society, it soon spread to different groups, including military reservists who are the "backbone" of the country's military. The secular and liberal Jews, who sign up for their compulsory military training, feel that the ultra-Orthodox Jews, who refuse to serve in the military, will try to undermine the courts and hand more powers to religious parties and sections. But despite mounting pressure from both within and outside the country, Mr. Netanyahu's coalition stood together this time. Mr. Netanyahu wants the smaller religious and far-right parties to stay in power. And the Orthodox and extreme right parties want Mr. Netanyahu to push their agenda.

What can happen next?

Civil society groups have filed petitions in the Supreme Court asking it to strike down the legislation. The country's top court has said that it would review the challenges, and asked the defendants to submit a response at least 10 days before the preliminary hearing. The Supreme Court has the powers to review Knesset laws, but here the contradiction is that the law is on the Supreme Court's powers. So the judges would be reviewing a law passed in Parliament that curtails their own powers. This sets the country on the path of a constitutional showdown. While the legal challenges would take time, it's to be seen what Israel's government would be doing with its newly acquired powers. The far-right wants to give military service exemption to religious Jews and expand settlements in the West Bank. They also want to introduce other parts of the judicial overhaul plan in the Knesset.

COUPS IN NIGER; CAUSES AND CONCERNS

The story so far:

On July 26, Niger's military staged a coup, ousting President Mohamed Bazoum. The head of Niger's presidential guard, Abdourahmane Tchiani proclaimed himself as the head of the transitional government. The military's spokesperson announced that it has decided to "put an end to the regime due to the deteriorating security situation and bad governance." The constitution is dismissed, all institutions suspended, and the national borders closed.

How has the military justified the ousting of President Bazoum?

The military has blamed worsening insecurity and economic crisis for ousting the President. Despite the presence of the U.S. and French troops, Niger was unable to address the insurgency



situation that was worsening. Groups linked to al-Qaeda, the Islamic State and Boko Haram operate in the south-west near Malian and southeast near the Nigerian borders. According to the Global Terrorism Index 2023, 198 people died in insurgent attacks in 2022, with Niger holding the sixth-highest civilian death toll. Niger also was facing inflation, corruption and food insecurity. Mr. Bazoum came to power in 2021 through Niger's first democratic elections, promising to address all the issues.

What has been the global response?

The UN, the U.S., Germany and France have condemned the coup. The UN has suspended humanitarian operations in Niger, while the EU has halted all security cooperation. The U.S. has announced “unflagging support” for Mr. Bazoum calling for his immediate release. France called for an immediate reinstatement of “constitutional order and democratically elected civilian government.” Following an attack on the French embassy in Niger, Emmanuel Macron said that any attacks on France's interests in Niger would not be tolerated and France would take swift and uncompromising action.

What are the external interests in Niger?

While insurgency in Mali and Burkina Faso led to military coups, Niger managed a democratic transfer of power in 2021, an odd one in the region. This had kept smooth relations with the West. Niger has been a key partner in Washington's fight against insurgency; nearly 1,100 U.S. troops are here. According to the ReliefWeb report more than 4.4 million people are in need of immediate humanitarian assistance in the country. France and ousted President Bazoum had a closer economic and security partnership. Nearly 1,500 French troops were fighting insurgency in Niger. The country, which is rich in Uranium produces seven per cent of global supplies and has been exporting a quarter of it to France. According to Euratom, Niger supplies 25.4 per cent of Uranium to the EU countries. The coup has raised a new uncertainty over Niger's Uranium export.

Russia has also urged all sides to show restraint and restore calm while calling for Mr. Bazoum's release.

Why is the regional response divided?

The region is divided between the ECOWAS and Niger's immediate neighbours of Mali and Burkina Faso. The African Union Peace and Security Council said that it was concerned by the “alarming resurgence of coups” and called on the military to re-establish constitutional authority within a maximum of 15 days and return of the soldiers immediately to their barracks. Leaders from ECOWAS, the bloc of west African countries commented “zero tolerance” for coups.

They also announced the imposition of financial sanctions against the junta and the immediate installation of a no-fly zone over Niger for all commercial flights.

Mali and Burkina Faso have announced solidarity with the coup makers. Guinea's President Mamady Doumbouya has expressed discontent with the sanctions imposed and the threatening use of force by ECOWAS.

How to explain the anti-French sentiments rising in Niger?

Following the coup, thousands took part in protests in the capital Niamey, with some waving Russian flags chanting “Long live Russia”, “Long live Putin” and “Down with France.” Anti-French sentiments in Niger have been going on since mid-2022. It followed when Mr. Bazoum's



government approved the re-deployment of France's Barkhane force to Niger after withdrawing from Niger.

In Mali and Burkina Faso, after relations between military governments and the West fallout, Russia was seen as the immediate alternative. The raising pro-Russian slogans would mean Niger seeking a similar trajectory to Mali and Burkina Faso. Unlike the West, which stresses upon democratic norms, Russia's security partnership without conditions is preferable for the west African military governments.

Why are there several coups in Niger?

Since independence in 1960, Niger experienced four coups and several attempted coups. The latest attempt was in 2021 when a military group tried to take over the presidential palace days before Mr. Bazoum who had been elected, was due to be sworn in. There have been five military coups in Mali, Burkina Faso and Guinea since 2020.

All the coups were attributed to frustrations on incompetent authorities' failure to stem insecurity in the Sahel region and the economic and humanitarian crisis that followed. The coups are also against alleged ties of unpopular authorities and corrupt elites with Western partners.

For the military, crisis and popular discontent is an advantage to capturing power. The military often succeeds in popular pro-coup discourse through the deceptive conception that only a harsh military crackdown can address the insecurity issue.

JEDDAH: HOPE FOR PEACE IN UKRAINE?

The story so far:

Saudi Arabia is set to host Ukraine, U.S., some European countries and major developing countries including India and Brazil for peace talks on the Russia-Ukraine war on August 5 and 6 in the Red Sea port city of Jeddah. The development was first reported by the *Wall Street Journal* earlier this week, noting that top officials from up to 30 countries, excluding Russia, had been invited for the talks where Ukraine is seeking to garner support for its 10-point peace plan proposed last year.

Has the time for effective peace negotiations on Russia-Ukraine come?

While Russia has shown no signs of retreating from the frontlines in its now 17-month-old military operation against neighbour Ukraine, the latter also seems keen on fighting it out on the battlefield on the back of its retaking of the key cities Kherson and Kharkiv last fall. It also has its military position currently strengthened by the billions of dollars worth of arms and equipment flowing in from Europe and the U.S., where President Joe Biden reiterated last month that he would provide Ukraine with defence funding for "as long as it takes".

United Nations Secretary-General Antonio Guterres said in May that he did not think peace negotiations in the Ukraine war were "possible at this stage", when both sides were "convinced that they can win". Analysts, too, are near unanimous in saying that they do not envision effective peace talks that could end the conflict in the near future.

While both Ukraine and Russia have signalled their openness to talk on global platforms, they squarely reject what peace would look like for the other. Ukrainian President Volodymyr Zelenskyy continues to hold his position that peace negotiations cannot happen without the withdrawal of Russian troops and that Ukraine should be in the driver seat and define its own



terms of peace. The 10-point peace plan that Mr. Zelenskyy is promoting since last year's G-20 Summit — involves withdrawal restoring Ukraine's territorial integrity as per its 1991 borders post the breakdown of the Soviet Union and reaffirming it according to the UN Charter, besides prosecuting war crimes committed by Russia. Russia, which has rejected the plan and is unwilling to cede any of the captured territory in Ukraine has said, that any negotiation should happen factoring in "new realities", indicating redrawn borders including the territories it has annexed.

What kind of negotiations have taken place so far?

In the initial weeks of the conflict which started in February last year, the two parties engaged in talks for temporary ceasefires for creating humanitarian corridors. Direct negotiations on peace (which first happened in Belarus and Turkey) between the two have not happened since May last year, where the prospect of Ukraine never seeking NATO membership was discussed. Talks broke down as evidence of war atrocities in Ukraine and Russian attacks on civilians began to mount. Since then, the International Criminal Court at the Hague has issued an arrest warrant against Mr. Putin.

Besides, Russia, recently pulled out of the Black Sea Grain Deal brokered by Turkey and the UN after a year. The deal, which allowed the movement of 32.9 million metric tonnes of foodgrains from Ukraine through a safe corridor, was the one negotiation which was seen as fairly effective, even though a sizeable portion of grains were shipped to China and high-income countries.

Since last year, however, multiple countries and blocs have shown willingness to become mediators between the two parties, offering their own roadmaps for peace. While no plan has yet been accepted by both Russia and Ukraine, it has highlighted strategic attempts at mediation by influential players in other parts of the globe as the West's current position remains that of supporting Kyiv militarily.

What is the peace plan proposed by China?

In February, China came out with a 12-point-plan for the "political settlement of the Ukraine crisis". While the Chinese Foreign Ministry promoted it as the launch of a peace initiative by Beijing, it was seen as an attempt to placate criticism of its silence on Russia's actions, as a repetition of its already expressed positions on the war and as skewed in favour of Moscow. While Kyiv outrightly rejected the proposal, Russia has said that it could serve as a "basis for some processes aimed at the search for peace", but had some provisions, like a ceasefire, that were "impossible" to implement.

The plan reiterated China's support for territorial integrity of states and the UN Charter, condemned using of nuclear power in wars, and called for the ceasing of hostilities and resumption of talks. However, it also called for "abandoning cold war mentality", adding that security should not be achieved by expanding military alliances, pointing towards NATO and the West. The plan was seen favouring Russia as it called for countries to stop "abusing" unilateral sanctions.

A paper by the Carnegie Endowment for International Peace notes that the vague nature of China's plan reflects its varied interest. First, Beijing squarely expressed support for territorial integrity factoring in its position on Taiwan and other border issues with countries like India. Besides its strategic and economic ties with Russia, Beijing has also been a beneficiary of the conflict as Russia is once again seen as its junior power, relying on it for diplomatic support in the face of the West and for helping its economy by buying goods amid Western sanctions. China's position paper was



also seen as an attempt to position itself as a responsible power in the Global South and the UN security council, as the only member who worked on initiating a peace process.

What about the peace initiatives proposed by Africa and others?

In June, leaders of seven African countries, led by South African President Cyril Ramaphosa, visited Russia and Ukraine with a 10-point proposal which suggested the recognition of Russia and Ukraine's sovereignty, and the release of prisoners. It also called for keeping the exports of foodgrains unhindered; for a de-escalation of fighting, and for peace negotiations between the two sides to start at the earliest.

Notably, the war has meant rising inflation and a shortage of grain and fertilizers for many countries in the African continent, which import these products from Ukraine and Russia respectively. As per the African Development Bank, the conflict is directly responsible for a shortage of about 30 million tonnes of grain in Africa. The plan was also seen as an attempt at peace by African countries who have not outrightly condemned Russia and abstained from UN resolutions against it.

Meanwhile, Brazilian President Luiz Inacio Lula da Silva earlier suggested that he could lead a "peace club" of countries who are not involved in the war and are militarily non-aligned, to broker discussions between the two sides. The leader, whose efforts were seen as an attempt to bring Brazil back to global relevance after the divisive Jair Bolsonaro regime, drew criticism from Ukraine and the West, as he also suggested that the West was prolonging the conflict by supplying arms to Kyiv. He suggested earlier that the decision to start war was "made by two countries," appearing to place some blame on Ukraine.

What is known about the upcoming talks in Jeddah?

The United Kingdom, EU, South Africa, and Poland have already confirmed their attendance for the talks. The U.S. National Security Advisor Jake Sullivan is also likely to attend.

The head of Ukraine's Presidential Office, Andriy Yermak said that Kyiv was trying to get as many countries involved in a meeting in Saudi Arabia about implementing Ukraine's 10-point plan "to restore lasting and just peace". Russia, which had rejected the plan, does not appear to be among those invited for the Jeddah talks. Kremlin Spokesperson Dmitry Peskov said that Russia would follow the meeting closely to understand its goals, adding that any attempt to promote a "peaceful settlement deserves a positive evaluation". While observers are not expecting an overall breakthrough from the talks when it comes to achieving peace in protracted conflict, it is being seen as a constructive way of promoting third-party mediation by players apart from the West, and of bringing to the table both the West and the non-aligned countries of the Global South, which have refused to isolate Russia. Notably, Saudi Arabia maintains close ties with Moscow and is a part of the influential oil cartel OPEC+. It has also drawn criticism for cutting oil outputs and driving out prices at a time when supplies from Russia face sanctions.

CHINA PLANS TO LIMIT CHILDREN'S SMARTPHONE TIME TO 2 HOURS

China's cyberspace watchdog has put forward plans to limit the usage of smartphones by children to no more than two hours a day, and to require all tech companies to introduce a "minor mode" to enable restrictions.



A draft “Guidelines for the Construction of Minor Mode of the Mobile Internet” is open for public comments until September 2, State media reported on Wednesday.

If the guidelines are adopted as is expected, China will be introducing some of the world’s most strict regulations for children in usage of smartphones. The proposed guidelines suggest restrictions for five different age groups: under 3, 3-8, 8-12, 12-16 and 16-18. For children under 8, the “minor mode” will only permit 40 minutes per day, and for those under 3, the guidelines said, “online internet providers should recommend children’s songs, enlightenment education and other parent-child companionship programs, and they are recommended to play via audio.”

The 16-18 age group will be given two hours’ usage, and the minor mode “is prohibited from providing services to minors from 10 p.m. to 6 a.m.”

Some questions about how this will be enforced remain unclear, but the guidelines are the latest effort by the authorities to curb what they have seen as uncontrolled digital addiction among the youth, which has been reflected in numerous government surveys. The draft said parents will have to sign on and sign off the minor mode and will be asked to back the campaign once the guidelines are rolled out across the country. The minor mode is being seen as offering parents a tool to manage how their children use devices.

The onus is also likely to fall on tech companies who will be required to provide regular data to the authorities and will be subject to regular checks.

There is some precedence in how companies have been made to comply with such restrictions. In 2021, authorities put in place new rules to restrict online gaming by children, forcing providers to only allow one hour of service for those under 18, limited to between 8 and 9 pm on Fridays and on the weekend. Time limits have also been enforced by requiring all gamers to provide real name registration and identification.

PAKISTAN APPROVES SIGNING OF SECURITY PACT WITH U.S.

Pakistan’s Cabinet has quietly approved the signing of a new security pact with the U.S., a move that indicates a fresh start in defence cooperation after years of distrust between the two nations and may open avenues for Islamabad to get military hardware from Washington, a media report said on Thursday. Through a circulation summary, the Cabinet gave its seal of approval to sign the Communication Interoperability and Security Memorandum of Agreement, known as the CIS-MOA, between Pakistan and the US, *The Express Tribune* newspaper reported.

However, there was no official announcement from either side about the signing of the agreement. According to the report, Federal Minister for Information Marriyum Aurangzeb was approached but did not respond.

Bilateral relations

The development comes days after Pakistan and the U.S. agreed to further enhance their bilateral relations, including in the defence field, at a meeting between U.S. Central Command chief Gen. Michael Erik Kurilla and Pakistan’s Chief of Army Staff Gen. Asim Munir. CIS-MOA is a foundational agreement that the U.S. signs with its allies and countries with which it wants to maintain close military and defence ties. It also provides legal cover to the U.S. Department of Defence for ensuring the sale of military equipment and hardware to other countries. The signing of the CIS-MOA means the two countries are keen to maintain the institutional mechanism.



The agreement, first signed between the Joint Staff Headquarters of Pakistan and the U.S. Department of Defence in October 2005 for 15 years, expired in 2020. The two sides have now renewed that arrangement which covers joint exercises, operations, training, basing and equipment.

The signing of the CIS-MOA indicates that the U.S. might sell some military hardware to Pakistan in coming years, a source in Washington was quoted as saying in the report. However, a retired senior Army played down the development and said it was not easy for Pakistan to buy military hardware from the U.S. despite this agreement.

OVER THE BORDERLINE

The terror attack in Pakistan's Khyber-Pakhtunkhwa region, which has claimed 54 lives and left over 200 injured, is a grave reminder of the worsening security situation in the country's border region with Afghanistan. Ever since the Taliban seized Afghanistan in August 2021, Pakistan has witnessed rising terror. In January, at least 74 were killed in an attack on a mosque in Peshawar, the provincial capital of KP, by the Tehreek-e-Taliban Pakistan (also known as the Pakistan Taliban which have close ideological links with the Afghan Taliban but are organisationally different). A month later, another attack there left over 100 dead. The Pakistan Taliban have distanced themselves from the attack, which targeted a political rally by the Jamiat Ulema-e-Islam-Fazl (JUI-F), a hardline party led by Maulana Fazlur Rehman, a key member of Pakistan's ruling coalition. Provincial police say the Islamic State-Khorasan (IS-K) was behind the attack. The IS-K, which has stepped up attacks in Afghanistan since 2021, has repeatedly targeted Taliban-affiliated groups besides Afghanistan's minorities. The JUI-F, which has maintained ideological ties with the Afghan Taliban, has been targeted by the IS-K in the past.

In a sense, Pakistan is now paying a heavy price for its decades-long strategy of supporting Islamist extremists for its geopolitical goals. During Afghanistan's anti-communist civil war, Pakistan supported the Mujahideen with weapons and training. In the early 1990s, during the intra-Mujahideen civil war, Pakistan backed the emerging Taliban. After the Taliban were toppled in the U.S. invasion in 2001, Pakistan played a double game — joining America's war yet harbouring the Taliban. Without Pakistan's active support, the Taliban would never have been able to return to power. But decades of civil war radicalised Muslim youth across the Af-Pak region, also posing security threats to the Pakistani establishment. In 2014-15, Pakistan carried out a combing operation in the border region to crush the Pakistan Taliban. But the Taliban's return in Afghanistan seems to have emboldened their Pakistani brethren and allowed the IS-K to emerge as the most powerful armed opposition to the Taliban regime in Kabul. And the porous borders of Afghanistan and Pakistan, which the latter once used to support militancy in the former, are now used by terrorists to spread terror across the frontier. Pakistan, which is grappling with a political gridlock and a deteriorating economy, now faces a two-front security challenge — the Pakistani Taliban and the IS-K. Cracking down on terror might produce temporary results in bringing calm in the border region. But for permanent peace, Pakistan should stop differentiating between Islamist militants as "good terrorists" and "bad terrorists" based on its geopolitical interests.



NATION

EXPRESS VIEW ON INDIA-CHINA TIES: RIDING ON HOPE

When it comes to China, faith tends to triumph over reason for a large section of the Indian strategic community. The prospect that Chinese President Xi Jinping might visit Delhi in September for the G20 summit has triggered unreasonable hopes for a breakthrough in bilateral relations. Optimists view Xi's potential presence in Delhi — yet to be confirmed by Beijing — as an opportunity to end the current stalemate in bilateral relations that began with China's aggression in Ladakh in the summer of 2020, which caused the death of several Indian soldiers. The optimism soared after last week's meeting between National Security Adviser Ajit Doval and the top Chinese diplomat, Wang Yi, in Johannesburg on the margins of a BRICS forum. The reference in the Chinese statement issued after the meeting to the "Bali Consensus" between Modi and Xi on the need to "stabilise bilateral relations" and the confirmation by the South Block of parts of the conversation not disclosed earlier has triggered much excitement in Delhi.

This enthusiasm should be tempered by the fact that Modi and Xi barely chatted for a couple of minutes at the G20 dinner table in Bali, Indonesia, last November. Any claim that the two leaders agreed to settle the issues in the Ladakh frontier quickly reflects the wishful thinking that has been the hallmark of India's traditional approach to China. Delhi was eager in the past to sweep serious differences under the carpet in the name of advancing bilateral relations or collaborating on global issues. The Modi government has made it clear, repeatedly, that there will be no return to business as usual unless Beijing restores peace and tranquillity on the border. Chinese officials, in contrast, have demanded that India must set aside the border issue and move forward with cooperation in other areas. Delhi has stuck to the line that the "state of the border reflects the state of the relationship".

There is nothing to suggest that Modi will yield on this issue to please Xi. But might Xi "untie the knot" he tied in Galwan three summers ago? Delhi will surely welcome a decision by the People's Liberation Army to walk back to the positions it held before May 2020. But Xi appears to be in no mood to compromise on territorial issues with China's neighbours, including Japan, the Philippines, Vietnam, Taiwan, and India. Yet Xi's diplomatic warriors put a positive spin on talks with the neighbours and claim progress where there is none. Swallowing Chinese disinformation, unfortunately, helps mask the deep contradictions hobbling the relationship. For those who can't see the structural crisis in bilateral relations, there was a fresh reminder last week from the "stapled visas" that Beijing issued to Indian athletes from Arunachal Pradesh participating in World University Games in Chengdu, China. Beijing uses the stapled visas to assert its territorial claim over Arunachal Pradesh. Territorial sovereignty is at the heart of multiple disputes between Delhi and Beijing. The effort to manage these over the last several decades is undermined by the PLA's aggressive military and political postures on the disputed frontier. It is up to Beijing to take the first steps to restore the shattered trust with Delhi. Until then, scepticism should colour India's expectations of China.

EXPRESS VIEW ON SOUTH ASIAN UNIVERSITY UNDERTAKING: CAMPUS UNFREEDOM

The stated vision of South Asian University (SAU) is expansive. Located in Delhi, it is sponsored by all eight SAARC nations to "strengthen regional consciousness" by providing "liberal and humane education to the brightest and the most dedicated students of South Asia so that a new class of quality leadership is nurtured". However, the "undertaking" that SAU expects incoming

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students to sign undermines its own promise. It also violates the students' fundamental rights to privacy and freedom of expression and association.

The "General Declaration" asks students to promise that they will "neither join in any agitation/strike for the purpose of forcing the authorities of the University to resolve any problem", nor will they "participate in any activity which has a tendency to disturb the peace and tranquility of academic environment of the SAU campus/or its hostel premises". It also asks incoming students to declare that they are "not suffering from any serious/contagious ailment and/or any psychiatric/psychological disorder". SAU's administration must ask itself: Can "quality leadership" be created by muzzling students? And at a time when educational institutions across India and the world are trying to have open conversations about mental health, should young adults be asked to "declare" their mental health issues? This is violative of the imperative of confidentiality and privacy when it comes to a citizen's medical history.

SAU's undertaking is part of a dismal pattern in several higher education institutions across the country. Students are infantilised and there is an attempt to control and confine them instead of encouraging them to learn about and experiment with ideas, identities and politics. And the university, instead of being a safe space for free speech, is seen as a battleground. University administrations, public or private, from JNU to Ashoka University and Hyderabad Central University, among others, appear to harbour a fear of being challenged by their faculty and students. In November last year, SAU suspended or expelled four students and five faculty members for protesting fee hikes. Now, with its repressive General Declaration, it is setting up a stark choice for students: To receive higher education, they must sacrifice their rights. Such a binary flies in the face of constitutional values. Unless it wants to let down "the brightest and most dedicated" young people it purports to serve, SAU must withdraw this undertaking.

INDIA'S ACCESS TO COCOS AND CHRISTIAN ISLANDS WOULD HELP THE NAVY MONITOR MOVEMENTS IN THE INDIAN OCEAN. TWITTER/@AUSAIRFORCE

Expanding the strategic reach of the Indian military and improving interoperability with Australia, an Indian Navy Dornier maritime patrol aircraft and an Indian Air Force (IAF) C-130 transport aircraft visited Australia's Cocos (Keeling) Islands (CKI) in the Southern Indian Ocean, close to Indonesia and strategic maritime choke points earlier this month, diplomatic and official sources confirmed.

"Cocos can be an important base for refuelling and operational turnaround for the Indian military, especially once the runway there is expanded to accommodate large aircraft like the P-8 long range maritime patrol aircraft," an official source said, while confirming the visit by the Dornier and C-130 aircraft. According to diplomatic sources, the aircraft were at Cocos for close to a week. Neither the Navy nor the IAF responded to questions from *The Hindu*.

This is the latest in a series of India's growing military-to-military engagements, deepening interoperability broadly in the region and especially with Australia. In February, in another first, an Indian Navy Kilo class conventional submarine, *INS Sindhukesari*, which was on operational deployment, travelled through the Sunda Strait and docked in Jakarta, Indonesia for operational turnaround.

Even before the Indian military reached there, Cocos Islands had been a point of cooperation between the space agencies of the two countries for India's Gaganyaan human space flight mission. Australia's active support in establishing a temporary ground station at CKI for the



Gaganyaan missions, and potential opportunities for cooperation in earth observation, satellite navigation, space situational awareness, weather and climate studies using satellite data, were the highlights of the discussion, an Indian Space Research Organisation (ISRO) statement had said during the visit of Enrico Palermo, head of the Australian Space Agency (ASA) to the ISRO's headquarters in September 2022.

India's access to CKI and Christmas Island, which is even closer to the strategic choke points, has been under discussion for a while. A turnaround from either of the islands would significantly enhance the on-station time of the Indian Navy's P-8Is to monitor movements into the Indian Ocean, especially by China's People's Liberation Army Navy, whose forays into the region have significantly gone up in recent years.

'LOCATION SHARING' AS A CONDITION FOR BAIL: A LOOK INTO TWO SUPREME COURT ORDERS JUST A WEEK APART

A Supreme Court's direction that activists Vernon Gonsalves and Arun Ferreira should "pair" their mobile phones with that of the National Investigation Agency (NIA) probe officer as a condition for grant of their bail in the Bhima Koregaon case has come barely a week after another Bench of the court flagged whether a bail condition imposed by the Delhi High Court on an accused to share the Google PIN of his location with the investigating officer offended his fundamental right to personal liberty, life and privacy.

A Bench headed by Justice Aniruddha Bose on July 28 ordered Mr. Gonsalves and Mr. Ferreira to keep the location status of their mobile phones active 24 hours a day. "Their phones shall be paired with that of the Investigating Officer of the NIA to enable him, at any given time, to identify the appellants' exact location," the court directed. The top court said the prosecution could "seek cancellation of the bail of each or any of the defaulting appellants without any further reference to this court" in case any of the bail conditions are breached.

The judgment follows a July 21 order of another top court Bench led by Justice A.S. Oka, which was examining the bail conditions imposed by the Delhi High Court on Raman Bhurara, an accused in a money-laundering case related to the Shakti Bhoj Foods bank fraud. The High Court had required the accused to "drop a PIN on the Google map to ensure that their location is available to the investigating officer". "The question is whether this condition will offend the rights of the accused under Article 21 [fundamental right to life] of the Constitution," Justice Oka's Bench recorded in a three-page order. It scheduled the case for hearing on August 14.

'Onerous conditions'

"Location sharing is an undoubtedly intrusive practice which forces accused persons to barter their right to privacy for their liberty. No degree of fear in the minds of agencies can sanction a practice where a person remains under a panopticon of surveillance even when outside of prison. Courts can, and should, consider less intrusive means to secure state interests," advocate Abhinav Sekhri reacted to the bail condition in the July 28 judgment.

In 2021, the top court had lashed out against the imposition of "onerous" conditions for grant of bail, saying that such terms "tantamount to denial of bail".

Drawing attention to the ambiguity of what the court meant by "pairing" in the July 28 order, Srinivas Kodali, a data and information security researcher, said the NIA may be installing a location tracking app in the two phones.



Data protection activist Anjali Bhardwaj said mobile phones today were an “extension of the self”, storing facts and facets of our personal lives.

EXPRESS VIEW ON DELHI SERVICES BILL: A SELF-GOAL

Once the Government of National Capital Territory of Delhi (Amendment) Bill (GNCTD Bill) is passed by Parliament — it cleared Lok Sabha Thursday — it will translate into law an ordinance that, in essence, makes it possible for the elected chief minister to be over-ruled by Centre-appointed bureaucrats. Even though Delhi is not a full state, by striking at the heart of representative government in the capital, the Bill undermines the fundamental promise of electoral democracy and the federal spirit of the Indian Constitution, while undermining a Supreme Court verdict. In the matter of “services”, all appointments will be made by a three-member committee comprising the CM, chief secretary and principal home secretary. The final executive authority in Delhi will be the Lieutenant-Governor, the Centre’s nominee. The ordinance that the Bill seeks to replace was promulgated on May 19 — only days after the Supreme Court ruled that the elected government of Delhi will have powers over all services except those pertaining to police, public order and land. It was a foregone conclusion that the Bill would pass in the Lok Sabha, where the ruling party has a comfortable majority. But with the Biju Janata Dal (BJD) and the YSR Congress (YSRCP) backing the government, it now appears that the Bill will sail through the Council of States as well. For these two regional parties, this decision may return to haunt.

The BJD and YSRCP are neither a part of the ruling NDA nor the Opposition alliance, INDIA. In an era of renewed one-party dominance, and sharpening political polarisation, both have pulled off a nuanced balancing act so far and managed to keep their options open. On the citizenship debate, for example, the BJD chose to support the CAA but refused to countenance the proposed NRC. Jagan Reddy initially supported the law, but later made a u-turn. Naveen Patnaik did not support the farm laws, and the YSRCP did so in Parliament but later backed the Bharat Bandh against them. The BJD supported the government on demonetisation and the abolition of triple talaq. This nimble-footed support and opposition, issue by issue, has contributed to the liveliness and unpredictability of an important space in a diverse polity. For regional outfits, the imperative is to find ways to dig in their heels in the state while aiming for an outsized influence nationally. The GNCTD Bill, however, isn’t politics as usual.

By backing the government on this issue, regional parties are negating that which provides the very scaffolding of the system that gives them space and protects it too. The Bill strikes at the heart of the federal compact and privileges central power and whim. It also raises a spectre — if the Centre can make the elected government in high-profile Delhi bow and bend to the bureaucracy, it could do so elsewhere far more easily. The leaderships of BJD and YSRCP must carefully read the Bill and reflect on its implications — and review their position — before it comes up in the Upper House.

EXPRESS VIEW ON PARENTAL CONSENT FOR LOVE MARRIAGES: UNCLES VS CONSTITUTION

Oh, the Constitution. It seems to be standing in the way of the best laid plans of overbearing uncles, across party lines, in Gujarat. At a Patidar community event, Chief Minister Bhupendra Patel mooted a study to look into whether “something can be done to ensure that parental consent is there in it (love marriages)”. The noble objective of making consenting adults seek permission



from their parents to live how they choose will be explored unless “the Constitution becomes a hindrance”. Congress MLA Imran Khedawala immediately expressed his support for the idea. His logic behind demanding an amendment to the Gujarat Registration of Marriages Act, 2009 is simple: “Parents raise their children, so their consent should be made mandatory.”

What do adults owe their parents? A debt of gratitude, in some cases. Perhaps an allowance, if you want to get pecuniary. But the once-children, now grown up, can also present a bill for the traumas. For the scars, pressures and anxieties that they are forced to carry because of the demands of family, society and then, jobs and children of their own. At what point, in a society where “I” is just a letter in “family” or “religion”, does the burden end?

A “love marriage” in India is, among many other things, a manifestation of agency. It is an expression of individual desire, of a couple saying that the family they will build is their own. In a society where policing the boundaries of social groups has deep historical roots, it is easy to imagine why conservatives across parties fear a world where the only consent required is from the individuals involved. Fortunately, the Constitution of India is more progressive than its politicians. And for all the parents, overbearing uncles and assorted guardians of community pride worried that their grown up children might actually grow up, tough luck. At least for now, love is not illegal.

SUPREME INDICTMENT

The Supreme Court has pulled up the Manipur government for its “lethargic” investigations into the ethnic violence in the sensitive border State that began on May 3 and which has still not been doused. Pointing out that arrests have been “few and far between”, in the context of around 6,500 first information reports filed in relation to the violence, the apex court has asked for more details of the progress in police action, and ordered the personal presence of the Manipur Director General of Police during the next hearing on August 7. Questioning the State police’s capability to investigate these cases, the Court noted that there was a complete breakdown of law and constitutional machinery in the face of mob violence. Two women who were paraded naked and raped by a mob have pleaded their lack of trust in the investigation by the police and the Central Bureau of Investigation. It was the circulation of a video clip that captured the horrific violence these women were subjected to that prompted the Court’s intervention after weeks of unabated violence and the brazen partisanship of the Manipur government. More such cases have surfaced, and the Court has now proposed a Court-constituted investigation. Manipur Chief Minister N. Biren Singh has no leg to stand on after this censure by the highest court in the land, but continues to remain in office with a total lack of accountability because the Bharatiya Janata Party (BJP) is determined to protect him for political reasons.

The history of communal clashes in India suggests that mob violence for a prolonged period is possible only with the connivance of the state. In the case of Manipur, it is more than evident. Bringing perpetrators to book is far more tedious and often a frustrating process compared to taking swift preventive police action at the first sign of trouble. In Manipur, far from a swift response to prevent escalation, the police allegedly facilitated the mob violence. Police personnel who failed in their duty or connived with mobs should face the full force of the law. Also, there must be a strong message from the country’s political leadership. Sadly, the attempt by the ruling BJP has been to deny the gravity of the Manipur situation by comparing it with isolated crimes in Opposition-ruled States. The Court has denounced that claim while underscoring the gravity of the situation in Manipur. A team of 21 leaders of the Opposition grouping, INDIA, that visited the State is scheduled to meet President Droupadi Murmu on Wednesday. The grouping should also

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agree to a discussion in the Rajya Sabha even if its demand for a prior statement by the Prime Minister is not met. That will be an opportunity for INDIA to present its findings to the country.

STATES' LAX RESPONSE TO LYNCHING

The story so far:

The Supreme Court has asked the Ministry of Home Affairs and the governments of Maharashtra, Odisha, Rajasthan, Bihar, Madhya Pradesh and Haryana to respond to a petition by the National Federation of Indian Women (NFIW). The petition questions their inaction against mob violence and lynching of Muslims by cow vigilantes over the past five years, despite a previous Supreme Court judgment in Tehseen Poonawala versus Union of India in 2018 against vigilantism. The NFIW seeks an examination of police apathy, constitutional violations, and a breach of "duty of care" towards the victims, along with immediate interim compensation and a "minimum uniform amount" for the victims of such violence.

What was Tehseen Poonawala judgment?

The judgment of the Supreme Court authored by Justice (now retired) Dipak Misra held that it was the "sacrosanct duty" of the State to protect the lives of its citizens. It said spiralling incidents of lynchings, and the gruesome visuals aired through social media have compelled the court to reflect on "whether the populace of a great Republic like ours has lost the values of tolerance to sustain a diverse culture". Bystander apathy, numbness of the mute spectators of the scene of the crime, the inertia of the law enforcing machinery to prevent such crimes and nip them in the bud and grandstanding of the incident by the perpetrators of the crimes, including in the social media, aggravates the entire problem, the court noted.

The court declared that the authorities of the States have the "principal obligation" to see that vigilantism, be it cow vigilantism or any other vigilantism of any perception, does not take place. The judgment warned that vigilantes usher in anarchy, chaos, disorder and, eventually, there is an emergence of a violent society. "Vigilantism cannot, by any stretch of imagination, be given room to take shape".

Which cases were highlighted in the NFIW petition?

The alleged lynching of a 22-year-old Muslim man by Hindu "extremists" for transporting a cow in Haryana in January. Two men, Junaid and Nasir, who were travelling from their home were allegedly lynched and set ablaze in Rajasthan on February 15. A 56-year-old man was allegedly lynched in Bihar's Saran district in March on the suspicion that he was carrying beef. On April 23, Asif Qureshi was allegedly assaulted in Latur, Maharashtra, in the presence of two constables and three home guards. A bus carrying Hajj pilgrims was reportedly attacked by a mob in Kota, Rajasthan on May 26. A mob allegedly attacked two Muslim men, restraining them with ropes and assaulting them savagely in Bhubaneswar, Odisha on June 17. On June 24, two men, Afan Ansari and Nasir Hussain, were allegedly intercepted by a mob on suspicion of smuggling beef and brutally assaulted. Afan died, while Nasir is currently undergoing treatment at Mumbai's State-run KEM hospital, the petition said.

What were the seven remedial directions given by the SC to States?

They include the appointment of a designated nodal officer, not below the rank of Superintendent of Police for taking measures to prevent prejudice-motivated crimes like mob violence and



lynching. The immediate lodging of an FIR if an incident of lynching or mob violence comes to the notice of the local police. It is the duty of the Station House Officer who has registered the FIR to inform the nodal officer in the district, who in turn should ensure that the families of the victims are spared of any further harassment. The investigation of the crime should be personally monitored by the nodal officer and the investigation and chargesheet are filed within the stipulated period in law. There should be a scheme to compensate victims of such prejudice-motivated violence. Any failure to comply with the court's directions by a police or district administration officer would be considered as an "act of deliberate negligence and/or misconduct for which appropriate action must be taken against him/her and not limited to departmental action under the service rules". The departmental action shall be taken to its logical conclusion preferably within six months. States should take disciplinary action against their officials if they did not prevent the incident an incident of mob lynching, despite having prior knowledge of it, or where the incident has already occurred, such official(s) did not promptly apprehend and institute criminal proceedings against the culprits.

How are States responding to the contempt petition?

The Centre and States are also facing a separate contempt petition in the Supreme Court for non-compliance with the Tehseen Poonawala judgment. In that case, an apex court Bench of Justices Sanjiv Khanna and Bela Trivedi, on July 10, directed the State governments to file by September 30 a status report giving year wise data from 2018 as to the number of complaints received, FIRs registered and chargesheets filed in lynching cases. The status report, the court ordered, should detail the steps/measures, preventive and remedial, taken by the State governments in terms of the 2018 judgment. The Bench had agreed to a suggestion made by Attorney General R. Venkataramani that the Ministry of Home Affairs would convene a meeting of the department heads of the State governments about the compliance measures (preventive and remedial) directed by the court in the Tehseen Poonawala judgment. The court directed the Centre to file an affidavit stating the outcome of the meeting and listed the case in October.

EXPRESS VIEW ON HATE AND IMPUNITY: DRAW THE LINE

On the tragic face of it, the violence that flared in Nuh, Haryana, on July 31, and the murder on board the Jaipur-Mumbai Central Superfast Express the same day, are unrelated. In Nuh, communal clashes broke out during a religious procession, the Brij Mandal Jalabhishek Yatra, organised by the VHP annually. It has left at least five dead, amid incidents of stone-throwing, burning of vehicles and torching of a place of worship by mobs on a rampage, with tensions spreading to surrounding districts, right upto the doorstep of the national capital. In the backdrop of the flare-up in Nuh, is the abduction and murder of two men in February by cow vigilantes in Bhiwani — the main murder accused, who belongs to the Bajrang Dal and is still at large, reportedly played a role in stoking tensions ahead of the Yatra. On board the Mumbai-bound train, a young RPF constable opened fire and killed a senior colleague and three other passengers. A purported video of Chetan Singh, 33, captures his talk of "Pakistan" and "... agar Hindustan mein rehna hai (if you want to live in Hindustan)". The violence between communities and unchecked cow vigilantism in Haryana, and the murders on the train between Vapi and Vaitarna railway stations, about two hours from Mumbai, point to the same sordid cycle of hate and impunity.

The onus is on politicians and the state. Not all of the Supreme Court's laments or anguished strictures against hate speech can make a difference if there are political incentives for sharpening prejudice and polarisation on the ground. While all parties must share the responsibility for treading carefully on faultlines ahead of what promises, or threatens, to be a bitterly contested



election in 2024, the burden is especially on the BJP. As the party that rules at the Centre and in Haryana, it must send out the message, unequivocally, that there will be no tolerance, much less reward, for the open purveying of hate. Over his nearly two terms in power so far, Prime Minister Narendra Modi has built a formidable cache of political capital that the Opposition evidently feels unable to take on singly — it has united to forge a front, INDIA, to fight the BJP. PM Modi must throw his political weight behind the much-needed signal, to his own party and government, and to the people, that in the “New India” he envisages, those seeking to stoke fears and deepen insecurities, and upend the rule of law, will have a price to pay.

That’s why the Monday warning must not go unheeded. Union Railway Minister Ashwini Vaishnaw, who very effectively links the railway story to the New India story, needs to speak up. He needs to make it clear that, of course, while one constable does not a force make, in the Railway Protection Force even one rotten apple is one too many. Vaishnaw is a skilled communicator, he could begin by reaching out to the next of kin of all the four killed in cold blood by a member of a force that reports to him.

INCREMENTAL INJUSTICE

In upholding the conduct of a survey by the Archaeological Survey of India (ASI) at the Gyanvapi mosque, the Allahabad High Court may have endorsed a surreptitious attempt to alter the character of the place of worship. Both the High Court and the Varanasi District Court, which ordered the ASI survey on July 21, had held earlier that the suit filed by some Hindu devotees to assert their right to worship some deities and images within the mosque precincts was not barred by the Places of Worship (Special Provisions) Act, 1991, which froze the status of all places of worship as on August 15, 1947. The reason given was that the suit was solely for the right to worship and not to seek any declaration that the building was a temple. In brazen contradiction to this stand, the worshippers filed applications seeking a scientific survey by archaeologists to ascertain whether the Gyanvapi mosque was built on the demolished structure of a Hindu temple. Both courts have endorsed this strategy of gathering official evidence, currently not available to the plaintiffs, through the ASI. The District Court’s order merely said a scientific report would bring out the “true facts” about this case and help it arrive at a just and reasonable conclusion. The High Court has dismissed all objections, including the ones that said the court cannot ask for expert evidence even before the issues to be tried were framed, and that it cannot gather evidence on behalf of the plaintiffs.

The courts have not dealt with the question why it is necessary to determine the date of pillars and walls and make a list of artefacts, when the main prayer in the suit is for the right to worship Ma Sringar Gauri, Ganesh, Hanuman and other “visible and invisible” deities. The entire case is based on the assertion that Hindu deities were being worshipped at the site before and after August 15, 1947. And that daily worship of these deities was going on till 1990, and that after 1993, it is permitted one day every year. The plea for a survey and the intent to rake up the question of an earlier structure under the mosque indicate a design to create conditions for seeking an alteration to its status. An earlier order asking an Advocate-Commissioner to study the premises led to a claim that what was likely a sprinkler or fountain was a ‘shivalingam’. It is unfortunate that the courts are encouraging motivated litigation directed at Muslim places of worship. Each time such an application is filed, it raises the spectre of incremental injustice from an abuse of the legal process.



WHO ARE THE PAHARIS AND PADDARIS, PROPOSED FOR ST STATUS IN J&K?

The government has brought a Bill to include four communities in the list of Scheduled Tribes (STs) in Jammu and Kashmir: “Gadda Brahmin”, “Koli”, “Paddari Tribe”, and “Pahari Ethnic Group”.

The Constitution (Jammu and Kashmir) Scheduled Tribes Order (Amendment) Bill, 2023 is one of the four Bills relating to the Union Territory that were introduced in Lok Sabha on July 26.

ST communities now

The dominant ST communities in J&K are the Gujjars and Bakerwals, who mainly live in the districts of Rajouri, Poonch, Reasi, Kishtwar, Anantnag, Bandipora, Ganderbal, and Kupwara. Most of them, especially the Bakerwals, are nomadic — they migrate with their livestock to the higher reaches in the summer, and return before the onset of winter.

With a population of almost 18 lakh, the Gujjar-Bakerwal are the third largest group after Kashmiris and Dogras in J&K. They were given ST status in 1991, along with the two smaller groups of Gaddis and Sippis. This entitled these four communities to 10% reservation in government jobs and admission to educational institutions; in 2019, they were empowered politically after the Centre announced a 10% quota for them in Lok Sabha and Assembly seats in J&K.

The proposed expansion of the ST list has triggered unrest among the Gujjar-Bakerwal, who apprehend a shrinking of their share of the quota benefits pie. The Bill says the amendment “may entail additional expenditure on account of benefits to be provided to persons belonging to the said [four] communities”.

Gujjar-Bakerwal leaders are especially agitated with the proposed ST status for Paharis and Paddaris. Gadda Brahmins and Kolis are very small communities; also, according to the protesters, Gadda Brahmins are a branch of the Gaddis while Kolis are a sub-caste of Sippis — both these communities are already in the ST list.

Pahari Ethnic Group

The Paharis are Hindus, Muslims, and Sikhs, and include people of Kashmiri origin who settled in the districts of Rajouri and Poonch over a period of time. There are upper caste Hindus among the Paharis; also people who were displaced from Pakistan Occupied Kashmir.

In 1989, the J&K government led by Farooq Abdullah recommended that Paharis should be included in the list of STs along with the Gujjars, Bakerwals, Gaddis, and Sippis. However, the recommendation was rejected by the Registrar General of India on the ground that there was no caste/ tribe of that name in its records.

In response to popular demand from Paharis living in the border areas of Rajouri and Poonch districts — who argued that they lived in the same areas as the Gujjar-Bakerwals and faced similar social and educational backwardness — the Farooq government set up an Advisory Board for Development of Pahari Speaking People. The Board defined Paharis as all people living in Rajouri and Poonch except those who were STs.

As the Paharis continued to clamour for ST status, the Centre sought repeated clarifications from the J&K government. In 2012-13, the J&K government commissioned a study by Prof Amin Peerzada of Kashmir University, which its report supported the Paharis’ demand. The PDP-BJP



government led by Mehbooba Mufti sent the report to the Centre with its supporting recommendation; however, the case was rejected once again on the ground that Paharis were not an ethnic group. Earlier in 2014, the Omar Abdullah government had brought a Bill proposing a 5% quota for Paharis, but Governor N N Vohra refused his assent to the Bill.

The Paharis finally got 4% reservation in jobs and educational institutions in 2019, when Satya Pal Malik was Governor. Also in 2019, the Justice (retd) G D Sharma Commission was appointed to identify groups that were socially, educationally, and economically backward. The Commission in its report recommended ST status for Gadda Brahmins, Kolis, Paddari Tribe, and Pahari Ethnic Group. The report was sent to the Tribal Affairs Ministry, and the Registrar General approved it in 2022.

Paddari Tribe

They live in the remote Paddar area of the hilly Kishtwar district. Spread over two tehsils, the Paddari homeland borders Zaskar (Ladakh) in the north and the east, Pangi in Himachal Pradesh in the south, and the rest of J&K in the west.

The 2011 census recorded the Paddari population at 21,548, comprising 83.6% Hindus, 9.5% Buddhists, and 6.8% Muslims. The people of the area, including those who have come from elsewhere to settle there, speak the Paddari language.

Like in the case of the Paharis, the Gujjar-Bakerwal opposition to the proposed inclusion of the Paddari Tribe in the ST list is based on the argument that they do not constitute a single ethnic group, but are a mix of individuals from different castes and religions who speak a particular language.

PATNA HIGH COURT FINDS CASTE-BASED SURVEY OF BIHAR GOVT. 'PERFECTLY VALID', ALLOWS RESUMPTION

Chief Minister Nitish Kumar got a boost on Tuesday with the Patna High Court dismissing all petitions filed against the decision of the Bihar government to conduct a caste-based survey. Upholding the action of the State to be “perfectly valid”, a Division Bench of Chief Justice K.V. Chandran and Justice Partha Sarthy allowed the government to continue with the survey.

The Janata Dal (United) and Rashtriya Janata Dal-led government had initiated the exercise in January after its demand for a nationwide caste census gathered little traction. The Bihar survey, as well as the inaction on the caste census demand, are likely to become major political talking points in the run-up to the Lok Sabha polls next year.

“We find the action of the State to be perfectly valid, initiated with due competence, with the legitimate aim of providing ‘Development with Justice,’ as proclaimed in the address of both Houses,” the court said in its order on Tuesday.

It also said the actual survey, having passed the test of proportionality, did not violate the rights of privacy of the individual especially since it is “in the furtherance of a ‘compelling public interest’ which in effect is the ‘legitimate State interest’”.

On May 4, the High Court had issued an interim stay on the ongoing survey and turned down a State government plea on May 9 to advance the hearing of the case from July 3. Later, the State government approached the Supreme Court to lift the stay, but the apex court refused.



From July 3 to July 7, a continuous hearing was held by the Chief Justice-led Bench and the verdict reserved for August 1. Earlier, Chief Justice Chandran had directed the State government to not share or use the data collected during this period.

Advocate Dinu Kumar, counsel for one of the petitioners, said that they would approach the Supreme Court against the High Court verdict.

Welcoming the verdict, constituents of the ruling *mahagathbandhan* used the opportunity to put pressure on the Centre for a national caste census.

Leader of the Opposition Vijay Kumar Sinha questioned the need for the exercise. "Crime is at its peak in Bihar and the government is busy with the caste census. What is the need for this?" the BJP leader said.

AT ₹14,359 CRORE, ASSETS OF KARNATAKA

The total assets of the 223 MLAs in Karnataka stands at a staggering ₹14,359 crore. This is the highest among all States and Union Territories in India.

Karnataka is followed by Maharashtra at a distant second, where the assets of all its 284 MLAs amount to ₹6,679 crore, and Andhra Pradesh, whose 174 MLAs have assets amounting to ₹4,914 crore.

This was revealed on Tuesday by Association for Democratic Reforms and National Election Watch, which analysed the self-sworn affidavits of sitting MLAs in State Assemblies and Union Territories.

This data has been extracted from the affidavits filed by the MLAs prior to contesting their last election.

A total of 4,001 MLAs out of 4,033 have been analysed across 28 Assemblies and two Union Territories. The total assets of Karnataka MLAs are more than the individual annual Budgets of Mizoram and Sikkim. They constitute 26% of the combined assets of all 4,001 sitting MLAs in India that stand at ₹54,545 crore.

It is also more than the combined assets of sitting MLAs of Rajasthan, Punjab, Arunachal Pradesh, Bihar, Delhi, Chhattisgarh, Himachal Pradesh, West Bengal, Goa, Meghalaya, Odisha, Assam, Nagaland, Uttarakhand, Kerala, Puducherry, Jharkhand, Sikkim, Manipur, Mizoram and Tripura. The total combined assets of sitting MLAs from these 21 States and Union Territories add up to ₹13,976 crore.

The total assets of 1,356 BJP MLAs is ₹16,234 crore. This is followed by ₹15,798 crore of the 719 Congress MLAs, ₹3,379 crore of the 146 YSRCP MLAs, ₹1,663 crore of 131 DMK MLAs, and ₹1,642 crore of 161 AAP MLAs.

LOK SABHA PASSES BILL ON BIRTH REGISTRATION

The Lok Sabha on Tuesday passed the Registration of Births and Deaths (Amendment) Bill, 2023 that paves the way for digital birth certificates which will be a single document to be used for admission to educational institutions, applications for driving licences, government jobs, passports or Aadhaar, voter enrolment, and registration of marriage, and others.



This will “avoid multiplicity of documents to prove the date and place of birth in the country,” said the statement.

Minister of State for Home Nityanand Rai said that all States had consented to the provisions of the legislation that was also put up for consultation in public domain.

As reported first by *The Hindu*, the database will also update the National Population Register, ration cards, property registration. NPR, first collected in 2010 and updated in 2015 through door-to-door enumeration, already has a database of 119 crore residents.

Opposing the Bill, AIMIM’s Asaduddin Owaisi said in the Lok Sabha that the bill is “backdoor NRC.” He said the Bill violates right to privacy of citizens and the Government does not believe in transparency.

HOUSE PANEL BATS FOR LOWERING MINIMUM AGE TO CONTEST POLLS

Holding that young individuals can be “reliable and responsible” political participants, a Parliamentary Standing Committee has recommended reducing the age for contesting Lok Sabha and Assembly elections to 18 years, which is the minimum age of voting in India.

This view was, however, contested by the Election Commission of India which said that it was “unrealistic” to expect 18-year-olds to possess the necessary “experience and maturity” for being Members of Parliament and State legislative bodies.

At present, the minimum age for a person to contest Lok Sabha and Assembly polls is 25 years, while one can become a member of the Rajya Sabha or the State Legislative Council only at 30 years.

The Standing Committee on Personnel, Public Grievance, Law and Justice said that the viewpoint for reducing the age was reinforced by a vast amount of evidence, such as global practices, the increasing political consciousness among young people, and the advantages of youth representation. “After examining various countries’ practices, such as Canada, the United Kingdom, and Australia, the Committee observes that the minimum age for candidacy in national elections needs to be 18 years. These nations’ examples demonstrate that young individuals can be reliable and responsible political participants,” it said in the report submitted to Parliament on Friday.

However, the Election Commission of India, in its deposition before the committee, said that it has already considered the issue of aligning the minimum age for voting and contesting elections to Parliament, State Legislature, and local bodies and has found that it is unrealistic to expect 18-year-olds to possess the necessary experience and maturity for these responsibilities.

“Therefore, the minimum age for voting and contesting elections is appropriate. The Commission does not favour reducing the age requirement for membership of Parliament and State Legislatures and still maintains this view,” the EC said.

GOVT’S BILL ON IIMS, AND THE CONCERNS OVER THEIR AUTONOMY

The Indian Institutes of Management (Amendment) Bill, 2023, introduced in Lok Sabha on July 28, seeks to make changes in the law that governs the administration and running of IIMs.



The government has brought a Bill in Parliament giving itself a significant say in the appointment and removal of Directors of the Indian Institutes of Management (IIMs), and in initiating inquiries.

The Indian Institutes of Management (Amendment) Bill, 2023, introduced in Lok Sabha on July 28, seeks to make changes in the law that governs the administration and running of IIMs. The

PSLV PUTS 7 SATELLITES IN ORBIT; FOUR MORE MISSIONS THIS YEAR

The Indian Space Research Organisation (ISRO) on Sunday successfully launched the PSLV-C56 carrying Singapore's DS-SAR and six other satellites.

The rocket lifted off from the Satish Dhawan Space Centre in Sriharikota at 6.31 a.m.

"PSLV-C56 carrying seven satellites including the primary satellite DS-SAR and six co-passengers has been successfully placed in the right orbit. This is a PSLV mission for New Space India Limited [NSIL] and I want to congratulate the customers sponsored by the Government of Singapore for having this mission onboard PSLV and their continued faith in our launch vehicle for deploying their spacecraft," ISRO Chairman S. Somnath said.

The DS-SAR satellite is developed under a partnership between the DSTA (representing the Government of Singapore) and ST Engineering.

Co-passengers

The co-passengers on the missions were VELOX-AM, a 23-kg technology demonstration microsatellite; Atmospheric Coupling and Dynamics Explorer (ARCADE), an experimental satellite; SCOOB-II, a 3U nanosatellite flying a technology demonstrator payload; NuLoN by NuSpace, an advanced 3U nanosatellite enabling seamless IoT connectivity in both urban and remote locations; Galassia-2, a 3U nanosatellite that will be orbiting on a low-earth orbit; and ORB-12 STRIDER, a satellite developed under an international collaboration.

After the launcher placed all the seven satellites into a 535-km circular orbit, the PS4 stage was brought back to a lower orbit of 295 km x 300 km.

ISRO GIVES PSLV C56 'SECOND MISSION' TO FIGHT DEBRIS

In a dedicated commercial mission earlier in the day, ISRO successfully placed seven Singaporean satellites into intended orbits on board a PSLV.

During the mission, the scientists decided to perform a unique experiment in which the fourth stage of the rocket would be lowered into a 300 km high orbit after placing customer satellites at an altitude of 536 km "to mitigate the space debris problem," according to ISRO chairman S. Somanath.

In an update after the launch, ISRO said the experiment was "successful".

According to ISRO, normally, after a successful mission, a rocket stays in orbit for "decades" as space debris, before re-entering into earth's atmosphere. But thanks to the orbit-lowering, the duration has now been reduced to "two months".

"The experiment is being done with an intent to have a lower lifespan of the stage being spent in space, primarily to make sure that the space debris mitigation problems are addressed through



our conscious efforts to bring back the PSLV upper stage in a controlled manner, and to demonstrate that in this mission,” Somanath, who is also Secretary, Department of Space, said.

Echoing his view, PSLV Mission Director S.R. Biju said, “We are embarking on [the experiment] after the completion of the primary mission because we are taking the PS4 stage back to another orbit, because this orbit of 536-570 km is very much in demand for many satellites. So we thought we will not be wandering there and we decided that we will take the PS4 stage or the spent stage to another orbit, to another objective for two purposes.”

“Our chairman has told us to do whatever is best possible to mitigate the menace of debris in orbit and another thing, this precious orbit will not be occupied with spent PS4 stage as debris and we will give space for future satellites. These are two objectives with which we are doing this experiment, and that experiment is in progress,” he added.

In April, ISRO undertook a similar exercise during the launch of the PSLV-C55 mission. Here, the fourth stage of a PSLV rocket was used as an orbital platform to carry out scientific experiments using the PSLV Orbital Experimental Module (POEM) of the rocket.

MYSTERIOUS OBJECT ON AUSTRALIAN BEACH CONFIRMED AS ISRO ROCKET

Around the middle of July, a massive metal object washed up on a beach near Jurien Bay in Western Australia. It was surmised at the time that the massive copper cylinder was part of some country’s rocket launch vehicle but the Australian Space Agency on Monday confirmed that it was most likely debris from a used third stage of the Indian Space Research Organisation’s (Isro) Polar Satellite Launch Vehicle (PSLV).

The debris is in storage and the Australian Space Agency is working with ISRO to determine the next steps, considering both countries’ obligations under the United Nations space treaties.

An Isro official said the object is most likely an unburnt part of a PSLV rocket that launched a navigation satellite for the IRNSS constellation two months ago. “That satellite was launched in the southward direction. It is possible that one of the parts of the rocket did not burn completely while dropping back into the atmosphere, and fell into the ocean. It could later have been swept towards the Australian shore,” said the official.

Based on the United Nations’ Convention on International Liability for Damage Caused by Space Objects, countries will have to bear responsibility for all space objects that are launched within their territory. This means that in this particular case, Australia can sue India for any damages that happened, and the latter will be liable for all the damages the object caused, if any.

HOW A NUCLEAR ‘CHAIN REACTION’ AND NEIGHBOURHOOD CHALLENGES LED TO INDIA ACQUIRING ITS N-WEAPONS

India’s n-story: the early years

In the years after Independence, Prime Minister Jawaharlal Nehru followed a dual intent strategy on “nuclear power”. He made it clear in 1950 that while he was against the atom bomb, the call for a nuclear-free world must come from a position of strength, not weakness.

Nehru entrusted Dr Homi J Bhabha with leading India’s nuclear programme — to develop the capability to use nuclear energy for peaceful purposes, but to retain the capacity to develop a



weapon if the need arose. The Indian political leadership was always aware that this meant a wink and a nod for India's strategic weapons programme.

India's external environment became more challenging after the defeat to China in 1962. Two years later, in 1964, China tested a nuclear weapon. By this time, all the permanent members of the United Nations Security Council had tested nuclear weapons — after the US in 1945, the USSR tested in 1949, the UK in 1952, and France in 1960.

In his book *India's Nuclear Bomb: The Impact on Global Proliferation* (1999), George Perkovich wrote: "Bhabha was consciously developing nuclear weapon capabilities prior to the emergence of a Chinese nuclear threat... Main motivations for India's initial plans to acquire the means to produce nuclear explosives had more to do with Bhabha's and Nehru's beliefs that nuclear technology offered India a shortcut to modernity and major power status. By mastering nuclear science and technology — and in the process, acquiring the potential to make nuclear weapons — India could transcend its recent colonial past."

From Indira to Vajpayee

India's first nuclear test in 1974, when Indira Gandhi was Prime Minister, demonstrated its capability to produce nuclear weapons, but international opprobrium and resistance from within led to a slowing of the process to build and deploy a full nuclear arsenal.

The push to develop nuclear weapons came from an unlikely source, a decade later. In her new book *How Prime Ministers Decide* (2023), Neerja Chowdhury, Contributing Editor at *The Indian Express*, writes about a conversation between President Ronald Reagan and Prime Minister Rajiv Gandhi.

"When they met in October 1985, Reagan told Rajiv Gandhi, 'Pakistan has already made a bomb.' When Rajiv started talking about disarmament, the US President cut him short, 'Don't talk theory, think of your own protection'," Chowdhury has written.

Around this time, strategists such as K Subrahmanyam and Army Chief General K Sundarji had also started advocating for nuclear weapons. Prof Rajesh Rajagopalan of JNU's School of International Studies wrote in a 2009 paper on India's nuclear policy:

"Both Sundarji and Subrahmanyam argued that the kind of bloated nuclear arsenals that the US and the Soviet Union developed during the Cold War were unnecessary and wasteful. Nuclear deterrence could be had at far cheaper cost, with a relatively small arsenal... What they were suggesting was a view of nuclear weapons that emphasized its political rather than military utility, its deterrence rather than war-fighting capability."

In 1989, Rajiv gave Defence Secretary Naresh Chandra approval to develop the bomb. Rajiv lost power in the election of that year and was assassinated in 1991, but successive governments continued to support the programme.

Prime Minister Atal Bihari Vajpayee saw the nuclear tests of 1998, codenamed Operation Shakti, as the "beginning of the rise of a strong and self-confident India". The tests were a response to the threat posed by Beijing, Vajpayee told President Bill Clinton.

"We have an overt nuclear weapon state on our borders, a state which committed armed aggression against India in 1962. Although our relations with that country have improved in the



last decade or so, an atmosphere of distrust persists mainly due to the unresolved border problem,” Vajpayee wrote to Clinton.

The present and future

Following Pokhran-II, the Indian leadership exploited the political utility of its action — the tests, which once again attracted international criticism and sanctions, also created political space for, and gave strategic autonomy to India’s decision-making.

The talks between Jaswant Singh and Strobe Talbott laid the foundation for the Next Steps in the India-US Strategic Partnership, and led to the Indo-US nuclear deal — which paved the way for the strategic partnership that now involves high-end technology cooperation from defence to artificial intelligence.

India’s nuclear weapons have so far served well the purpose of deterrence that Oppenheimer and the team around him discussed in the 1940s. During the Balakot surgical strike of 2019, Indian military jets crossed the border into Pakistan, but the battle remained in the air, and conventional weapons were used.

Ahead of the G7 summit in Hiroshima this May, Japan’s Prime Minister Fumio Kishida spoke of his desire to use the meeting to “send out a strong message” about the need for a world without nuclear weapons. As the chair of G20 this year, India — which was invited to Hiroshima — has both the leverage and the moral stature to take the lead in working with the international community to reduce the risk of use of nuclear weapons. It must ensure it uses this strength — at least so there is no “blood on its hands”, as Oppenheimer said.

AKIRA RANSOMWARE: WHY HAS THE GOVERNMENT ISSUED A WARNING AGAINST IT?

The Computer Emergency Response Team of India issued an alert for the ransomware dubbed “Akira.” The ransomware, found to target both Windows and Linux devices, steals and encrypts data, forcing victims to pay double ransom for decryption and recovery.

The group behind the ransomware has already targeted multiple victims, mainly those located in the U.S., and has an active Akira ransomware leak site with information, including their most recent data leaks.

What is the Akira ransomware?

The Akira ransomware is designed to encrypt data, create a ransomware note and delete Windows Shadow Volume copies on affected devices. The ransomware gets its name due to its ability to modify filenames of all encrypted files by appending them with the “.akira” extension.

The ransomware is designed to close processes or shut down Windows services that may keep it from encrypting files on the affected system.

It uses VPN services, especially when users have not enabled two-factor authentication, to trick users into downloading malicious files.

Once the ransomware infects a device and steals/encrypts sensitive data, the group behind the attack extorts the victims into paying a ransom, threatening to release the data on their dark web blog if their demands are not met.



As mentioned above, the ransomware deletes the Windows Shadow Volume copies on the affected device. These files are instrumental in ensuring that organisations can back up data used in their applications for day-to-day functioning.

VSS services facilitate communication between different components without the need to take them offline, thereby ensuring data is backed up while it is also available for other functions.

Once the ransomware deletes the VSS files it proceeds to encrypt files with the pre-defined the “.akira” extension.

How does Akira ransomware work?

The ransomware also terminates active Windows services using the Windows Restart Manager API, preventing any interference with the encryption process.

It is designed to not encrypt Program Data, Recycle Bin, Boot, System Volume information, and other folders instrumental in system stability. It also avoids modifying Windows system files with extensions like .syn, .msl and .exe. Once sensitive data is stolen and encrypted, the ransomware leaves behind a note named akira_readme.txt which includes information about the attack and the link to Akira’s leak and negotiation site. Each victim is given a unique negotiation password to be entered into the threat actor’s Tor site.

Unlike other ransomware operations, this negotiation site just includes a chat system that the victim can use to communicate with the ransomware gang, a report from The Bleeping Computer shares.

How does ransomware infect devices?

Ransomware is typically spread through spear phishing emails that contain malicious attachments in the form of archived content (zip/rar) files. Other methods used to infect devices include drive-by-download, a cyber-attack that unintentionally downloads malicious code onto a device, and specially crafted web links in emails, clicking on which downloads malicious code.

The ransomware reportedly also spreads through insecure Remote Desktop connections.

In use since March 2023, the ransomware has steadily built up a list of victims, targeting corporate networks in various domains including education, finance, real estate, manufacturing, and consulting. Once it breaches a corporate network, the ransomware spreads laterally to other devices after gaining Windows domain admin credentials.

The threat actors also steal sensitive corporate data for leverage in their extortion attempts.

What can users do to protect against ransomware?

CERT-In has advised users to follow basic internet hygiene and protection protocols to ensure their security against ransomware. These include maintaining up to date offline backups of critical data, to prevent data loss in the event of an attack.

Additionally, users are advised to ensure all operating systems and networks are updated regularly, with virtual patching for legacy systems and networks.

Companies must also establish Domain-based Message Authentication, Reporting, and Conformance, Domain Keys Identified Mail (DKIM), and Sender policy for organisational email



validation, which prevents spam by detecting email spoofing. Strong password policies and multi-factor authentication (MFA) must be enforced.

There should also be a strict external device usage policy in place and data-at-rest and data-in-transit encryption along with blocking attachment file types like .exe, .pif, or .url to avoid downloading malicious code.

The agency has also advised periodic security audits of critical networks/systems, especially database servers.

'SAVE THE CHILDREN' LOSES ITS FCRA PERMIT

The Ministry of Home Affairs (MHA) has withdrawn the permit under the Foreign Contribution Regulation Act (FCRA) for U.K.-based NGO Save The Children's Indian offshoot, Bal Raksha Bharat. Save The Children is a leading child rights organisation that focuses on health, education, hunger and vulnerable children in conflicts. It is present in 116 countries.

In India since 2008, Bal Raksha Bharat is spread across 16 States. Last year, it had come under the government's radar for a fundraising campaign on malnutrition, which was objected to by the Ministry of Women and Child Development on the ground that the issue was being "vigorously pursued" by the government through its schemes.

The organisation's request for renewal of its FCRA licence was rejected according to an order uploaded on the MHA's website earlier this week, said multiple sources in the civil society sector.

The NGO's name also doesn't appear in the list of organisations with valid FCRA registration displayed on the MHA's website.

"The non-renewal of our FCRA application has come as a surprise to us. We will work with the government and are hopeful of resolving this situation at the earliest. In the meantime, we will continue to provide critical services to the community and children," a spokesperson of Bal Raksha Bharat said in response to a query.

The NGO's registration was valid till November 2021, but the MHA extended the validity till March 31, 2022 for NGOs, provided their renewal request had not been refused or they had applied within six months of the expiry of their registration.

WOMEN DO 7 HOURS OF HOUSEWORK, MEN UNDER 3 HOURS

On July 24, the Tamil Nadu government launched camps to facilitate the registration of applicants for the Kalaingar Magalir Urimai Thogai Thittam, or women's basic income scheme. Aimed to "recognise women's unpaid labour", the scheme will provide ₹1,000 per month to women in eligible households. In June, the Madras High Court held that home-makers are entitled to an equal share in household properties purchased by the husband. "In generality of marriages, the wife bears and rears children and minds the home. She thereby frees her husband for his economic activities," the court had observed.

Both the government and the court have not only thrown light on unpaid care and domestic work carried out by women, but also announced welfare measures and verdicts in favour of women, recognising their contribution. Such work includes household-specific tasks like cooking, cleaning,



washing clothes, household management and maintenance, grocery shopping, child care, and caring for sick or elderly members.

Indian women have disproportionately borne the responsibility of domestic and care work, which is unpaid. Data shows that married women spend on average over seven hours a day doing such work, regardless of their employment status, while men spend less than three hours. This trend is consistent for women across income levels and caste groups.

Moreover, the more the burden of domestic work, the lower the participation of women in the labour force. India's female labour force participation rate (LFPR) has been declining for more than 20 years, despite the share of educated women surging in this period.

WHAT IS THE JAN VISHWAS BILL, 2023 PROPOSED BY CENTRE?

The story so far:

The Jan Vishwas (Amendment of Provisions) Bill, 2023 was passed in Parliament recently. Introduced by Commerce and Industry Minister Piyush Goyal, the Bill aims at giving further boost to ease of living and ease of doing business. It proposes to amend 183 provisions to be decriminalised in 42 Central Acts administered by 19 Ministries/Departments.

What is the Jan Vishwas Bill about?

The Jan Vishwas (Amendment of Provisions) Bill, 2022 amends 42 laws, across multiple sectors, including agriculture, environment, and media and publication and health. The Bill converts several fines to penalties, meaning that court prosecution is not necessary to administer punishments. It also removes imprisonment as a punishment for many offences.

Covered under the Jan Vishwas (Amendment of Provisions) Bill, 2023 are changes in the Drugs and Cosmetics Act, 1940, the Food Safety and Standards Act, 2006 and the Pharmacy Act, 1948. This has evoked heated debate about its pros and cons among health care activists, experts in the field of pharmacy and patient-welfare groups.

Among these, the changes proposed to the Drugs and Cosmetics Act, 1940 have been the most contentious. The Act regulates the import, manufacture, distribution and sale of drugs and cosmetics in the country.

Currently, the Act defines four categories of offences— adulterated drugs, spurious drugs, mislabelled drugs, and Not of Standard Quality drugs (NSQs) — and lays out degrees of punishment (a combination of prison time and fine) based on the degree of offence.

What are the pros and cons of the amendments?

The amendments have brought in sharp criticism from health activists. Prashant Reddy, lawyer and co-author of *The Truth Pill: The Myth of Drug Regulation in India*, said that the Bill is detrimental to public health on two counts.

First, it allows manufacturers of Not of Standard Quality Drugs (NSQ) drugs to escape significant penalties despite the fact that these drugs can have an adverse effect on the patient.

“For example, drugs that lack the adequate active ingredient or fail to dissolve will not cure the disease it is meant to and that will result in a poor treatment outcome for the patient. Second, the



Bill also reduces penalties for owners of pharmacies who violate the terms of their licence,” he said.

“The Indian pharmaceutical sector, manufacturing and pharmacies included, are already subject to extremely lax regulation as evidenced by the explosion of scandals recently across the world linked to ‘Made in India’ medicine. The government should be tightening the regulatory screws, not giving the industry a literal “get out of jail” pass,” he said.

What is the government’s argument in favour of the Bill?

Responding to the concerns raised by various groups on the Bill been more industry friendly the Health Minister Dr. Mansukh Mandaviya said: “India is the pharmacy of the world and we have to work towards ensuring that the best medicines are provided while reasonable benefits are offered to business. Rationalising laws, eliminating barriers and bolstering growth of businesses are important.”

ARE HUMAN CHALLENGE STUDIES EFFECTIVE?

The story so far:

On July 17, the ICMR Bioethics Unit posted the consensus policy statement for the ethical conduct of controlled human infection studies (CHIS), also known as human challenge studies, in India. The consensus policy statement has been posted on the Indian Council of Medical Research (ICMR) website for public consultation for a period of one month, from July 17 to August 16, 2023.

Why is India venturing into undertaking human challenge studies?

Human challenge studies, in which human beings are exposed to diseases to learn more about it, have been carried out for hundreds of years; the yellow fever study in the early 1900s, for instance, established that mosquitoes transmitted the yellow fever virus. However, India has not undertaken such trials before.

Human challenge studies are almost always conducted to understand the various facets of infectious microbes and the diseases or conditions caused by such pathogens. The disease burden and mortality from infectious diseases is significantly high at around 30% in India. Though traditional human clinical trials have been carried out in the country for a very long time, the inclusion of human challenge studies will help supplement traditional clinical studies and speed up the process of finding safe and effective interventions in the form of drugs and/or vaccines. Most importantly, human challenge studies will vastly help in providing better insight into multiple aspects of even well-studied pathogens, infection, transmission, disease pathogenesis and prevention. Since many infectious diseases are endemic in several developing countries, and resistance to existing drugs is increasing, there is a pressing need to find more effective medical interventions.

What is the fundamental difference?

The fundamental difference between the two scientific methods is the nature of exposure to pathogens by participants. While participants in traditional clinical trials are strongly advised to adopt and adhere to safety measures to avoid getting infected and infection is left to chance, the opposite is the case with human challenge studies. Volunteers in a human challenge study, as the name indicates, are deliberately exposed to disease-causing pathogens.



The second major difference is that traditional clinical trials are undertaken to study the safety and efficacy of drugs and vaccines, whereas human challenge studies are carried out to understand the various facets of infection and disease pathogenesis besides selecting the best candidate drug or vaccine. The third difference is that while the adverse effects of the candidate drugs or vaccines are not known in both the studies (safety is evaluated for the first time in humans during the phase-1 stage of a traditional trial), volunteers in a human challenge trial face an additional risk when deliberately exposed to the pathogen. Finally, human challenge studies are often undertaken to study “less deadly diseases” such as influenza, dengue, typhoid, cholera and malaria, unlike in traditional clinical studies.

What special safeguards are followed?

Except in very rare cases, as in the SARS-CoV-2 virus that causes COVID-19, the infectious agents that are tested in human challenge studies are well-known and studied. To reduce harm to the participants, a weaker or less virulent form of the pathogen is used. The other important requirement is the availability of a ‘rescue remedy’ to prevent the disease from progressing to its severe form. An exception was the reliance on remdesivir as a rescue remedy for participants in the studies involving SARS-CoV-2 virus even when the substantial mortality benefit of remdesivir was not known.

What makes human challenge studies ethically more challenging?

That participants in a human challenge trial are deliberately exposed to a disease-causing pathogen makes it ethically more challenging. The ICMR consensus statement has clearly mentioned that only healthy individuals in the 18-45 years age bracket are to be enrolled. Children and women who are pregnant, lactating or planning to conceive within the study period will not be enrolled; children will be included when “deemed appropriate”, says the statement. Participants with pre-existing medical conditions are to be excluded but very often people are unaware of many medical conditions. This makes it essential to carry out detailed medical examination of the participants before enrolment. According to the consensus statement, information on payment for participation should be mentioned in the consent form but the exact amount of payment for participation is to be revealed “only after the volunteer has consented to participate”. It is left to the investigators to not reveal the payment before the participant gives his or her informed consent. Enticing people to participate by advertising the amount of money that volunteers will be paid is quite common in traditional clinical trials, as was seen in the Covaxin trial conducted in Bhopal.

Like the SARS-CoV-2 virus infection that remains asymptomatic in some people while leading to death in others, the disease state in an individual cannot be 100% predicted even when a less infectious agent is used. This makes the availability of an effective rescue remedy important. It remains to be seen how “informed” will be the informed consent, especially when the pathogen is studied in specific age groups such as children or disadvantaged groups, given the riskier nature of human challenge trials and the compulsion to get people enrolled in the new research methodology. The HPV vaccine trial in 2010 became notorious as informed consent requirements were flagrantly violated, as also during the Covaxin trial in Bhopal in 2020-2021.

HEALTHY MIND IN A HEALTHY BODY

The full quotation goes “Orandum est ut sit mens sana in corpore sano,” or, “we should pray for a healthy mind in a healthy body.”



The health of one affects the other both for good and for bad. Lack of awareness and the social stigma attached to mental illnesses have prevented open dialogue and understanding of the issues.

We haven't acknowledged that mental illness, ranging from depression to dementia, is normal and treatable. Lakhs of Indians have avoided seeking help they direly needed, which could have helped them lead normal, productive lives and benefitted their families. We have barely begun the long journey towards correcting this and insurance for mental illnesses is a baby step.

Covering mental health

Insurance Regulatory and Development Authority of India (IRDAI), the regulator of the industry, made it compulsory that all hospitalisation policies from November 1, 2022, should cover mental health. Earlier this was an exclusion from existing policies and a reason for new policy proposals to be turned down by the underwriter.

The direction to cover mental illness flows from the Mental Health Care Act, 2017, which mandates that, "Every person with mental illness shall be treated as equal to persons with physical illness in the provisions of all health care."

In Section 21 (4) the Act states, "Every insurer needs to make provisions for mental illness on the same basis as is available for treatment of physical illness."

Coming to policies, the extent and cost of coverage differs from insurer to insurer. Pre- and post-hospitalisation costs are covered. Cashless facility is available and some policies even offer home based treatment for severe disorders. Out patient treatment costs are covered by very few insurers, but then that is the case with physical illness related hospitalisation too.

Similarly, there is a waiting period as well, as in the case of pre-existing diseases.

What about day-care treatments, long-term treatment after hospitalisation which is typical of mental illness and many other aspects. The field is new and slowly many such benefits will become available as the demand and risks become clearer. Does this mean that any new policy will automatically cover mental illness? No. Insurers have the discretion to reject proposals or offer cover with terms and conditions like waiting period.

Another impact will be on premium rates for everybody.

Mental illness is present significantly in our country and has gone unrecognised and untreated. COVID-19 has increased its prevalence and severity. National Institute of Mental Health and Neuro Sciences (NIMHANS) statistics say that about 13.7% of Indian adults suffer from mental illness and that 10.6% of them require immediate treatment and intervention. There is a long way to go and we need to get there faster.

INDIA NEEDS EVIDENCE-BASED, ETHICS-DRIVEN MEDICINE

The recent push to integrate 'AYUSH' medicinal systems into mainstream health care to achieve universal health coverage and 'decolonise medicine' is a pluralistic approach that would require every participating system to meet basic safety and efficacy standards. Homoeopathy does not meet these standards. But its supporters have argued in *The Lancet Regional Health – Southeast Asia* recently for expanding its use by citing demand and decolonisation, disregarding its flaws.



Efficacy and safety of homoeopathy

Evidence on homoeopathy's efficacy is weak. The first carefully conducted and well-reported double-blind randomised controlled trial (RCT), the Nuremberg Salt Test (1835), noted that “the symptoms or changes which the homeopaths claimed to observe as an effect of their medicines were the fruit of imagination, self-deception and preconceived opinion — if not fraud.”

In the evidence-based medicine ladder, the topmost rung is systematic reviews and meta-analyses that exhaustively pool and critically appraise evidence from existing studies. Multiple systematic reviews and meta-analyses have found that, across ailments, population groups (adults versus children), study types (placebo-controlled versus other trial types), and treatment regimes (individualised versus non-individualised), homoeopathic treatments lack clinically significant effects. Reviews that somewhat support homoeopathy's efficacy also caution over the low evidence quality and raise concerns about its clinical use.

Recently, researchers demonstrated that more than half of the 193 homoeopathic trials in the last two decades were not registered. Unregistered trials showed some evidence of efficacy but registered trials did not. There was reporting bias and other problematic practices, throwing the validity and reliability of evidence thus generated into doubt.

Further, the World Health Organization (WHO) has warned against homoeopathic treatments for HIV, tuberculosis, and malaria, as well as flu and diarrhoea in infants, saying it has “no place” in their treatment. Evidence is accumulating that homoeopathy does not work for cancers and may not help to reduce the adverse effects of cancer treatments, contrary to lay belief. Instead, treatments have been linked to both non-fatal and fatal adverse events as well as their aggravation. Seeking homoeopathic care also delays the application of evidence-based clinical care. In several cases, it has caused injuries and sometimes death.

On standards

Homoeopathy's supporters argue that the standards commonly used in evidence-based medicine are not suitable for judging the “holistic effects” of homoeopathy. This claim can be debunked.

First, the standards are not conveniently chosen by practitioners of allopathic medicine for themselves. RCTs and other methods for collecting and assessing evidence are collaboratively set and updated by a global community pushing for evidence-based medicine that includes epidemiologists, biostatisticians, quality improvement researchers, implementation managers, and several others, beyond clinicians. These methods have weeded out practices in allopathic medicine that failed to meet the evidence criteria. Further, multiple disciplines such as psychology, economics, community health, implementation science, and public policy, beyond medicine have successfully adapted evidence synthesis methods to establish their claims.

Second, what are the methods that will work? Homoeopathy advocates have failed to invent valid alternative evidence synthesis frameworks suited for testing its efficacy and safety, which are also acceptable to the critics.

Third, the claim about homoeopathy being holistic is typically paired with evidence-based medicine being “reductionist”. In 2023, most exponents of evidence-based medicine are aware and accepting of biopsychosocial approaches toward health endorsed by WHO — predominantly composed of evidence-based medicine practitioners and supporters.



Fourth, evidence-based medicine does not and should not stop at establishing empirical evidence. The quest is also to discover and explain the mechanisms underlying the evidence. In the last century, there has been no concrete evidence for proposed mechanisms of action for homoeopathy. No mechanistic (molecular, physiological, biochemical, or otherwise) evidence to explain how concepts such as “like cures like”, “extreme dilution”, and “dematerialised spiritual force” result in better health. In the same period, several allopathic/modern medicine practices have updated themselves based on growing scientific evidence.

Adopting a pluralistic approach in medicine can decolonise medicine. In India, homoeopathy is at odds with this. Homoeopathy was introduced in 1839 in India by Austrian physician J.M. Honigberger. While defining traditional medicine can be subjective, homoeopathy was introduced quite recently in India’s history during the colonial period for colonial benefit. Hence, its traditional tag is untenable. Of course, not all colonial-era practices need to be surrendered. Those with health and developmental benefits such as evidence-based elements of allopathic medicine and gender role and caste reforms should be retained.

The argument to reject homoeopathy is not just based on its coloniality, but chiefly on the lack of evidence for efficacy, some evidence for lack of safety, no substantive progress on mechanisms of action in the last century, and homoeopathic practitioners’ escapist arguments.

Homoeopathy’s supporters offer testimonials from luminaries such as Gandhi and Tagore. But Gandhi’s writings have scant mentions. We could not find any archival evidence of favourable comments by Tagore. Hence, decolonisation cannot be a reason to support homoeopathy.

India’s path to universal health care must be grounded in evidence-based and ethics-driven medicine.

FROM LESS THAN 1% TO OVER 75%, HOW INVERTER ACS ARE CATALYSING THE ENERGY-EFFICIENCY REVOLUTION

Cost efficiencies, growing climate awareness and rising purchasing power is triggering a discernable consumption shift in India, with energy-efficient inverter air conditioners gaining traction among consumers and manufacturers ramping up output, India’s largest AC companies told The Indian Express. The increasing demand has given an impetus to domestic manufacturing, thereby lowering import dependency and sharply bringing down costs.

According to latest data from the Bureau of Energy Efficiency (BEE), Ministry of Power, inverter ACs accounted for less than 1 per cent of the overall room AC (RAC) market of 4.7 million units in the financial year 2015-16 (FY16). As of FY23, the share has increased to 77 per cent, while the fixed-speed RACs went down to 23 per cent.

“Inverter ACs are a preferable choice over the non-inverter ACs due to their low operational costs, increased energy efficiency, noiseless operation and maximum usage security,” said Naohiko Hosokawa, Director & Business Unit Head- Living Environment Division, Mitsubishi Electric India.

The consumers’ push for an upgrade is visible across segments. “Along with the push towards premiumisation across categories, people want to buy the latest RACs, which run for 12 hours plus while saving on electricity. Some people are looking for WiFi ACs and seeing benefits,” said Shashi Arora, President, Blue Star.



LOWERING PRICES

While non-inverter ACs are fixed speed air conditioners where the compressor is turned on and off repeatedly. An inverter AC, on the other hand, is a variable speed AC where the compressor runs continuously, but way more efficiently and does the cooling job better while consuming less power. To meet the rising demand, the AC companies are stepping up with investments to set up manufacturing plants that produce higher end ACs in India.

Almost every Indian air conditioner manufacturing unit depends on the import of critical components and raw materials. However, as per the government norms, schemes such as Production-Linked Incentives (PLIs) have been introduced for implementation, which encourages AC manufacturers to invest in component manufacturing in India. For ACs, companies will be manufacturing copper tubing, compressors, control assemblies for IDU or ODU, Heat Exchangers and BLDC motors, among other components.

BEE LABELING

The shift towards inverter ACs is a part of BEE's India Cooling Action Plan, which was aimed to fulfil cooling demand, enhance energy efficiency and better technology options with a 20-year time horizon.

Explaining the benefit of BEE's plan, Blue Star's Arora said the biggest hurdle for consumers to buy RACs was monthly expenditure a decade ago. "Due to BEE's star-rating system, the electricity cost went down considerably, about 65-75 per cent, leading to deeper penetration of ACs across the country," Arora said. "The table for star-rating gets revised every two years. What was a 5-star RAC is a 4-star or 3-star now. As of 2023, no brand makes 5-star fixed RACs as it does not deliver energy efficiency," he added.

In 2015, the bureau launched a voluntary labelling programme for inverter RACs and made the programme mandatory in January 2018. The labelling programme for RACs now covers fixed and inverter units under the same labelling scheme.

"The consumers are greatly aware of this concept, and the market demand is drifting towards the higher star-rated products, out of which 3-star-rated products are the biggest contributors," said Mitsubishi Electric India's Hosokawa, adding as Indian economy is growing well, it is supporting the consumers to opt for inverter air ACs that comes with a higher cost in the initial phase but saves on the price for longer time with reduced electricity bills and lesser maintenance requirements.

WHY IS THE BIOLOGICAL DIVERSITY BILL FACING OPPOSITION?

The story so far:

On 1st August, the Rajya Sabha passed the Biological Diversity (Amendment) Bill, 2021 amid a walk-out by the opposition parties, about a week after it was cleared by the Lok Sabha. The Act aims to conserve biodiversity, promote its sustainable use and equitable sharing of benefits that arise therein. Amendments proposed in the Bill however are at odds with this aim. During discussions in Rajya Sabha, the Environment Minister Bhupender Yadav, explicitly spoke of "ease of doing business" and promotion of the AYUSH industry (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) as reasons why the government is bringing forth the amendments.



Why is the Bill considered problematic?

The Bill exempts "codified traditional knowledge" and the AYUSH industry from benefit sharing, denying local communities benefits from accessing biological resources. The term "codified traditional knowledge" lacks a clear definition, leading to potential exploitation. Experts regard this exemption as regressive because a reason why the legislation was enacted in the first place was to ensure "fair and equitable sharing of benefits. It decriminalises offences and proposes monetary penalties instead, raising concerns over resource exploitation.

To what extent has the Act been implemented?

It is important to bear in mind that the proposed relaxations come at a time when the Act hasn't even been implemented in full. A 2022 investigation by the Centre for Science and Environment showed that in many States, there was no data available on money received from companies and traders for access and benefit sharing and in cases where money was collected, the same wasn't shared with local communities. A 2016 study by legal researchers also showed that many difficulties have cropped up in many States when it comes to implementing provisions of the Act, especially those related to access and benefit sharing. Some of these issues were also challenged in high courts and the National Green Tribunal.

How does the industry view the Act?

The industry has been unhappy with the regulations and has run to courts and sought relaxation. Consider the 2016 case where the Uttarakhand Biodiversity Board sent a notice to Divya Pharmacy, part of Baba Ramdev's Patanjali Yog Peeth Trust, stating that the company was in violation of the Act for using biological resources without prior intimation to the Board. The company challenged the notice in the Uttarakhand high court, although it ultimately lost the case. In 2015, representatives from Gujarat's Ayurveda industry urged the central government to provide some relief to the sector by postponing the implementation of access and benefit sharing provisions. In response, the then Environment Minister Prakash Javadekar said the industry has to deposit an amount towards these provisions and that no exemption can be granted. These are the precedents to the amendments which have been proposed now for "ease of doing business."

In the 'Statement of Objects and Reasons' section, the Bill clearly states that "concerns were raised by the stakeholders representing Indian system of medicine sector, seed sector, industry sector and research sector urging to simplify, streamline and reduce compliance burden in order to encourage a conducive environment for collaborative research and investments, simplify patent application process...". On 2nd August, the Rajya Sabha also cleared the Forest (Conservation) Amendment Bill which limits the conservation scope of the Act. The two Bills are part of a trend of dilution of environmental regulations that are underway.

The fact that the Environment Ministry has given precedence to "ease of doing business" rather than its mandate to protect the environment is a cause for concern.

BILL TO AMEND FOREST (CONSERVATION) ACT PASSED IN PARLIAMENT: OBJECTIONS, CONCERNS AROUND IT

Days after clearing the Lok Sabha test, the Bill to amend the Forest (Conservation) Act was passed by the Rajya Sabha on Wednesday (August 2). The FC Act was legislated in 1980 to regulate the diversion of forests for construction and mining. After more than four decades, the government



proposes to “broaden the horizons of the Act... to keep its provisions in tandem with the dynamic changes in the ecological, strategic and economic aspirations” of the country.

Just four pages, the original Act itself is brief. Even with a preamble and a statement of reasons, the proposed amendments do not run beyond five pages. But the number of requests for re-drafting the Bill in explicit and specific terms that adequately reflect the various assurances offered by the Environment Ministry show that the amendments are open to too many interpretations.

Restricting applicability

In December 1996, the Supreme Court ruled that the FC Act would apply to all land parcels that were either recorded as ‘forest’ or resembled the dictionary meaning of forest. Until then, the FC Act applied to areas notified as forests under the Indian Forest Act, 1927.

This blanket order made the FC Act applicable to all land recorded as forest and to all standing forests irrespective of their land status, restraining “development or utility-related work.” Further, notes the Bill’s statement of reasons, “apprehensions prevailed regarding applicability” of the FC Act in the plantations raised on private and non-forest land.

As a remedy, the Bill proposes that the Act will be applicable only on notified forest land and land identified as forest on government records except such forests that were already put to other use prior to the 1996 SC order.

To numerous objections received by the Joint Committee (JC) of Parliament on the Bill, the ministry responded by assuring that the amended Act would still apply to all unclassified forests, forests that were “proposed to be notified”, land recorded as forest by even local bodies recognised by a state government, and forest-like areas identified by the expert committees set up in pursuance of the 1996 SC order.

The ministry also assured that any error would be taken care of “in the guidelines” to be issued after the amendment.

This is a recurring pattern in the JC report: the ministry promises to provide specifics on various aspects of the Bill through guidelines, leaving critical issues “to the discretion of the Executive at subsequent junctures, creating scope for misinterpretation and misuse.”

States’ objections

The Bill’s other primary goal is to satisfy the “need to fast track” projects of strategic importance, national security, and public utility within 100 km of the international borders and in “Left Wing Extremism affected areas”.

While Himachal Pradesh wanted the Act to define ‘National importance and National Security’ and Chhattisgarh wanted it to “mention explicitly” the types of security-related infrastructure and the user agencies, the ministry said that the Defence and Home ministries would identify the qualifying projects.

Mizoram was apprehensive that “any activity coming under the definition of linear project by any agency can be taken up mentioning it as a project of national importance or national security as all work in one way or another are of national importance and any work in states having international borders can be termed by the working agencies as of national security.”



Sikkim was one of the smaller states to point out that exempting 100 km from the borders would “subsume the entire state and open up pristine forest areas” and wanted the proposed exemption limits to be reduced to 2 km. The ministry assured that the exemptions would not be for private projects.

On the other hand, BRO and Arunachal Pradesh, wanted the exemption range of 100 km to be increased to 150 km in order to reduce the “infrastructure differential” with China. The ministry clarified that it could not give blanket exemption.

To a number of submissions asking for specifics on public utility projects, the ministry said that the issue would be clarified subsequently through a guideline.

Focus on plantations

“Agreed, natural forests, lost from the diversion, cannot be replaced with the plantation,” submitted the ministry, adding that the proposed Bill encourages plantations in private lands to enhance the carbon sink.

An essential condition for forest clearance is that a developer must carry out compensatory afforestation on equivalent non-forest land or, if non-forest land is not available, on degraded forest land twice the extent of the forest area diverted. Since land is always at a premium, this works as an effective check on the demand for forest land.

In June 2022, the government amended the Forest Conservation Rules to propose a mechanism to allow developers to raise plantations “over land on which the [FC] Act is not applicable”, and to swap such plots against subsequent requirements of compensatory afforestation.

“With a view to encourage plantation on the non-forest lands, a clarity has been provided in the Bill to keep such lands outside the purview of the Act,” the ministry told the JC.

An expert, who was consulted on the matter by the ministry, explained the likely scenario: “Once the FC Act is no longer applicable on a piece of land, it can be used to raise plantations and compensate for an equivalent area of diverted forest land. This will incentivise building private land banks of plantations, and streamline the forest clearance process.”

To a submission that the Bill potentially excludes 28% of India’s forests— 1,97, 159 sq km of 5,16,630 sq km of the forests lie outside Recorded Forest Areas — from the purview of the FC Act, the ministry assured that the amended Act will apply to revenue forest land, private forest land and other recorded forests.

Not everyone was convinced. “There is an overwhelming reliance on implied meaning of provisions,” wrote one of the five dissenting members of the JC, “rather than categorically laying out safeguards in the text of the amendment.”

OVER NINE LAKH TREES LIKELY TO BE AXED FOR GREAT NICOBAR PROJECT

The Centre’s ambitious ₹72,000-crore Great Nicobar Project may see 9.64 lakh, and not 8.5 lakh, trees felled to enable the construction of a trans-shipment port, an international airport, a township, and a 450- MVA gas- and solar-based power plant on the Great Nicobar island, according to a response by Minister of State (Environment) Ashwini Kumar Choubey in the Rajya Sabha on Thursday.



There is also a possibility that fewer trees may be axed, he indicated.

The Great Nicobar Project, which is likely to come up over 130 square km of pristine forest, has been accorded environmental clearance by an expert committee.

However, this was challenged in the National Green Tribunal (NGT), following which it set up an expert committee in April to investigate aspects of the clearance.

'Strategic importance'

Though details of a project being appraised for environmental clearance are usually made available on a public portal maintained by the Environment Ministry, details on the Great Nicobar Project have not been put up, it is learnt, following instructions from the Union Home Ministry that has classified the project as one of "strategic importance".

However, as *The Hindu* reported in November 2022, the Environment Ministry on its own had estimated that close to 8.5 lakh trees were expected to be cut for the project.

These are evergreen tropical forests with high biological diversity and the island itself is home to nearly 650 species of flora and 330 species of fauna.

"The estimated number of trees to be felled in forest area earmarked for development in Great Nicobar Project is 9.64 lakh. Further, it is expected that about 15% of development area will remain as green and open spaces. Thus, potential tree felling would be less than 9.64 lakh. Moreover, this tree felling will be done in a phased manner," said Mr. Choubey.

In lieu of the trees being chopped, compensatory afforestation would be carried out in Haryana as "the scope of plantation in Andaman and Nicobar Islands is very limited," the Minister noted.

EXPRESS VIEW ON CHEETAH DEATHS: NINE TOO MANY

The cheetah casualty count at Kuno National Park has gone up to nine. Six of the dead animals, including Dhatri who breathed her last on Wednesday, had been relocated to the protected area in Madhya Pradesh from Namibia and South Africa in an ambitious programme that began in September last year. The park has also lost three cheetah cubs. The re-introduction of the big cat is a long-term project and 11 months is too early to pass judgment on Project Cheetah. The high mortality rate of the animal in its new home is, however, worrying. More so, because South African cheetah specialists — they were roped into the steering committee of the translocation programme — have raised serious concerns about the project's implementation in a letter to the Supreme Court. A report in this newspaper has revealed that in the letter, dated July 15, the wildlife biologists accused the government of keeping them in the dark about the health of the animals. The government's claim that the scientists have since dissociated themselves from the letter doesn't appear convincing, given that the young project has invited allegations of giving short shrift to expert opinion from other quarters as well.

Cheetahs were officially declared extinct in India in 1952. In the 1970s the Indira Gandhi government opened negotiations with Iran for bringing Persian cheetahs to India in exchange for Asiatic lions. But the move could not take off. The relocation project was revived in 2009 by the UPA government, only to be nipped in the bud by the SC which reasoned "that a detailed scientific study should be conducted before the introduction of a foreign species". In 2020, the apex court modified its order and allowed the government to commence Project Cheetah on a trial basis,



reiterating that the endeavour should be moored in “scientific understanding”. However, it appears that the government has not always given due importance to this guideline. In October last year, this paper reported that wildlife biologist YV Jhala, at the forefront of the cheetah project for more than a decade, and who escorted the first batch of the animals from Namibia, did not find a place in the government’s new Cheetah Task Force. The South African scientists have alleged the programme’s current management has “little or no scientific training” and foreign experts “have become mere window dressing”. They have claimed that some of the deaths could have been prevented with “more appropriate veterinary care”. Less than a week after the wildlife biologists expressed their worries, the SC admonished the government and said that a 40 per cent fatality in less than a year “does not reflect a good picture”.

In another missive to the Court, Laurie Marker, executive director of Namibia’s Cheetah Conservation Fund, has flagged similar concerns. She reportedly underlined the need for “better communication with experts.” The environment ministry has reportedly placed the letters before the project’s steering committee for “detailed deliberations”. It should heed the SC’s warning and not reduce cheetah relocation to a “prestige project”.

EXPRESS VIEW ON TIGER CENSUS: BACK FROM THE BRINK

Fifty years ago, when India launched Project Tiger, the country’s national animal had dwindled to less than 2,000 from about 40,000 at the turn of the 20th century. The project reported successes for close to three decades. But conservationists were jolted in 2006, when tiger numbers fell to an all-time low of 1,411. Course corrections in wildlife management led to the majestic animal staging a remarkable comeback in several parts of the country. The latest Tiger Census report, released on Sunday, shows that the big cat’s population has increased to 3,682 from 2,967 in 2018. But these stellar figures should not draw the wildlife policymakers’ attention away from the Census’s fine print, which indicates areas of concern.

The data shows a dip in tiger numbers in Telangana, Chhattisgarh, Jharkhand, Odisha, parts of Northeast India and the Western Ghats. Eighteen reserves, most of them in these areas, have less than 10 big cats left. Odisha, the southern Western Ghats and Northeast India have genetically distinct varieties of the tiger. The fall in the animal’s population in these regions is, therefore, worrying. At the same time, the fragmentation of habitats in several parts of the country is leading to inbreeding among tiger varieties. The animal is known to travel hundreds of kilometres in search of habitat and mates. But as a 2021 study by researchers from the National Centre for Biological Sciences, Bengaluru and Stanford University, revealed, “genomic variation of Indian tigers continues to be affected by connectivity issues”. With the country now home to 75 per cent of the world’s tiger population, it’s time that wildlife management is built on genetic studies, like this collaboration between NCBS and Stanford scientists.

Madhya Pradesh is home to the highest number of tigers in the country — 785. This speaks well of the management practices of the state’s forest department. Close to 350 tigers in MP, however, live outside protected areas. MP forest department’s data shows that more than 20 tigers have lost their lives in human-animal conflicts in the past six years. Such incidents have increased in other parts of the country as well. The understaffed and ill-equipped forest departments in most parts of the country deserve to be complimented for bringing the tiger back from the brink. But conservation success seems to have created another set of problems — with forests shrinking, tigers are venturing into human habitats. It’s time now to begin conversations on more difficult questions including the carrying capacity of the country’s tiger reserves and a viable population of the animal. Conservation, after all, should not just be about numbers.



ENDANGERED HIMALAYAN VULTURE, BRED IN CAPTIVITY FOR THE FIRST TIME IN INDIA

Researchers have recorded the first instance of captive breeding of the Himalayan vulture (*Gyps himalayensis*) in India at the Assam State Zoo, Guwahati.

Categorised as 'near threatened' on the International Union for Conservation of Nature (IUCN) Red List of threatened species, the Himalayan vulture is a common winter migrant to the Indian plains, and a resident of the high Himalayas.

Sachin Ranade, lead author of the publication, said: "Breeding the species in Guwahati was a daunting task as, in nature, this species breeds in snow-clad mountains. But as these birds were kept in zoo for a long time, they acclimatised to the tropical environment, and we helped them rear the young ones, which led the whole process to this unique success," Mr. Ranade said.

Mr. Ranade, who is also in charge of the Vulture Conservation Breeding Centre (VCBC) at Rani in Assam, said that the conservation breeding of the Himalayan vulture at the Guwahati Zoo is the second such instance in the world, after France, where the species has been bred in captivity.

Four VCBCs established by Bombay Natural History Society (BNHS) at Pinjore in Haryana, Bhopal in Madhya Pradesh, Rani in Assam, and Rajabhatkhawa in West Bengal are involved in conservation breeding of the white-rumped vulture (*Gyps bengalensis*), slender-billed vulture (*Gyps tenuirostris*), and the Indian vulture (*Gyps indicus*). The unprecedented scale and speed of declines in vulture populations has left all the three resident *Gyps* vulture species categorised 'Critically Endangered'.

IN THE WORKS, WORLD'S LARGEST MUSEUM WITH INDIA'S STORY OF 5,000 YEARS

The British Museum in London and the Grand Louvre in Paris are among the world's largest museums, each covering around 70,000 square metres and housing millions of objects. That may change a few years down the line as India, in collaboration with France, works on creating the Yuge Yugeen Bharat National Museum in New Delhi which will cover 1.17 lakh sq. metres, said officials.

Last week, while inaugurating the International Exhibition-cum-Convention Centre complex in Delhi, Prime Minister Narendra Modi said: "Soon, the biggest museum of the world, Yuge Yugeen Bharat, will be constructed in Delhi." In May, the Prime Minister had released a virtual walkthrough of the museum. It was also mentioned in the joint statement released after Modi's visit to France in July.

Divided into eight thematic zones, the museum will showcase historical events, personalities, ideas and achievements related to India's past that have contributed to the making of India's present. It will tell the story of 5,000 years of Indian civilisation, said officials, adding that the name signifies the civilisation's "perennial" nature.

Though the project is slated for completion by 2026, no concrete deadline has been set yet. Sources said that North and South Block, where the museum will come up, are office buildings and will take time to be converted into visitor-friendly spaces.

The new museum is aimed to be more interactive, and is expected to incorporate audio-visual elements and virtual walkthroughs, as per officials.



While speaking about the new national museum project, the architect of the Central Vista redevelopment, Bimal Patel, invoked the symbolism of the move. “The British built it as the symbol of the Raj... By recasting the iconography of power in space by changing the use, we’re changing the meaning of the place,” he said at CEPT University in October 2021.

QILA RAI PITHORA: SCATTERED RUINS NARRATE THE TALE OF DELHI’S FIRST CITY

If one were to take a leisurely walk from Malviya Nagar Metro station, down the Press Enclave road, they would notice the remains of Qila Rai Pithora tucked away in a lush garden. Stretching from Saket across Mehrauli and Sanjay Van to Vasant Kunj, the fort contains the ruins of the first city of Delhi.

The fort was recently brought to the limelight after Lieutenant Governor V K Saxena visited the site and expressed his disappointment at its decrepit state. During his visit, the L-G instructed the Delhi Development Authority and Archaeological Survey of India (ASI) to collaborate and begin cleaning and restoration operations immediately.

A massive statue of Prithviraj Chauhan, a much-revered king of the Chauhan or Chahamanas dynasty, situated in the centre of the fort’s grounds, is supposed to house a library in the building under it. A peek into the building through the locked glass doors, though, reveals empty halls and discarded boards commemorating last year’s World Heritage Week. The grounds surrounding the statue, and the remains of the fort, remain overgrown with grass and heather.

While the origins of the fort remain contested, it is widely believed it was first built by the Tomar dynasty surrounding the iron pillar after it was brought from Udayagiri (present-day Madhya Pradesh) by Anangpal II around 1050 CE. However, there seems to be no consensus on this either. While some say the pillar was moved by Anangpal, others argue that it was already in Delhi by the time the ruler came to power.

According to historian Rana Safvi, the Tomar dynasty decided to place its headquarters at the Aravalli Hills for its strategic and military advantages.

Initially named Lal Kot (Red Fort) — not to be confused with the Mughal-era Red Fort situated 23 km away on the banks of the Yamuna — the fort would serve as the first of the eight cities to come up in Delhi in centuries to come. According to Safvi, it is probable that the fort was constructed to avoid constant raids and attacks that Mahmud of Ghazni had unleashed on Kannauj. There, nestled in the rocky caverns of the Aravalli hills, the Tomars would rule for a century and construct dams and tanks. One can still see the remains of one in Surajkund in present-day Faridabad.

Later, the Tomars would be overthrown by the Chahamanas and Lal Kot would be renamed Qila Rai Pithora, after Prithviraj Chauhan.

However, according to Cynthia Talbot’s *The Last Hindu Emperor: Prithviraj Chauhan and the Indian Past*, while the ruins of the fort do place it in the pre-Sultanate period, no records exist of the Chahamanas king either ruling over Delhi or even visiting it. Nevertheless, the ASI plaque at the fort claims that the fort was captured by Chahamanas prince Vigraharaja IV and then reinforced with ramparts by Prithviraj III.

The Chahamanas were ultimately defeated by Qutbu’d-Din Aibak in 1192 CE. According to Safvi, the victorious Ghurid army entered Qila Pithora through the Ranjit Gate and the fort thus became the capital of the Sultanate.



The most notable addition to the fort was perhaps made by Aibak in the form of Qutub Minar to mark his victory over Chauhan. The fort then witnessed several dynasties come and go — the Khaljis, the Tughlaqs, the Sayyids and the Lodhis, to name a few.

According to Safvi, the later Delhi Sultans shifted their base closer to the Yamuna for defence purposes. By the time Firoz Shah Tughlaq established the Firoz Shah Kotla on the banks of the Yamuna to aid the city's growing demand for drinking water, Qila Rai Pithora was abandoned along with Siri, Tughlaqabad and Jahanpanah forts.

WAJID ALI SHAH AFTER 1857: HOW THE DEPOSED NAWAB OF AWADH RESURRECTED HIS 'COURT' IN CALCUTTA

July 30, 2023, is the 201st birth anniversary of Wajid Ali Shah, the last Nawab to sit on the throne of Awadh. Wajid Ali Shah was a man of many contradictions — a king who never had much power but who managed to maintain a 'court' to his dying day; a ruler whose deposition contributed to the Revolt of 1857 but who never showed any inclination of fighting the British; an aesthete who wrote much about love and passion, but treated his (numerous) wives and children rather callously.

The first part of Wajid Ali Shah's story, that of his almost-nine-year reign as Lucknow's 'king' and of his deposition on charges of misgovernance and debauchery [the British version of events; in reality, the Nawab had tried to reform his administration but was hamstrung by the British; he also wrote a fairly detailed book on administration which they ignored] is well-known. A year later, the First War of Independence broke out, and Shah's divorced wife, Begum Hazrat Mahal, came charging into the pages of history, completing the Nawab's exile.

Yet it is the last 30 years of his life, spent in Calcutta, that best highlight the unique character of Wajid Ali Shah, whose answer to the reverses of destiny was to pretend they hadn't happened, and who, though never respected by the British, held enough weight to be treated with a generous pension and personal politeness all his life.

Exile: 'naiyhar chhooto hi jaaye'

After he was deposed as the 'king' of Lucknow — a title given by the British — Wajid Ali Shah and his family planned to sail to England and plead their case directly with Queen Victoria, a fellow sovereign they assumed would be more sympathetic to their cause. Wajid Ali Shah, his mother Malika Kishwar Bahadur Fakhr-uz-Zamani, or Janab-i-Aliyyah, and his brother Sikandar Hasmat, along with ministers and relatives, landed in Calcutta for this purpose.

The nawab felt the loss of Lucknow bitterly, and is said to have composed 'Babul mora naiyhar chhooto hi jaaye (father, my home is now lost to me)' to express his separation from his motherland. His subjects, meanwhile, lamented, "Angrez bahadur ain, mulk lain linho (the brave English came and took away the nation)", as historian Rudrangshu Mukherjee writes.

Wajid Ali Shah dancing Photo and caption from the Royal Collection Trust: 'In this subversive painting, the King has abandoned the throne to join his musicians and play the tabla drums, among the lowest status musical instruments'.

Once the royal party arrived in Calcutta, plans somehow changed, and the dowager queen and her other son left for England, while Wajid Ali Shah stayed behind. The nawab was said to be ill, though



many believed he was weaseling out of a difficult journey, letting his 50-something mother travel instead.

The British never did have a high opinion of Wajid Ali Shah, branding him as ineffectual, uninterested in governance, and given to the pleasures of poetry and passion from his crown prince days. However, they had underestimated the fact that despite his faults, the nawab, patron of arts and builder of palaces, was popular in Awadh, and his deposition had rankled.

This was made clear when Awadh joined the Revolt of 1857, and Wajid Ali Shah, in faraway Calcutta, was promptly imprisoned in Fort William. Here he remained for two years, despite the Revolt being quelled and despite him writing numerous letters to the British, even offering to lead Lucknow's forces under his own banner in support of the East India Company.

After he was finally freed from Fort William and allowed to move to Garden Reach on the outskirts of then-Calcutta, Wajid Ali Shah quickly set about establishing a faux version of the kingdom he had been forced to give up, ironically getting the British to finance some of it.



DreamIAS

**BUSINESS & ECONOMICS****EXPRESS VIEW ON GLOBAL INFLATION AND CENTRAL BANKS: STABILISE PRICES**

Last week, central banks across developed economies tightened policy further as they continued their fight against inflation. On Wednesday, the US Federal Reserve raised interest rates by 25 basis points taking the federal funds rate to 5.25-5.5 per cent — the highest level in 16 years. A day later, the European Central Bank also raised interest rates by 25 basis points. The Bank of England, which is scheduled to meet this week, is also expected to follow suit. With inflation still above their target, central banks have left open the possibility of further hikes when they meet next in September. However, there are indications that the interest rate hike cycle is nearing its end.

The US economy has so far proven to be more resilient to tighter policy than expected. In the second quarter (April-June), it grew at an annualised rate of 2.4 per cent, surpassing expectations. The unemployment rate remains at a low of 3.6 per cent, while claims for unemployment benefits fell for the week ended July 22. And inflation, based on the consumer price index, has come down from 9.1 per cent last year to 3 per cent in June. In contrast, the European economy has been rather sluggish. In the latest update of its world economic outlook, while the International Monetary Fund has revised upwards its growth forecasts for France, Italy and Spain, it expects Germany to contract this year. Inflation in the Eurozone, while has fallen from a high of 10.6 per cent in October to 5.5 per cent in June, remains well above target. ECB president Christine Lagarde has said that the bank's governing council has "an open mind" on the decision in September. But, with inflation still way above the targets of central banks, it does suggest that interest rates are likely to stay higher for longer.

In its last meeting, the monetary policy committee of the RBI had chosen to maintain the status quo on rates and stance. Inflation in India has moderated — it fell to a low of 4.3 per cent in May, rising slightly thereafter to 4.8 per cent in June. However, there are indications that the hardening of food prices, vegetables in particular, will have pushed up headline inflation significantly in July. The RBI's own forecasts expect inflation to edge upwards in the second quarter. In this uncertain environment, the MPC, which is slated to meet in the second week of August, should continue to focus on price stability.

EXPRESS VIEW ON FITCH'S US RATING: THE DOWNGRADE

On Tuesday, credit rating agency Fitch downgraded the US sovereign rating from AAA to AA+. The rating agency's rationale for the decision is three-pronged — a worsening in the fiscal metrics over the coming three years, a high and rising government debt burden and a deterioration in governance that shows in the recurring standoffs on the debt-limit between the two political parties. The ratings decision has elicited strong criticism, and for good reasons. The US economy is faring better than expected. Few have any doubts over the country's ability to honour its obligations. And in June, the debt ceiling crisis was averted after a deal was reached between US President Joe Biden and Republican House Speaker Kevin McCarthy. While the ratings downgrade has not caused significant dislocation in the financial markets so far, it may lead to some reputational damage. But regardless, Fitch does raise concerns over the state of US government finances.



The rating agency expects the general government deficit to rise from 3.7 per cent of GDP in 2022 to 6.3 per cent in 2023. This rise can be traced to weaker revenues, higher interest obligations and greater spending. Both state and local governments are also expected to run deficits this year, after running a surplus last year. Moreover, Fitch does not consider the possibility of significant fiscal consolidation in the immediate term considering the presidential elections are due in November 2024 — it has pegged the deficit to rise to 6.6 per cent of GDP in 2024 and further to 6.9 per cent in 2025. The rating agency also expects the debt to GDP ratio, currently well above the pre-pandemic level, to rise in the coming years. The rise in borrowing costs — congressional budget office estimates interest costs will double to 3.6 per cent of GDP by 2033 — will pose additional challenges.

Even as members of the US administration have dismissed the ratings downgrade as “arbitrary and based on outdated data”, both political parties must awaken to the ramifications of bickering over crucial policy matters. As the rating agency has said “repeated debt-limit political standoffs and last-minute resolutions have eroded confidence in fiscal management”. And Fitch is not alone. In 2011, Standard & Poor’s downgraded the US, citing “difficulties in bridging the gulf between the political parties over fiscal policy.” It had argued that the “effectiveness, stability, and predictability of American policymaking and political institutions have weakened at a time of ongoing fiscal and economic challenges”. Countries the world over must draw the right lessons from these episodes — political polarisation has economic consequences.

EXPRESS VIEW ON INDIA’S ECONOMY: SWEET AND SOUR

India is in a geoeconomic sweet spot. The ruling dispensation’s careful navigation of the changing global scenario following the Russia-Ukraine war has created space for the country to buy oil from Russia despite sustained pressure from the West and at the same time deepen its economic and strategic engagement with the latter. Coming at a time when many countries are struggling to maintain their economic momentum, with the economy seeming to hold up, India is in a relatively better position. The International Monetary Fund has recently raised its forecast for the country’s growth to 6.1 per cent. Inflation has remained below the upper threshold of the central bank’s inflation targeting framework. The country’s forex reserves are back to around \$600 billion. And the government has managed to sustain its infrastructure spending across the country. In this scenario, multinational firms are increasingly looking at the country as part of their China plus one strategy. This optimistic assessment of the state of the Indian economy has been put forth by Nilesh Shah, who is a part-time member of the Prime Minister’s Economic Advisory Council, at an Indian Express Idea Exchange. However, as Shah has also pointed out, there are pain points as well.

Growth has been uneven. Large sections of the population aren’t benefiting as much. As Shah says, those at the bottom half of the pyramid haven’t participated in the growth story, especially post Covid. There are several indications of the distress. Real rural wages have been almost stagnant. More households are availing work under the MGNREGA as compared to pre-pandemic levels. FMCG companies have not seen much volume growth in consumer staples. Two-wheeler sales are lower than pre-Covid levels and non-suburban railway traffic has dropped. And though the underlying conditions for a pick up in investment activity exist — healthy corporate sector and bank balance sheets — there aren’t enough indications of a broad-based pick up.

Clearly, there is no room for complacency. While several countries have witnessed spurts of growth, a very small subset have actually managed to grow at high rates over decades. As per a recent study by economists at the RBI, the Indian economy needs to grow at 7.6 per cent over the



next two-and-a-half decades to achieve high income status by 2047. A business as usual approach will not suffice. As the study also points out, if status quo is maintained, the economy is likely to grow at a slower pace than what is required to achieve the target. The policy framework must be guided by the objective of raising the country's growth prospects over the medium to long term. This requires concerted and urgent action.

MAPPING INDIA'S CHIP DESIGN ECOSYSTEM

The story so far:

As part of the second phase of the design-linked incentive (DLI) scheme for the domestic semiconductor industry, the Indian government, according to media reports, is considering a proposal to pick an equity stake in domestic chip design-making companies. The modalities and the timing of the policy are yet to be worked out, but senior government officials say the idea behind the scheme is to ensure a stable ecosystem alongside building a few "fabless companies". (Fabless companies are entities that design chips but outsource the manufacturing.)

What are the broader industry dynamics?

Any policy directed towards the semiconductor industry, be it manufacturing, or design, requires a long-term strategy as the sector is capital-intensive and involves sizeable costs in setting up fabrication units, upscaling manufacturing capabilities and equipment (such as thermal stimulators, sensors), and pushing research. Moreover, returns from the investment are not immediate as setting up design and fabrication units involves long gestation periods.

Industry body NASSCOM says it takes up to 2-3 years before the first product is out and chip designing requires higher investment than a traditional aggregator company. Further, as chipsets become smaller and functional requirements from them change, research and development become challenging. Lastly, supply chain disruptions, could dampen potential investor confidence in the sector.

What is the domestic chip industry scenario?

India is an important destination for global semiconductor companies primarily because of its highly-skilled talent pool of semiconductor design engineers, who make up about 20% of the world's workforce. About 2,000 integrated circuits and chips are designed in India every year. Global players operating R&D in the country include Intel, Micron and Qualcomm.

Notwithstanding the thriving manpower, India owns a much smaller portion of the intellectual property (IP) relating to the designs. The DLI for chip designing introduced in December 2021 endeavoured to indigenise innovations. Among other things, it aspired to grow at least 20 companies in India scaling a turnover of more than ₹1,500 crore in the next five years. For product design, the scheme will reimburse up to 50% of the eligible expenditure to a ceiling of ₹15 crore per application.

What are some of the challenges?

According to Pranay Kotasthane, Chairperson, High Tech Geopolitics Programme at Takshashila Institution, the government's attempt to become a venture capital firm for chip design companies is likely to be "ineffective and inefficient". "Companies are naturally going to pick foreign buyers because it gives them higher valuation and also connects them to a global ecosystem of customers



and investors,” he states. Separately, Mr. Kotasthane also pointed to the lack of venture capitalists in the private sector focused on semiconductors in India. Notwithstanding its share of the global workforce, the cumulative annual revenue of domestic semiconductor design companies is meagre at ₹150 crore. He said that higher gestation periods imply design firms are not able to attract potential investors and venture capitalists as software companies have. “There are indications that this situation is changing, but not fast enough,” he points out. Conversely, observers also held that the government’s participation would help with regulatory support. At the ‘Semicon India 2023’ conclave, Prime Minister Narendra Modi made a strong pitch to global investors, saying India will emerge as a global hub of semiconductor and chip-making industry.

Shivani Parashar, analyst at Counterpoint Research, told *The Hindu* that with an equity stake, the government offers an opportunity for design companies to align their interests with the project’s success, ensuring shared risk and reward. “Equity will empower design companies to sell their chip-designing services more effectively and attract a broader client base in the market. It [proposed equity] would prevent companies from selling their majority stake to large global players to scale up the business,” she notes. Further, the equity infusion would be encouraging for local, small and medium-sized firms who face multiple hurdles to be part of the ecosystem.

CHIP TACTICS

The government has made a fresh bid to attract major global chip manufacturers into the country. At the Semicon India summit last Friday, Prime Minister Narendra Modi told prospective investors that the government had drawn on their suggestions after the first such conference last year, and taken pro-active decisions to address areas of concern. Apart from low corporate tax rates and sops for all new manufacturing projects, he said the incentives offered to tech firms to set up production facilities under India’s semiconductor programme have been scaled up to 50% financial assistance. So, essentially, the government would bear half of the typically large investment outlays that companies commit to undertake. Ahead of Mr. Modi’s U.S. State visit, the decks were cleared for a \$2.75 billion assembly, testing, marking and packaging facility in Gujarat proposed by the U.S.-based Micron Technology. The deal, perhaps nudged by the two countries’ cooperation pact to build a semiconductors supply chain, has piqued investor interest and spurred Micron’s suppliers to explore the option of co-located facilities.

With several countries seeking to de-risk themselves from the dominance of China in the chips manufacturing supply-chain through collaborative or ‘friendshoring’ arrangements, the rationale for the enhanced pitch to investors is unquestionable. But the competition is already fierce. The \$52 billion financing support announced by the U.S. for semiconductor makers in 2021 has drawn over \$200 billion in commitments. Wooed by an array of subsidies, Intel alone has committed \$80 billion in outlays across the European Union. In India, a \$10 billion production-linked incentive scheme was unveiled for chip makers in late 2021. A \$20 billion venture announced by Vedanta and Foxconn last year has, however, come undone. It is critical that the Micron investment is hand-held till fruition to create an effective exemplar effect. Apart from incentives, investors also need to see evidence of a stable operating environment with a predictable policy framework that is not amenable to knee-jerk deviations such as export curbs to cope with shortages. They would also compare India’s trade linkages with world markets through bilateral or multilateral compacts and its approach to tariffs on myriad components that may need to be shipped in. The Prime Minister’s assurance of understanding the needs of the global chip supply chain needs to be matched by actions to assuage such concerns. There could still be many a slip between the lip and the chip.



CORE COMFORT

Output at India's eight core sectors strengthened hearteningly in June, with the overall year-on-year growth in production estimated to have quickened to a five-month high of 8.2%. Seven of the sectors, including steel and cement and electricity, logged appreciable advances. Steel, which is the third-largest constituent of the index of eight core industries with a weight of just under 18%, was the standout performer, as output of the key alloy surged 21.9% undergirding the wider advance in the index. And cement posted an almost double-digit increase reflecting the continuing momentum in demand, a slight softening in the pace from the preceding two months on account of the onset of monsoon notwithstanding. Steel and cement led the cross-sectoral advance over the April-June period, growing 15.9% and 12.2%, respectively, in the fiscal first quarter. A key driver of demand for these two construction essentials continues to be the infrastructure sector, where the government's efforts to boost outlays including on affordable housing, urban renewal and transportation networks are providing a palpable tailwind. Total capital expenditure by the Centre in June jumped more than 62% year-on-year and almost 24% from the preceding month to ₹1.10 lakh crore, Controller General of Accounts data showed.

Electricity, which makes up a fifth of the core index, also posted its strongest increase in four months despite a cyclonic storm that impacted highly industrialised Gujarat the most, dampening demand. Coal output also rose 9.8% in June, lifting the first-quarter's production by 8.7%. And official data on Tuesday showed output in July surged more than 14%, another positive augury given that coal demand extends beyond the electricity sector to other industrial segments including metal making and process industries where it is used in furnaces and boilers. To be sure, other data from the eight core sectors do point to areas of concern. For all the talk of Aatmanirbharta, India's efforts to secure a degree of independence in the crucial oil sector are yet to yield meaningful dividends; the country is still heavily reliant on crude imports for its overall fuel needs. This is best reflected in the fact that crude oil production remained in the doldrums for a 13th straight month, contracting 0.6%. Along with refinery products, which have the heaviest weight of 28% on the index, crude oil also registered a sequential slide underlining the difficulties the oil sector as a whole continues to face because of regulatory inconsistencies. Policymakers have their task cut out to ensure the policy environment remains supportive especially at a time when global demand remains particularly uncertain.

BANKS START MAKING PROVISIONS AHEAD OF RBI'S ECL NORMS

While the Reserve Bank of India (RBI) is yet to announce the final guidelines on the expected credit loss (ECL) based provisioning by banks, some lenders have started building up provisions even before migration to the new ECL regime. Higher provisions are based on internal assessments done by these lenders on required loan-loss provisions under the proposed framework. However, a few lenders said they will start making provisions once the RBI releases the final ECL guidelines.

The country's largest lender State Bank of India has said that it might require a provision of up to Rs 25,000 crore whenever the ECL framework is implemented. According to various estimates, the banking sector's provisioning requirement for shifting to the ECL framework will be between Rs 90,000 crore to Rs 1 lakh crore.

In January this year, the RBI issued a discussion paper on the introduction of the ECL framework for provisioning by banks. It said the banks will be given one year after the final guidelines are released for implementation of the expected credit loss approach for loss provisioning.



Currently, under provisioning norms, banks are required to set aside funds to a prescribed percentage of their bad assets on an incurred loss approach, which means they need to provide for losses that have occurred or incurred.

BANK DEPOSITS: WOMEN'S SHARE RISES TO 20.5%, PER CAPITA DEPOSITS UP BY RS 4,618 IN 5 YEARS

If the Reserve Bank of India data on bank deposits is any indication, women have started saving more than men. While the overall deposits of the banking sector increased by 10.2 per cent to Rs 180 lakh crore during the year ended March 2023 and the share of individuals in total deposits declined during the year, the share of women customers in total deposits continued to increase to 20.5 per cent to Rs 37 lakh crore during the year from around 18 per cent five years ago.

Overall, the per capita women deposits increased by Rs 4,618 to Rs 42,503 in the last five years, according to RBI's latest report 'Deposits with Scheduled Commercial Banks – March 2023. "Rural areas are the major source of women deposits. The share of women deposits in overall rural deposits has increased in post pandemic period to 30 per cent in FY23 from 25 per cent in FY19 (pre-pandemic year). Further, of the incremental deposits between FY19 and FY23, women deposits accounted for 26 per cent at all India level," as per RBI data. RBI data shows that the share is again highest in case of rural areas, with women deposits accounting for 41 per cent of the incremental rural deposits during the same period, according to an SBI Research report on the RBI data.

Meanwhile, total deposits by senior citizens (age 60 and above) amounted to Rs 36.2 lakh crore which represents 38 per cent of the individuals' deposits and 19.6 per cent of the overall deposits during the year. Within this, women account for 39 per cent (or Rs 37.0 lakh crore) of the individual deposits, according to RBI data.

HURDLES TO OVERCOME BEFORE BECOMING 'DIGITAL INDIA'

Since the introduction of UPI in 2016, transactions in this mode have grown in value and volume. It has been well documented that demonetisation in November 2016 and the COVID-19 lockdown in 2020 were major push factors for the widespread adoption of digital payments. From June 2021 to April 2023, UPI payments grew at an average monthly rate of 6%. The corresponding figures for NEFT, IMPS, and debit card payments was 3%, 3%, and 1.5%, respectively. This indicates that the popularity of UPI increased at a faster rate than all other modes of payment.

The share of UPI payments in the total value of digital retail payments in the country increased from less than 20% in mid-2021 to about 27% in March 2023. Conversely, the share of NEFT transactions saw a decline of about 10 points (from 64% to less than 54%) over the same period. The share of IMPS remained relatively stable (about 9%). While the share of debit card payments and prepaid payments recorded a decline, their combined share did not exceed 2.5% of the overall digital retail transactions. This suggests that the increasing share of UPI payments has come mainly at the cost of NEFT transactions. This might be because both UPI and IMPS are real-time payment settlement systems unlike NEFT.

Financial inclusion

It is to be expected that the increasing popularity of UPI-based payments would play an important role in improving financial inclusion. The first step towards financial inclusion is to have a bank



account. At first glance, it seems like India has made significant progress on this front. According to the World Bank Global Findex Survey, while 53% of the population had bank accounts in 2014, 80% of the population had bank accounts in 2017 and 2021. However, a closer look at the data reveals that of those with bank accounts, 38% have inactive accounts. India has the highest share of inactive accounts in the world compared to all the other countries in the database. This might be an outcome of the push for Jan Dhan accounts. Zero-balance accounts were opened to meet official targets, but have been lying dormant since then. More women than men have inactive accounts (32% versus 23%). While there is no urban-rural divide or income group divide in the possession of bank accounts, differences are evident when we consider the share of inactive accounts. While 31% of the population in rural areas have an inactive account, the share in urban areas is 23%. Similarly, if we consider the poorest 40% of Indians, 35% of them have inactive bank accounts, whereas the corresponding figure for the richest 60% of the population is 22%.

While the popularity of UPI has increased substantially in recent years, only 35% of the population reported carrying out any digital transaction (making or receiving a payment) in 2021. While this was an improvement from previous years (22% in 2014 and 29% in 2017), India's figures are unimpressive when compared to the average of 57% for all developing countries and the world average of 64%.

Although digital transactions have grown in value and volume, their growth has not been equal. There is a sharp gender gap in digital transactions. While 41% of the male population carried out any digital transaction in 2021, the corresponding figure among women was only 28% (**Chart 2**).

Not only are these figures low to begin with, but the significant difference of 13 points between men and women is high when compared to most countries including Vietnam (48% of men and 44% of women), Brazil (80% of men and 73% of women), China (87% of men and 85% of women) and Kenya (82% of men and 74% of women), which are at comparable stages of development as India. India's figures are also lower overall compared to the figures in these countries. Although Bangladesh reported a greater gender gap, its statistics (58% of men and 34% of women) are higher than India's.

If we look at the rural-urban gap in digital payments, India again stands out when compared to countries such as Bangladesh and Kenya. Only 30% of Indians in rural areas made or received any digital payment in 2021 as opposed to 40% in urban areas. This again indicates that a substantial share of the population has been bypassed. There was no rural-urban divide in Bangladesh (both rural and urban figures were 45%). In Kenya, 74% of the rural population carried out digital transactions, while the corresponding figure in urban areas was 87%. While there was a significant digital divide between urban and rural areas in Kenya, the fact that more than 70% of the population was a part of the digital payments ecosystem is impressive. Therefore, while India has made big strides, it still has a long way to go in becoming 'Digital India'.

HOW UIDAI IS USING AI TO TACKLE PAYMENT FRAUDS

As more frauds related to the Aadhaar-enabled Payment System (AePS) come to the fore, the Unique Identification Authority of India (UIDAI), has turned to artificial intelligence-based systems in a bid to limit the cases — this includes developing technologies around fingerprinting and facial recognition.

Minister of State for Finance Bhagwat Karad told Parliament on Monday (July 31) that to prevent AePS frauds by the use of spoofed fingerprints during Aadhaar authentication, the UIDAI has



rolled out an in-house Artificial Intelligence/Machine Learning technology-based Finger Minutiae Record – Finger Image Record (FMR-FIR) modality which is able to check the liveness of a fingerprint to detect the use of cloned fingerprint during the authentication process.

In May this year, Airtel Payments Bank collaborated with the National Payments Corporation of India (NPCI) to roll out a facial recognition-based authentication measure for such transactions. The technology has been developed in-house by the UIDAI.

How does the Aadhaar fingerprint technology work?

The technology was rolled out in February this year and uses a combination of both finger minutiae and finger image to check the liveness of the fingerprint captured. The measure was implemented after instances of people creating fake fingerprints using silicone to syphon off money from unsuspecting individuals' bank accounts were reported. The problem gets compounded on account of the fact that a large part of the AePS user base is in rural areas.

In effect, the AI-based technology is able to identify whether the fingerprint is from a real, or 'live' finger, or a cloned one.

Payment frauds on the rise

According to the Home Ministry, in the financial year 2020-21, 2.62 lakhs financial crimes, such as money laundering, bribery, corruption and different kinds of frauds, were reported. The number jumped to 6.94 lakhs in 2022, a report, released by the Standing Committee on Finance — headed by BJP MP Jayant Sinha — said.

Citing data it received from the supervised entities of the Reserve Bank of India (RBI), the committee noted that payment-related frauds are on the rise in India – In FY21, the volume of such frauds was a little over 700,000, which by FY23, increased to close to 20 million.

However, due to limited awareness about cyber frauds, a significant number of people do not report them to authorities, the committee said. According to the information submitted to it by the Indian Cybercrime Coordination Centre (I4C), in the year 2022, out of 6,94,424 complaints related to financial frauds only in 2.6 per cent of cases an FIR was registered.

The details shared by Karad with Parliament revealed that between November 2021 and March 2023, more than 2,000 complaints related to AePS were received by the offices of the RBI's ombudsman.

Can technology alone solve the fraud problem?

Deploying technological measures to curtail financial frauds has its own limits, though. For instance, they have failed to thwart a number of frauds related to AePS, in which a business correspondent, a key member in the payment supply chain, is the culprit.

A business correspondent (BC) is an informal bank agent equipped with a biometric Point-of-Sale (PoS) machine, which works like a micro ATM. If someone needs Rs 500, they have to give their bank details to the BC along with their Aadhaar-based biometric details and the BC will give them the Rs 500. However, officials aware of the matter said often, BCs misrepresent the amount they have paid an individual and input a higher amount in their system. Unsuspecting individuals, especially in rural areas, do not always have the wherewithal to ask for a receipt that the BC is supposed to generate after each transaction.



There have also been instances of fingerprint cloning, which AI-based technologies — at least in theory — are better equipped to deal with. Last December, The Indian Express reported that the Crime Branch wing of Haryana Police had raised a red flag on the AePS system, saying that cyber criminals are conducting financial frauds by syphoning off people's vital data from the system and cloning the fingerprints available on documents on the government website. At the time, the cyber cell under the Crime Branch was investigating over 400 complaints pertaining to cyber frauds that are related to AePS.

EXPRESS VIEW ON MONSOON: FOR A RAINY DAY

The southwest monsoon's turnaround in July, after a delayed onset and deficient rainfall in the previous month, has improved the prospects for the kharif crops. Rice could be an exception, as eastern Uttar Pradesh, Bihar, Jharkhand and West Bengal are still in deficit. Even other key cultivating states — Odisha, Chhattisgarh, Telangana and Andhra Pradesh — did not get good rain till mid-July, increasing the possibility of more area being planted to shorter-duration varieties that typically yield less.

There are reports of Punjab and Haryana farmers also having to undertake paddy re-transplanting in large areas where the standing crop suffered inundation from excess rainfall and water being released from dams in Himachal Pradesh. All this can translate into lower production of the crop that would be harvested and procured from October.

An output shortfall wouldn't matter in the normal course. But in this case, stocks of wheat and rice in public godowns are at a five-year-low, even as annual retail cereal inflation was over 12.7 per cent in June. Also, most global weather agencies are forecasting El Niño to gradually strengthen and peak during the winter months. If that, in turn, leads to rainfall activity becoming progressively weaker, its impact may be felt during the coming rabi cropping season. Winter rains not only provide water, but are also necessary to sustain low temperatures, especially for wheat. Looking ahead, then, there is reason for the government to be cautious — and more so, when national elections are due next April-May. But caution should not extend to knee-jerk actions of the kind seen in the recent period — from clamping of stocking limits on wheat, to banning export of all non-parboiled non-basmati rice. The damage these can do to India's credibility, both in global markets and among agri-businesses wanting to invest in warehousing and supply chains domestically, may not be small.

The government should take comfort from the monsoon turning out better than expected so far. The country, for now, looks set for bumper harvests in most kharif crops, barring rice and probably arhar and urad. But the supply situation is comfortable in other pulses (chana, moong and masoor), while easing in milk and likely to do so in vegetables as well in the coming months. The focus of worry, if any, should be on the upcoming rabi crops.

A sensible approach now would be to retain import duties at low levels (as in edible oils) or even nil (as with arhar, urad and masoor) and reduce the same on wheat (from the current 40 per cent). Food inflation can be addressed more effectively through tariff policy than outdated sledgehammer methods.

LINEAR REGRESSION

Even as the Union government suggests that there were *prima facie* reasons for the suspension of the Director of the International Institute for Population Sciences (IIPS), K.S. James — the IIPS



prepares the National Family Health Surveys (NFHS) and reports to the Health Ministry — it is difficult not to spot vindictive motives. In recent years, the government has taken a hostile approach towards the release of any data, even by its own agencies, that reveal inconvenient truths about its policies and their outcomes, rather than using them as feedback. The NFHS-5 (2019-21), for example, debunked the government's claim in 2019 that all villages were open defecation free (ODF); it showed that 19% of surveyed households did not use any toilet facility. Other surveys, i.e., the National Statistical Office survey from October 2018, the National Annual Rural Sanitation Survey of 2019-20 and the Multiple Indicator Survey released earlier this year, also indicated that many villages were not ODF. The NFHS-5 also showed a rise in anaemia and that 57% of the surveyed rural households lacked access to LPG or natural gas, calling into question the impact of the Ujjwala Yojana.

What transpired in the recent past with other statistical findings is also revealing. The Ministry of Statistics and Programme Implementation had junked its consumer expenditure survey (CES) of 2017-18 ostensibly due to data quality concerns even as important indices related to inflation and poverty continue to be pegged to the CES of 2011-12. The NSSO's Periodic Labour Force Survey, which was cleared by the National Statistical Commission (NSC) in 2018, was held back for showing a sharp increase in unemployment, but was released only after the government returned to power in 2019. The delay resulted in the resignations of the former acting chairman and another member of the NSC over the interference of the NITI Aayog in statistical issues. NITI Aayog's involvement in releasing the back series on GDP growth that contradicted an NSC report in 2018, was another indication of the government's efforts to undermine traditional statistical institutions. Recently, a series of opinion articles by members of the Economic Advisory Council to the Prime Minister sought to discredit the methodology used by the NFHS and similar surveys. The government has also unduly and unjustifiably delayed the decennial Census exercise, putting into limbo several statistical measures and programmes dependent upon Census information. Shenanigans of this kind do not bode well for an otherwise robust statistical system, which has been subject to strains at a time when there has been an explosion of public data in a growing digital world of commerce and governance.

THE CONTOURS OF INDIA'S 'FORMAL JOBS' CRISIS

Since 2017, the Indian government has been using the Employees Provident Fund (EPF) scheme's data as a measure of payroll employment and formal job creation in the country. The monthly data released as part of this initiative has generally shown net increases in the number of contributors and this has been portrayed as evidence of employment creation in the country. However, this is in stark variance with ground reports of unemployment and a dearth of jobs from various parts of the country.

Unlike the EPF monthly enrolment data, which generally depicts increases in contributors, the EPF Organisation's (EPFO) annual reports reveal that the number of regular contributors to the scheme has remained relatively stagnant or even declined in recent years. Regular contributors to the EPF scheme are those enrolled employees whose PF contributions are made on a regular basis during the year. This is in contrast to those employees who are merely enrolled into the scheme at some point, but whose contributions are irregular or stop shortly after.

Between 2012 and 2022, the number of regular contributors to the EPF increased from 30.9 million to 46.3 million. A significant increase occurred in 2016-17, when the Indian government encouraged firms with private PFs to join the government's EPF and introduced other incentive schemes that paid the employer's share of PF contributions. However, in the past five years, when



the effects of such incentives and firm enrolments somewhat stabilised, growth in regular contributors slowed down significantly. Between 2017 and 2022, the number of regular contributors increased only from 45.11 million to 46.33 million. Strikingly, this occurred during a time when overall enrolments in the EPF increased from 210.8 million to 277.4 million.

In other words, though the total number of EPF enrolments increased by around 67 million, the corresponding increase in regular contributors within that was only 1.2 million. The number of people enrolled in the EPF can generally be expected to be higher than regular contributors due to issues of duplication and old membership data, but it is concerning that in recent years, the gap between them has been noticeably widening. If the EPF data are to be considered as an indication of formal employment, then there appears to have been a net creation of only 1.2 million formal jobs in the past five years. For perspective, at current participation rates, there were an estimated 20-25 million new entrants into the Indian labour market. The divergence between EPF enrolments and regular contributors indicates that the majority of enrolments into the EPF are linked to jobs that are of a temporary, subcontracted or casual variety — where PF contributions are irregular or cease shortly.

Thus, though the Indian economy appears to be creating jobs – these are not formal, regular well-paid jobs that can provide good quality, long-term employment.

Middle-class's woes

As India overtakes China as the most populous country in the world, it faces an increasingly educated and growing working-age population that requires good-quality employment.

However, the relative absence of formal, well-paid, regular employment in the country is striking. This inhibits the expansion of its middle class — a factor that was central to China's economic growth — but which has largely been missing in India. The lack of quality jobs in the Indian economy gets revealed in instances of large numbers of over-qualified youth applying for a few public or private sector job openings, showing a dissonance with claims of strong economic growth.

The stagnation in formal employment in India can be partially attributed to the pandemic. In fact, the number of EPF contributors declined (somewhat predictably) during the COVID pandemic. At the time, the EPFO used to publish information on regular contributors on a monthly basis. However, after the decline in EPF contributors was noticed by news media, the EPFO subsequently disputed its own numbers and stopped publishing this monthly data series altogether.

Unfortunately, over time the Indian government has neglected other sources of formal employment and labour data that could have been used to verify these numbers and trends. For instance, the employment market information collected by the Directorate General of Employment and Training (DGET) has not been published since 2013.

The DGET data were historically the original source of formal sector payroll employment data in India (since the 1950s). The Reserve Bank of India utilised it as the main source for formal sector employment numbers and related calculations in the country. However, this data are no longer available, even to the country's central bank.

The EPF scheme is potentially a good alternative source to gauge payroll employment, but it requires significant standardisation and de-duplication. Moreover, it should be recognised that a single data source is insufficient to understand formal employment and jobs in the country.



Understanding and addressing issues of job creation or job quality cannot be achieved without a wide range of standardised, stable and publicly available labour statistics.

EXPRESS VIEW ON RESTRICTIONS ON LAPTOP IMPORTS: LICENCE RAJ DOT COM

In the pre-1991 era, Indian governments routinely relied on repressive policies such as quotas and higher tariffs in order to curb imports. Infosys founder N R Narayana Murthy once famously recounted how he had to wait for three years and undertake several trips to Delhi to import a computer because of the strict licensing regime.

The adverse consequences that such policies had on the economy have been well documented. Despite that, in a move that harks back to this socialist past, the government of India on Tuesday issued an order requiring licences to import laptops, tablets and other devices with immediate effect. This could open the door for imposition of similar licensing requirements in other sectors, increasing the space for bureaucratic discretion. Such controls on economic activities will only diminish the vibrancy of the economy that was unleashed after the '91 reforms.

The move is ostensibly aimed at promoting domestic manufacturing and curbing imports from China. In 2022-23, imports of personal computers, laptops etc stood at \$5.3 billion, with China accounting for an overwhelming share of these. However, as no warning or time has been given to equipment manufacturers (as per some reports, the government might delay its implementation by at least a month), this decision will lead to unnecessary disruption in the immediate term, create supply shortages and drive up prices of equipment. While it may force companies to manufacture in the country considering the huge market that India offers, there may be cost disadvantages.

Moreover, it is one thing for the government to adopt policies that facilitate the creation of a computer manufacturing ecosystem in the country and quite another to use a sledgehammer approach to achieve its goals. In a country with a vibrant IT services sector, with a government that envisions Digital India, and one that has sought to encourage the start-up ecosystem, this is an uncalled-for decision.

Unfortunately, it is not a one-off. The policy establishment has in recent years drawn inspiration from the country's socialist past far too often. For instance, the government has recently banned the exports of rice and imposed stock holding limits on pulses. It had also brought spending by credit card under the liberalised remittance scheme — now in abeyance — which meant that transactions via cards outside India would attract a higher rate of TCS (tax collected at source). Such moves indicate that even as the rest of the country has travelled well beyond its socialist past, the establishment hasn't, at least not adequately. It still tends to cling to the old playbook. This tendency threatens to undo the economic gains that have accrued to the country from the dismantling of the licence permit raj in the decade of the '90s.

DGFT SUSPENDS ITS LAPTOP, PC IMPORT CURBS TILL NOVEMBER 1

A day after it issued a notification restricting imports of laptops, PCs, tablets and servers to India 'with immediate effect', the Directorate General of Foreign Trade (DGFT) on Friday suspended implementation of the notification until November 1, after Customs officials stationed at ports of entry started holding up shipments of the specified electronics items. Separately, government officials also sought to assure industry that most applicants seeking licenses for import of the restricted electronics products would receive them promptly upon filing the required application.



CENTRE OWES ₹6,366 CR. TO STATES IN MGNREGS

The Union Rural Development Ministry informed Parliament on Tuesday that it owed ₹6,366 crore under the wage component of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) to States.

There are a total of 14.42 crore active MGNREGS workers, most of them women, dependent on the wages to supplement their family's income. Of the total sum, ₹2,770 crore is owed to West Bengal alone. Invoking Section 27 of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the Centre has blocked payment of over ₹7,500 crore to West Bengal for "non-compliance of directives of the Central government" since December 2021.

MP raises query

These statistics were revealed in a question posed by Congress Lok Sabha member Ramya Haridas, who also asked the Centre to reveal how many beneficiaries were owed wages for more than five months now. The government replied that barring West Bengal, there is no pendency for more than five months in wage disbursement for any MGNREGS worker.

After West Bengal, the highest amount of funds for wages are owed to Congress-ruled Rajasthan, a total of ₹979 crore. Bihar, which is ruled by the JD(U)-RJD coalition, is owed ₹669 crore. The Centre has pending payments under the wage component for a total of 18 States and Union Territories. Section 3(3) of the MGNREGA says "the disbursement of daily wages shall be made on a weekly basis or in any case not later than a fortnight after the date on which such work was done".

The Centre also has a liability of ₹6,266 crore in the material component to 30 States and Union Territories. It bears 60% of the cost of the materials used for MGNREGS work and the State governments provide the remaining 40%.

Domino effect

The delay in the material component has a domino impact, affecting future projects. When there are continuous delays in the material component payout, the local vendors who supply raw materials become reluctant to supply goods, thereby breaking the work cycle. In material component payments, the Centre owes ₹2,813 crore to West Bengal, followed by ₹777 crore to Uttar Pradesh and ₹634 crore to Karnataka.

TURBULENCE HITS UDAN SCHEME, 50% ROUTES GROUNDED

The government's biggest claim to success in aviation since 2014 is building "74 airports in seven years", as opposed to the same number built in the seven decades since Independence. However, only 11 of these airports have actually been built from scratch, while 15 airports have fallen into disuse over this period, due to the collapse of almost half the routes launched under the regional connectivity scheme (RCS).

In the recent past, airport development has primarily been undertaken under the RCS, which was launched in 2017 to improve air connectivity for smaller cities, and to redevelop under-utilised airports. This largely involved the revival of old airstrips that were either lying unused or were used sparsely. The government launched 479 routes to revive these airports, out of which 225



have since ceased operations, according to the Civil Aviation Ministry's response to questions from *The Hindu*.

Beyond the stats

Only 11 greenfield airports have become operational since May 2014, Minister of State for Civil Aviation V.K. Singh replied to a question in the Rajya Sabha on July 24. These are the airports at Mopa in Goa, Shirdi and Sindhudurg in Maharashtra, Kalaburagi and Shivamogga in Karnataka, Kushinagar in Uttar Pradesh, Orvakal (Kurnool) in Andhra Pradesh, Durgapur in West Bengal, Pakyong in Sikkim, Kannur in Kerala, and Donyi Polo in Arunachal Pradesh.

The figure of 74 new airports, which Prime Minister Narendra Modi and Civil Aviation Minister Jyotiraditya Scindia regularly raises, includes nine heliports and two waterdromes. These two waterdromes, built for seaplanes between Gujarat's Gandhinagar and the Statue of Unity in Kevadia, closed down soon after the Prime Minister launched them in October 2020, as SpiceJet discontinued its flights after a "change in technical requirements", the airline told *The Hindu* in response to a questionnaire.

As many as 15 airports, including Sikkim's only airport in Pakyong, and those in Punjab's Adampur, Pathankot, and Ludhiana do not see any flights any more, according to a senior government official.

The RCS, also known as the *Ude Desh Ka Aam Nagrik* (UDAN) scheme, was launched with the aim of taking flying to the masses by improving air connectivity for Tier-2 and -3 cities, and subsidising air travel on these routes. The routes are awarded after a bidding process, and the winning airlines are given certain incentives, along with viability gap funding (or a subsidy) equivalent to 50% of the seating capacity on their aircraft. In return, the airlines sell 50% of their seats at a flat rate of ₹2,500 per hour of flight, in order to make air travel affordable.

The cost of the subsidy is borne by Indian airlines flying on non-RCS routes, who pay an RCS levy of ₹15,000 per departure, as per the latest revision that came into effect in April 2023. The airlines further pass the levy on their passengers on non-RCS flights. A total sum of ₹2,038 crore has been collected as RCS levy. The scheme also set aside a sum of ₹4,500 crore to revive old airports by recarpeting runways and erecting terminal buildings. Of these, 46 airports have been redeveloped by the Airports Authority of India (AAI), and the remaining by State governments and public sector units (PSUs). The government has so far spent ₹3,490 crore on these airports. The Union Finance Ministry approved another ₹1,000 crore for this purpose in May this year, for a period of three years.

Commercially unviable

Of the 225 routes that have ceased operations, 128 routes shut down even before completing the mandatory three-year period under the scheme. Airlines found 70 of these routes to be commercially unviable despite the subsidy, while the remaining 58 have been cancelled due to "non-compliance" by the airline operator or the airline surrendering routes, or the airline companies shutting down.

As many as 97 routes shut down after completing the three-year period during which the government provides support. The objective of the scheme was that after the three-year period, airlines would be able to sustain operations on their own without government support, but out of the 155 routes that have completed three years, only 58 have survived.



LIFE & SCIENCE

THE LEGACY OF THE VOYAGER MISSION

NASA detected a signal from its Voyager 2 spacecraft on August 1, after losing communication for over a week. Launched 46 years ago, Voyager 2 is currently in interstellar space. Along with Voyager 1, it has provided invaluable data and inspired future space missions.

More than a week after the National Aeronautics and Space Administration (NASA) lost communication with Earth's longest-running space probe, Voyager 2, the space agency detected a "heartbeat" signal from the spacecraft on Tuesday (August 1). Although too faint for extraction of data, the detected signal confirms that Voyager 2, which is about 19.9 billion kilometres away from Earth, is still operating.

On July 21, a faulty command sent to the probe caused its antenna to point 2 degrees away from Earth. "As a result, Voyager 2 is currently unable to receive commands or transmit data back to Earth," a statement released by NASA on Wednesday said.

Launched around 46 years ago, Voyager 2 is the second spacecraft to enter interstellar space — the region that lies outside the impact of our Sun's constant flow of material and magnetic field. The first was Voyager 1, sent to space about two weeks after Voyager 2 (yes, Voyager 1 was launched after Voyager 2). Between them, the two probes have explored all the outer giant planets of our solar system and discovered over 40 moons and numerous rings. They have provided invaluable data on planetary astronomy, and inspired many future space missions.

Why were the Voyager spacecraft sent into space?

In 1972, NASA cancelled its plans of exploring the five outer planets (Mars, Jupiter, Saturn, Uranus and Neptune) with four highly complex spacecraft — the proposal, estimated to cost \$ 1 billion, was scrapped due to budgetary constraints.

Instead, it proposed to send the Voyager probes, initially slated to explore only Jupiter and Saturn. In 1974, however, it was decided that if one spacecraft completes the mission, the other one would be redirected towards Uranus and then Neptune.

Interestingly, the spacecraft were scheduled for a take-off towards the end of the 1970s for a reason. According to a report by Scientific American, NASA chose the particular launch window to take advantage of a rare alignment of Jupiter, Saturn, Uranus and Neptune that occurs once every 175 years. "The alignment allowed the spacecraft to harness the gravity of each planet and swing from one to the next using relatively minimal amounts of fuel. NASA first demonstrated the technique with its Mariner 10 mission to Venus and Mercury from 1973 to 1975," the report said.

Voyager 2 was launched on August 20, 1977, two weeks before the September 5 Voyager 1 takeoff. This reversal of order took place as the two spacecraft were put on different trajectories — Voyager 1 was set on a path to reach Jupiter and Saturn, ahead of Voyager 2.

What are the features of the Voyager spacecraft?

Voyager 1 and Voyager 2 are identical spacecraft. Each of them is equipped with instruments to carry out 10 different experiments. The instruments include television cameras — to take images



of planets and other celestial bodies — infrared and ultraviolet sensors, magnetometers, plasma detectors, and cosmic-ray and charged-particle sensors.

Both spacecraft feature a large antenna, 3.7 metres in diameter, which is used to receive commands from Earth and radio their findings back to the planet. As their mission involved going far away from the Sun, they aren't powered by solar power, like other spacecraft are. "Instead, Voyager relies on a small nuclear power plant, drawing hundreds of watts from the radioactive decay of a pellet of plutonium," writes American astronomer Carl Sagan, who played a leading role in the Voyager mission, in his book *Cosmos*.

Notably, each Voyager spacecraft is adorned with a golden phonograph record — a 12-inch disc, intended to be a sort of time capsule from Earth to any extraterrestrial life that might intercept the probes in the distant future.

"The covers of the records have several images inscribed, including visual instructions on how to play them, a map of our solar system's location with respect to a set of 14 pulsars, and a drawing of a hydrogen atom. They are plated with uranium – its rate of decay will allow any future discoverers of either of the records to calculate when they were created," a report by The Planetary Society said.

Moreover, the records' content, selected for NASA by a committee chaired by Carl Sagan, includes 115 analogue-encoded images, a variety of natural sounds, such as those made by surf, wind and thunder, birds, whales, and other animals, musical selections from different cultures and eras, and spoken greetings from Earth-people in 55 languages, and printed messages from then US President Jimmy Carter.

What are the most notable achievements of the Voyager spacecraft?

Fifteen months after its launch, Voyager 1 reached its first target planet, Jupiter, on March 5, 1979, and was soon followed by Voyager 2, which arrived there on July 9. The most interesting discoveries made by Voyager 1 included the finding that Io, one of Jupiter's moons, was geologically active. The spacecraft noted the presence of at least eight active volcanoes "spewing material into space, making it one of the most (if not the most) geologically active planetary bodies in the solar system," another report by NASA said.

Moreover, Voyager 1 and Voyager 2 discovered three new moons of Jupiter: Thebe, Metis and Adrastea.

Following the Jupiter encounter, the spacecraft, one by one, moved towards Saturn. While passing by the planet's moon Titan, Voyager 1 discovered that it wasn't the biggest moon of our solar system, contrary to what scientists of the time believed — "the diameter of the solid centre was found (through radio signals) to be smaller than Jupiter's Ganymede", a BBC report noted. The spacecraft also noted that Titan's atmosphere was composed of 90 per cent nitrogen, and it likely had clouds and rain of methane.

After the Saturn expedition, as Voyager 1 headed on a trajectory to escape the solar system, Voyager 2 was redirected towards Uranus — both probes had fulfilled their primary mission goals but scientists kept them operational for further exploration.

Voyager 2 arrived at Uranus in 1986, becoming the first human-made object to fly past the aquamarine planet. The spacecraft took stunning photographs and confirmed that the main



constituents of Uranus are hydrogen and helium. It also discovered 10 new moons and two new rings in addition to the previously-known nine rings, among other significant findings.

Then, the probe went to Neptune. Becoming the first human-made object to fly by the planet in 1989, Voyager 2 made some more notable discoveries there. Apart from finding new moons and rings, it discovered that Neptune is more active than previously thought — winds on the planet blow at the speed of 1,100 kph. The spacecraft also observed the Great Dark Spot, which was essentially a huge spinning storm in the southern atmosphere of Neptune and it was about the size of the entire Earth.

After the Neptune encounter, Voyager 2, like Voyager 1, was put on the path to head out of the solar system. While Voyager 1 officially entered interstellar space in August 2012, Voyager 2 made its entry in November 2018.

“These exits were instrumental in enabling astronomers to determine where exactly the edge of interstellar space is, something that’s difficult to measure from within the solar system. They showed that interstellar space begins just over 18 billion kilometres from the sun,” The Planetary Society report said.

Although most of the instruments on the spacecraft aren’t operational, Voyager probes have been transmitting data back to Earth over the years — it is only after the recent glitch that Voyager 2 has stopped sending back the data but scientists hope to regain full communication with the spacecraft soon. But eventually, there will not be enough electricity to power both probes. After that, Voyager 1 and Voyager 2 will silently continue their journey among the stars.

CLIMATE FINANCE ADDS ANOTHER LAYER OF INEQUITY TO CLIMATE CHANGE

In the last few years, climate justice activists have been campaigning for the world’s economically developed countries to raise their investments in climate adaptation and mitigation, including paying for other countries’ abilities to deal with the effects of climate change. Countries in Sub-Saharan Africa, Latin America, and South Asia have historically contributed the least to global warming; yet, they are bearing the bigger brunt of climate disasters – both in the form of extreme natural phenomena and debt distress. On the other hand, countries in North America and Europe have contributed and continue to contribute the most, and are also the creditors of the debt crisis.

The global average emissions per capita is currently double this target, and has stayed above 4.7 tonnes per capita since 2010, whereas Africa and India have both been consistently under. China crossed the global average in 2004. It steadily climbed to 8 tonnes per capita in 2021 and joined Europe and Oceania. Notably, while the the overall emissions of the UAE and the U.S. have declined, as of 2021 these countries still had the highest emissions per capita (21.8 tonnes and 14.9 tonnes, respectively).

Let us look at the total investment in climate-related activities by each World Bank region as a fraction of that region’s total GDP in 2019 and 2020. This includes public and private investment in, among others, climate mitigation and adaptation activities, reduction of fossil-fuel use, and reforestation. In both years, Sub-Saharan Africa had the highest investment fraction in climate finance (1.3% of its GDP), followed by East Asia and the Pacific (1%) and South Asia (0.9%). The U.S. and Canada had the lowest proportionate investment, at only 0.3% of their GDP.



A large fraction of the funds for climate mitigation and adaptation in the Global South comes from international multilateral climate funds, such as the Green Climate Fund and the Clean Technology Fund. The sources for the Global South are usually economically developed countries.

Since 2003, \$3.3 billion was approved to be disbursed to South Asia, but only \$1.3 billion was actually disbursed. Most regions received only 40% of the approved funding for that region, on average.

Climate vulnerability index, calculated annually by the Notre-Dame Global Adaptation Initiative, combines a country's exposure, sensitivity, and capacity to adapt to climate change. The risk of debt distress is based on the International Monetary Fund's Debt Sustainability Framework reports. As most reports are limited to the Global South, several high-income countries had to be excluded from the analysis. The chart shows that most countries in debt distress or facing a high risk are in Sub-Saharan Africa, which is also the most vulnerable to climate change. Overall, countries at high risk or in debt distress are also more vulnerable to climate change. Three of the eight countries in South Asia are in this group.

ICE-FREE GREENLAND

A large portion of Greenland was an ice-free tundra landscape -- perhaps covered by trees and roaming woolly mammoths — in the recent geologic past, according to a new study in *Science*. The results help overturn a view that the Greenland ice sheet persisted for most of the last two and a half million years. Instead, moderate warming, from 424,000 to 374,000 years ago, led to dramatic melting. The melting of Greenland caused at least five feet of sea level rise, despite atmospheric levels of heat-trapping carbon dioxide being far lower than today (280 vs. 420 ppm). This indicates that the ice sheet on Greenland may be more sensitive to human-caused climate change — and will be vulnerable to irreversible, rapid melting in coming centuries. Scientists from various institutions used sediment from a long-lost ice core, collected at a secret U.S. Army base in the 1960s, to make the discovery. They applied advanced luminescence and isotope techniques to provide direct evidence of the timing and duration of the ice-free period.

THE HYBRID EV IMPERATIVE

A crucial element of the world's transition to becoming net-zero is electric vehicles (EVs). In this milieu, hybrid EVs present a big opportunity for economically developing countries: while their power generation and grid capacity and reliability, the fraction of renewable sources in the power generation mix, and availability of fast-charging infrastructure are still less than ideal, hybrid EVs offer a way to begin the transition instead of waiting.

What is net-zero for a vehicle?

Net-zero for a vehicle includes emissions at both the tailpipe of the vehicle and at the power plant. Making vehicles net-zero requires cutting emissions from both new and existing vehicles.

What are the different types of EVs?

Any vehicle propelled by an electric drivetrain, taking electric power from a portable, electrical energy source, is called an Electric vehicle (EV).



In a hybrid EV, an internal combustion engine (ICE) is used to produce electricity with an electrical generator. A small battery, typically 1-5kWh, is used in a hybrid EV as an energy buffer to store the electricity.

The battery can't be charged from the grid.

A full EV – a.k.a. a battery EV or a plug-in EV – has no ICE and hence no tailpipe emissions. The battery typically is much larger at 20-120 kWh. And it can only be charged from the grid.

A plug-in hybrid EV is still a hybrid EV with a much larger battery, typically 5-15 kWh. This larger battery can also be charged from the grid. This means a plug-in hybrid operates like a fully electric vehicle as long as there is energy in the battery.

A fuel-cell EV uses a fuel cell to produce electricity for the drivetrain together with a small battery buffer to manage variations.

What is the fuel economy of hybrid and fully electric EVs?

The use of an ICE in combination with a generator and battery in a hybrid EV results in the fuel economy of these vehicles being 1.5-2x times higher than in conventional ICE vehicles for city driving and 1-1.5x times higher for highway driving. A plug-in hybrid EV combines the best of both hybrid and full EVs. Using a small battery (5-15kWh) that can be charged from the grid, it can cover 80-90% of all short, day-to-day commutes in a fully electric mode with 3-4x higher fuel economy than conventional vehicles. A driver on intercity trips can switch to the hybrid mode.

What are the net emissions of hybrid EVs?

Apart from fuel economy, an important metric is the net emissions of a vehicle. Well-to-wheel emissions include both tailpipe emissions and emissions due to fuel production – electricity or fossil fuels. The life-cycle emissions is a more comprehensive index that includes well-to-wheel emissions and emissions due to vehicle and battery production, maintenance, and end-of-life recycling. The grids of different countries are decarbonised to different extents at present. In the case of full EVs: the lower the emissions from power production, the lower the vehicle's well-to-wheel and life-cycle emissions.

How do EVs' life-cycle emissions compare to ICE vehicles?

According to an analysis by the International Council on Clean Transportation of life-cycle emissions of various vehicles in the U.S., Europe, China, and India, switching to full EVs will result in 19-34% lower emissions by sedans and 38-49% by SUVs – even with the fossil-fuel-dominated energy mix in India. By 2030, when renewables account for a greater share in the grid, emissions are expected to be 30-56% lower. In an all-renewables grid, the gain? A cool 79%.

The same report also compared the life-cycle emissions of hybrid EVs with that of conventional EVs in Europe and found 20-23% lower emissions.

What are the challenges to transitioning to electric mobility?

First, a successful transition to full EVs requires fast-charging infrastructure along highways. This is vital because people generally want to own one affordable car serving both short and long-distance travel needs over 5-15 years, and want to drive without range anxiety. The lack of a fast-charging infrastructure will discourage people from buying full EVs. Fast-charging means power



levels of 50-350 kW for cars and up to 1,000 kW for heavy-duty vehicles. To compare, our smartphones charge at 10-25 W. Fast-charging will enable drivers to make long-distance trips using their EVs with 10-20-minute stops to gain ranges of 300-400 km. The indicative prices for EV fast-chargers are: capital cost of \$500-1,000/kW, service and maintenance at 5% per year; and an installation cost of around 50% of the charger cost.

The high cost and wide variation are due to the high-capacity power connections required, the cost of making and installing a new transformer and cables; service-level agreements; DC charger plug options and quantities; customisation costs; labour costs; and permits.

Second, many parts of the world, especially economically developing nations, don't yet have access to a grid or the grid isn't 100% reliable. The relatively high charging power for slow-charging (<22kW) and fast-charging (<350kW) make the problem more prominent vis-à-vis generation and transmission capacities. This in turn could retard the transition to EVs.

Third, mass-market price points of cars in the economically developing world are much lower, ~\$12,000 – whereas EVs with a range of 300-400 km will reach parity with conventional vehicles in the richest countries at a price of \$25,000-35,000 in the short term. This is due to the high battery costs, between \$130-200/kWh at the pack level. EVs with higher range will need larger battery packs and thus be more expensive.

How can hybrid or plug-in hybrid EVs help us decarbonise?

The current focus in the industry is on full EVs, which isn't practical for the immediate future, given grid reliability, state of highway charging infrastructure, and prohibitive vehicle costs. Hybrid EVs – either full or plug-in hybrids – present a big opportunity to lower emissions in the interim, i.e. from today, with ICE vehicles, until we have full EVs powered 100% by renewable energy. The 1.5-2x higher fuel economy of hybrids and 3-4x higher fuel economy of plug-in hybrids in electric mode drastically reduces fuel costs, emissions, and oil imports. Plug-in hybrids in particular can match several (but not all) of the benefits of full EVs vis-à-vis emissions and performance without requiring large batteries. With a limited all-electric range, this may not cater to all use cases, such as taxis.

Regenerative braking in hybrid EVs – i.e. recovering the kinetic energy of the vehicle while slowing down instead of dissipating it as heat in the braking system – can improve fuel economy esp. in urban areas with frequent stop-go conditions and in hilly conditions. An engine start-stop mechanism can also save fuel at traffic junctions and in heavy traffic.

Finally, the purchase price of hybrid cars is only 5-15% higher than conventional vehicles and is independent of the vehicle range. In an ideal future, all our electricity comes from renewable sources and we power our EVs using solar energy during the day and with wind energy at night. For countries that can already work towards this goal now, our priority must be to realise this vision. In places where transitioning to renewables for power and building fast-charging infrastructure will take a decade or more, we need to switch to hybrid EVs as a short-term solution due to the fuel-economy and emissions benefits.



WHAT IS SAM ALTMAN'S BIOMETRIC PROJECT?

The story so far:

On July 24, OpenAI CEO Sam Altman took to Twitter to formally re-introduce Worldcoin, a project of his that was eclipsed by the popularity of ChatGPT. The Worldcoin venture runs on a simple model: allow your eyes to be scanned in order to prove your human uniqueness, and receive some crypto and an ID (called a World ID) in exchange. Worldcoin claims it is building the “world’s largest identity and financial public network” open to people worldwide.

What is Worldcoin?

Worldcoin is an initiative to create a digital network in which everyone can claim some kind of stake, and join the digital economy. Using a device called “Orb,” Worldcoin volunteers known as ‘Orb operators’ scan a person’s iris pattern to collect their biometric data and help them get a World ID through the World app.

How does Worldcoin work?

The users need to be willing to scan irises and/or get their own irises scanned. Volunteers sign up to be “Orb operators” in their locality and receive basic training and a biometric device with which to scan irises. Orb operators can even rent out the Orb to others to let them scan eyeballs as well. Those who have their irises scanned and collect a World ID can use this to claim the WLD crypto, which they may use for transactions or hold on to the asset in the hope that its price might rise, as it did after launching. However, users can also buy or sell WLD without getting scanned or using the app. In return for signing up more people to the Worldcoin network, Orb operators get WLD, which is a token based on the Ethereum blockchain. Ethereum has a native coin, Ether, which is the second-largest crypto by market capitalisation. However, anyone can create a token which runs on the Ethereum blockchain. WLD is one such cryptocurrency.

Why does Worldcoin scan irises?

In a company blog post, Worldcoin explained that it wanted to include everyone in its network and that using biometric information to avoid duplication was a valid method for this. The company claimed that India had “proven the effectiveness of biometrics” through its Aadhaar system. Worldcoin notes that Aadhaar IDs stopped people from signing up multiple times to benefit from social welfare schemes.

The company said on its official Twitter account that it uses a technology known as zero-knowledge proofs (ZKPs) to maintain users’ privacy. Worldcoin has also said it is fully compliant with Europe’s General Data Protection Regulation (GDPR).

“Individuals who want to receive a World ID are not required to share their name, phone number, email address, or home address. Images collected by the Orb are used to generate a unique iris code. By default these images are immediately deleted once the iris code is created, unless the user opts in to Data Custody,” said Worldcoin on its website.

Was Worldcoin criticised?

Worldcoin was criticised long before its re-launch. NSA whistleblower Edward Snowden pointed out that even if a person’s biometric scans were deleted for privacy reasons — as Worldcoin said



it would do — the unique identifier for the scan would match future scans of the same person's eyes.

Has Worldcoin come to India?

According to the company website, it has. Worldcoin lists 18 locations, largely in Delhi, Noida, and Bangalore, where Orb operators are scanning people's eyes. Some locations include popular malls and metro stations in these cities.

FIGURING OUT THE SOUTH KOREA SUPERCONDUCTOR PAPERS

A South Korean group has said that it has observed room-temperature and ambient pressure superconductivity in a material called an apatite. The report has caught the community of condensed-matter physicists by storm: the quest for a material with these properties is a holy grail of physics

This is the name that a group of South Korean scientists named Sukbae Lee, Ji-Hoon Kim, and Young-Wan Kwon have conferred to a material that is – they recently reported – a superconductor at room temperature and pressure (in preprint papers). The material is a copper-doped lead apatite, a type of phosphate mineral.

While the labels 'L' and K can commonsensically be traced to the initials of the three scientists, the number 99 continues to be a bit of a puzzle (although some have associated it with the year of its discovery).

Nonetheless, the significance of christening this claimed novel apparently-superconducting material after themselves cannot be lost. If indeed independent scientists are able to confirm that LK-99 is an ambient-condition superconductor, the scientists will have etched their names in history in more than just the material's moniker.

Why the quest?

The scientists' claim has unsurprisingly caught the community of physicists by storm. We are taught as early as middle school that an electric current carried by a metal wire suffers losses owing to the wire's electrical resistance. Indeed, a significant amount of electricity generated in power plants is lost in transmission for this reason. What if we could make materials that would offer no resistance to current flow?

Scientists discovered such materials more than a century ago. They found that elemental mercury, a liquid metal at ambient conditions, becomes a superconductor at an unimaginably cold temperature of -268 degrees Celsius. Years of painstaking research revealed that superconductivity is a rather common phenomenon in metals if they can be cooled down to similar temperatures.

In fact, in the late 1970s, scientists believed that we can't have a superconductor at more than -240 degrees Celsius, which is well below the liquefaction temperature of nitrogen, -195 degrees Celsius.

At the same time, it became clear that superconductors aren't just perfect conductors of electricity – they also have many other exotic properties, as a result of their unique quantum nature. Physicists are currently using these exotic properties to help build, among other things, quantum computers and other sophisticated devices that could change the course of human evolution.



Against this background, the paramount importance of discovering a material that is a superconductor in ambient conditions should be evident.

What did tests of LK-99 reveal?

The South Korean group's new work occurred in a rather unexpected material called an apatite. Apatites are minerals that have a phosphate scaffold with a tetrahedral, or pyramidal, motif: one phosphorus atom is surrounded by four oxygen atoms. Other atoms can sit in between these pyramids; different apatites have different properties based on which atoms these are. A mineral called hydroxyapatite contributes to the strength of tooth enamel and the bones of living organisms.

The novelty of the Korean group's work is to start with lead apatite, obtained by filling the space between the phosphate pyramids with lead and oxygen ions. Then, some of the lead atoms are replaced with those of copper. This process is called a *substitution*.

The group reported that at 10% copper substitution, the wonder material LK-99 arises: copper-substituted lead apatite. The group subjected this material to a variety of tests and claimed that it has essentially zero resistance to the flow of an electric current.

When the scientists increased the amount of current beyond a threshold value, called the *critical current*, a resistance to current flow suddenly appears – which is just as expected in a superconductor.

We also know that an external magnetic field is detrimental to superconductivity. The investigators found that in the presence of a magnetic field, the material continues to be a superconductor until the field strength crosses a critical threshold – another positive sign.

Crucially, the dependence of the critical current and the critical magnetic field was found to be qualitatively consistent with the known behaviour of superconductors. The group also reported heat capacity data – i.e. the amount of energy required to raise the temperature of the material by 1 centigrade per gram – but this was less convincing.

Why are copper oxides of interest?

In 1986, superconductivity physics witnessed a revolution when scientists found that some copper oxide materials became superconducting at above -240 degrees Celsius. Then again, despite the best efforts of a generation of scientists, the maximum temperature achieved in this system wouldn't exceed -100 degrees Celsius, that too under an immense pressure.

More recently, scientists have synthesised sulphide and hydride materials that become superconductors at near room temperatures but under extreme pressure, such as that found at the centre of earth, which is achievable only in laboratory conditions.

Because of the lucre of a room-temperature superconductor, the field hasn't been without controversy either. Some recent claims of superconductivity in a hydride material didn't withstand scrutiny. The holy grail of an ambient condition superconductor has thus remained one of the most elusive and coveted prizes of the field. The South Korean group's claim, if proved true, will therefore be ground-breaking.

Indeed, the wider scientific community has responded in a subdued and cautious way, owing in part to these and other controversies.



Are there problems in the new work?

Some of the data related to LK-99's magnetic properties in the two papers appear to have some technical errors. Independent scientists have also called the data in some places "a bit sloppy" and "a bit fishy". Then again, these views haven't dampened interest in the material.

In the second paper by the same group (including more authors who contributed to the work), the researchers have provided instructions on preparing the material. Many research groups around the world will attempt to reproduce these results; there are already some rumours that independent scientists have done so. We will have to wait for the results of their studies. At least one group in India, at the CSIR-National Physical Laboratory, New Delhi, attempted to replicate the findings and failed. Their findings were uploaded as a preprint paper on July 31.

There are signs that all is not well among the group members that have claimed such a momentous discovery. For example, the third author of the first paper is not among the authors of the second paper.

The first paper has also come under criticism because it appears as if it was written in a hurry. Some have speculated that the number of its authors was limited to three because that's how many people can receive a Nobel Prize at a time.

All this said, Drs. Lee, Kim, and Kwon themselves seem to have no doubts about their work, if we go by their paper's words: "We believe that our new development will be a brand-new historical event that opens a new era for humankind". Will copper-substituted lead apatite be a hit, or will it come a cropper? Time will tell.

TASTELESS BOILED WATER

Q: Why does boiling water remove its taste?

A: Naturally occurring water contains quite a few substances dissolved in it. For example, it contains gases such as oxygen and carbon dioxide, sulphates and carbonates of calcium and magnesium, and other elements such as iron – all depending on the nature of the soil. These constituents impart not only taste but also hardness (i.e. higher mineral concentration) to the water. When water is boiled, the dissolved gases are released and the water's hardness is also taken away. The process also forms carbonates and hydroxides, which are insoluble, and they are deposited on the surfaces and the bottom of the vessel holding the water as a scaly coating. The separation of these substances from the water deprives it of its familiar taste.

BEWARE THE HORRIPILATION!

Have you ever felt the hair on your arms stand up on a chilly evening or felt shivers run down your spine while watching a scary movie? The colloquial name for this phenomenon is goosebumps. In scientific parlance, this is horripilation.

Characterised by small bumps that develop on a person's skin, underneath the hair follicles, horripilation is an involuntary reaction to cold weather. It has also been recorded in animals, such as when a cat raises its hackles. It is controlled by the sympathetic nervous system. Specifically, horripilation happens when the brain sends signals to tiny muscles called arrector pili in hair follicles causing them to contract. This is what makes the hair stand upright.



The most common cause of horripilation is cold air near the skin. But researchers have also documented intense emotions, such as fear, shock, anxiety, love, sexual desire and inspiration, as also having the same effect.

In most cases, horripilation is temporary. But if it persists, it could be a sign of a medical condition, such as keratosis pilaris. Its symptoms include lumps that feel rough and dry and mimic goosebumps. These lumps are dead skin cells; they appear on the cheeks, bottom and front of the thighs, and the upper arms. They go away on their own or can be made to with the help of dermatological creams.

CAN WE CAPTURE CARBON AND STORE IT: EFFORTS, CHALLENGES

Carbon capture technology is needed to clean up industries like cement and chemicals — but today it is mainly used to suck more oil out of the ground.

A key tool to stop climate change is costly and has for decades not worked as well as fossil fuel companies said it would.

Experts say carbon capture and storage — a way to grab a planet-heating gas and lock it underground — is sorely needed to cut pollution in sectors where other clean technologies are farther behind.

There are cases where capturing carbon makes a lot of sense — but we also need to push all the options to avoid CO₂ in the first place, said Georg Kobiela, an expert in cleaning up industry at the environmental nonprofit Germanwatch. “Some applications can be just a fig leaf for keeping fossil fuel business models alive.”

What is carbon capture and storage?

Carbon capture and storage (CCS) is a way to catch carbon and trap it beneath the earth. It is different to carbon dioxide removal (CDR) — where carbon is sucked out of the atmosphere — although some of the technologies overlap. The key difference is that CDR brings down the level of carbon dioxide in the atmosphere, cooling the planet, while CCS in fossil fuel plants and factories prevents the gas from getting out in the first place.

In its latest review of scientific research, the Intergovernmental Panel on Climate Change (IPCC) found both options will be needed for emissions that are hard to wipe out. For chemical processes that release carbon dioxide, there are few alternatives to capturing CO₂ straight away or sucking it out of the air later. Scientists see a big role for CCS in factories that make cement and fertiliser, as well as in plants that burn rubbish. They are split on whether it makes sense to use it to make steel and hydrogen, which have some greener alternatives.

Most of their scepticism goes to capturing carbon when making electricity, because there are already cheaper alternatives that work better, like wind turbines and solar panels. In theory, it could play a role in gas plants as a back-up when the sun doesn't shine and wind doesn't blow — particularly in countries that are still building fossil fuel plants today — but it would have to quickly grow cheaper and more effective.

Climate models show a role for some oil and gas outside the rich world, said Margriet Kuijper, a former engineer with oil giant Shell who works as a consultant for environmental groups. Still, she said, “I agree with people that say we can probably get away with mainly renewables.”



How well does CCS work?

For decades, engineers have captured carbon from concentrated streams of gas — pushing it into tanks, scrubbing it clean and using it in industry or storing it underground. Some bioethanol plants, where the gas stream is pure, already report capturing more than 95% of the carbon emissions.

But when it comes to capturing carbon from dirtier gas streams, like those from factories and power plants, CCS projects have repeatedly overpromised and underdelivered.

“You need to use some kind of chemical to grab that CO₂ from everything else,” said Julia Attwood, head of sustainable materials at clean energy research firm BloombergNEF. “That technology, I would say, has been successfully demonstrated — but it hasn’t been fully commercialised at scale.”

While a handful of test facilities have managed to capture more than 90% of emissions from some dirty gas streams, commercial projects have been plagued with problems. Some have broken down or not been made to run all the time. Others have been designed to capture only a fraction of the total emissions.

Still, experts see the failures of CCS more as an economic problem than a technical one. They say companies have little incentive to capture their pollution. “This is existing engineering — but we have to start spending money, building things and breaking them until they work,” said Chris Bataille, a lead author of the latest IPCC report. “It can be done but it’s not cheap.”

AFTER MORE THAN 75 YEARS OF RESEARCH, SCIENTISTS HAVE FINALLY IDENTIFIED THE EARTH’S OLDEST ANIMAL

With the help of fat molecules, scientists have now solved a mystery that had baffled and puzzled the community for long – identifying an ancient creature as one of the earliest animals on the planet. It has taken more than 75 years for researchers to classify the Dickinsonia, a jellyfish-like creature that inhabited our planet many million years ago.

The challenge the scientists were faced with lied in determining what exactly Dickinsonia was – fungi, protists or animals.

An international team of researchers has now been able to pull out striking evidence that Dickinsonia were indeed early animals. They used modern chemistry to confirm their findings and published their work in the journal Science.

What did the Dickinsonia look like?

According to the National Geographic, the description of a Dickinsonia fits a flat, squishy, oval-shaped being with multiple rib-like segments that could grow to over four feet long.

Thought to be the first complex multicellular organisms on Earth, Dickinsonia belonged to a group of life forms Ediacaran biota, that are now extinct.

How long ago did Dickinsonia inhabit the planet?

Dickinsonia emerged in warm, shallow seas somewhat 570 million years back. That dates back to much before the famous Cambrian explosion 540 million years ago – a period that marked an



abundance of new and diverse life forms like mollusks, worms, and sponges, within a very short period of time.

How did fat molecules help the study?

It was found in the new study that the Dickinsonia fossils contained significant levels of cholesterol – a hallmark of animal life. It is an important finding because it confirms that animals were large and abundant on Earth millions of years earlier than previously thought, according to Jochen Brocks, one of the authors of the study.

“The fossil fat now confirms Dickinsonia as the oldest known animal fossil, solving a decades-old mystery that has been the Holy Grail of palaeontology,” Brocks said.

Where were the fossils found?

Most of the rocks containing Dickinsonia fossils near Bobrovskiy’s university in Australia had to bear the brunt of natural heat, pressure, and weathering over many, many years. So, the team of researchers had to travel to a remote area in northwest Russia to hunt for the fossils needed to confirm the study.

“I took a helicopter to reach this very remote part of the world – home to bears and mosquitoes – where I could find Dickinsonia fossils with the organic matter still intact,” Bobrovskiy said.

But what really is the point of finding out about these jelly-fish like creatures? “It is essential if we want to understand the emergence and evolution of our own earliest ancestors”, Bobrovskiy explained.

46,000-YEAR-OLD WORMS BROUGHT BACK TO LIFE FROM SIBERIAN PERMAFROST

Scientists discovered and reanimated two kinds of frozen microscopic nematodes or roundworms in Siberia five years ago. A new study on them published Thursday reveals their secrets, including the fact that they are 46,000 years old and one of them is an entirely new species that has never before been discovered.

Many animals like nematodes, and more famously, tardigrades, can survive extreme conditions by entering a dormant state called “cryptobiosis.” The worms found by the scientist were taken from a fossilised burrow in silt deposits in the northeastern Arctic. Based on analysis of the plant material from this burrow, the study published in the journal PLOS Genetics says that these worms were frozen since the late Pleistocene era between 45,839 and 47,769 years ago.

“The radiocarbon dating is absolutely precise, and we now know that they really survived 46,000 years,” study co-author Teymuraz Kurzchalia told Scientific American. Kurzchalia is a cell biologist emeritus at the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden.

The researchers used genome sequencing, assembling and phylogenetic analysis of the worms’ relationship to modern species and discovered that it belongs to a previously unknown species—*Panagrolaimus kolymaensis*.

Kurzchalia explained to CNN that organisms in a cryptobiotic state can survive the complete absence of water and oxygen and withstand other extreme conditions including heat and cold in a “state between life and death.” According to him, “one can halt life and then start it from the beginning.”



They also tested the hardiness of the ancient worms by mildly drying them in the laboratory. When they did that, the worms produced a sugar called trehalose, which might help them survive harsh desiccation (drying) and freezing. Of course, the original worms, which have a lifespan of a few weeks, are long dead. Continuing experiments are performed on their descendants that came about through asexual reproduction.

The study increases the longest documented cryptobiosis period in nematodes by tens of thousands of years. With this ability to stay alive in extreme conditions in a dormant state, the worms can continue to survive for tens of thousands of years, and maybe more.

There is also a practical reason to study the impressive capabilities of the diminutive worms. “We need to know how species adapted to the extreme through evolution to maybe help species alive today and humans as well,” said study co-author Philipp Schiffer to the Washington Post. Schiffer is group leader at the Institute for Zoology at the University of Cologne.

Research like this can show how animals can adapt to habitat change caused by climate change at a molecular level and survive despite changing weather patterns. The researchers are now working to understand how long an organism can survive and be resurrected. It also raises the question of what it means for evolution and even the notion of extinction if animals that typically live for a few weeks can stretch out their lifespan by thousands of years, according to the Post.

NEWLY-DISCOVERED EXTINCT WHALE MAY HAVE BEEN THE HEAVIEST ANIMAL EVER

Blue whales, the giants of the ocean, are known to measure as long as 29.9 metres and weigh as much as 180,000 kilograms—which is about the same as 36 of the heaviest Indian elephants you can find. But it may no longer be the heaviest animal that ever lived. There is a new contender for that post—*Perucetus colossus*.

Based on a newly-described fossil of the whale *Perucetus colossus* dating to more than 38 million years ago, scientists believe that it may have been heavier than a blue whale even though it may not have been as long, according to Nature. 13 vertebrae, 4 ribs and a bit of a pelvis of the gigantic sea creature were discovered in Peru. Researchers guess that the species weighed between 85 and a simply massive 340 tonnes.

The animal’s bones had an unusually large volume and were also extremely dense, according to Reuters. This combination of thickening and densification of bones is called pachyosteosclerosis. The characteristic is absent in living whales, dolphins and porpoise. But it is present in sirenians, a marine mammal group that includes sea cows. The animal has been described in an article published in the journal Nature.

Whales that dive deep typically have the ability to completely empty their lungs to plummet into the depths of the ocean but *P. colossus* probably lived in shallow coastal areas. This would mean that it probably dived with air in its lungs. But diving with air in the lungs would make it quite difficult to stay near the seafloor—that is where the very heavy bones come in. The skeletal mass of *P. colossus* would have been between five and eight tons, which is twice that of the blue whale.

“Its fat, bloated body may have been more like that of a sirenian than of any living whale. Among sirenians, due to its giant size and probable similar lifestyle, it could recall Steller’s sea cow, discovered in 1741 and exterminated by humans a few years later,” Giovanni Bianucci, lead author of the study, to Reuters. Bianucci is a palaeontologist at the University of Pisa in Italy.



THE CURIOUS CASE OF RISING LACTOSE INTOLERANCE

Having to rush to the toilet in the middle of a movie, with a tummy that is producing audible, rumbling sounds can be an embarrassing experience.

Doctors do not consider lactose intolerance to be a disorder. They describe it as the digestive system's reaction to milk sugar (lactose) which it cannot digest. The body needs an enzyme called lactase which is produced by the cells lining the small intestine, to digest lactose. If one is deficient in lactase, the undigested lactose passes on to the colon, where it produces extra gas and water, resulting in bloating, cramps and diarrhoea. Lactose intolerance thus produces symptoms which can be uncomfortable, but it is never dangerous.

Extremely common

"Lactose intolerance is so common that except for the 1-2% people who might experience serious bloating and cramps and nausea immediately after consuming dairy, almost every adult has lactose intolerance in various degrees. The degree of intolerance depends on the amount of lactose their system can tolerate, that's all," says C. P. Lakshmi, senior consultant medical gastroenterologist, Gastro Care, Thiruvananthapuram.

As one ages, there is a normal decline in the amount of lactase that the small intestine produces. This is one of the reasons why lactose intolerance might seem to be creeping up on one during adulthood and beyond, leaving one wondering why she can no longer find joy in that milkshake like she used to before.

That said, lactose intolerance seems to be a very subjective term that people use to describe the general digestive issues or symptoms— acidity, burping, gassiness — they feel whenever they consume dairy products. Lactose intolerance is a specific digestive issue associated with the consumption of dairy products and ceases to be a problem when the person totally avoids or restricts milk products in the diet. But its symptoms can easily overlap with another common and chronic gastric disorders such as IBS, the pathogenesis of which is quite different.

The confusion — as in the case of Mr. Jayamohan — happens because for many people with IBS, dairy products are often one among the many triggers that produce gastric symptoms.

It is thus possible to have both lactose intolerance and IBS together, though each are distinct entities.

Varies by ethnicity

According to literature, estimates for lactose intolerance vary by ethnicity.

The prevalence rate is 75-95% in African American and Asian ethnicities while it is estimated to be 18-26% amongst Europeans.

Lactose intolerance does run in families and the symptoms can become evident during childhood or adolescence, even though in most cases, people seem to complain of lactose intolerance much later in adulthood.

"If you are lactose intolerant, you will develop symptoms within 30 minutes to two hours of consuming dairy products. After a couple of episodes, people generally observe and understand the pattern and come to the conclusion that dairy does not seem to agree with them. But a majority



of those with lactose intolerance are still able to consume small amounts of milk products. It is when they go over their personal lactose threshold that they develop digestive symptoms,” says Dr. Lakshmi.

Though there are specific tests like the hydrogen breath test to determine lactose intolerance, these tests do not have much use in clinical practice.

People are told to stay away from all dairy products for two weeks and then gradually re-introduce dairy into the diet to see how their body reacts.

Manoj (name changed), a medical oncologist in north Kerala, says that he has experienced lactose intolerance symptoms for the past five years, which he had put down to IBS.

“This is a condition that is generally self-diagnosed and self-managed. The usual tests for detecting lactose intolerance are not available here or are expensive but clinical diagnosis seems to suffice. The solution is as simple as avoiding or restricting dairy and people manage very well,” Dr. Manoj says.

It is possible to develop secondary lactose intolerance all of a sudden following surgery or chemotherapy or if one has an infection, ulcerative colitis or Crohn’s disease which affects the small intestine. But this usually goes away once the small intestine regains health.

Intolerance distinct from allergy

Dr. Manoj says that while lactose intolerance is quite common among Asians — over 50% of the Indians are deficient in lactase — it is very easy to misdiagnose this condition, especially amongst the elderly.

“In the elderly, some malignancies like colon cancer can present themselves in the initial stages with atypical symptoms similar to that of the symptoms of lactose intolerance. We might end up running an entire battery of tests to rule out malignancies before concluding that it could be a case of lactose intolerance,” he says. Doctors also caution that lactose intolerance is quite distinct from an allergy to milk.

Lactose intolerance is the digestive system’s response to the milk sugar (lactose), whereas in the event of a milk allergy, the entire immune system will react against the milk protein. The reaction is often immediate and severe in the case of milk allergy, while lactose intolerance will never lead to any serious disease or long-term complications.

Dieticians say that while milk is an important source of nourishment for children, milk is never the primary source of nutrition for adults.

“For persons with lactose intolerance who love to consume milk, there are options such as plant-based milk (soy/almond milk) or lactose-free milk. There are plenty of other food sources — yoghurt, tofu, nuts, spinach, broccoli, orange, lentils and legumes — that a lactose-intolerant person can depend on for calcium supplementation. So you won’t be missing much,” says Lekshmi Manish, a nutritionist.

CELL-FREE DNA PROMISES TO TRANSFORM HOW WE FIND DISEASES IN ADVANCE

In the human body, most of the DNA in a genome is neatly packed inside cells with the help of specific proteins, protecting it from being degraded. However, in a variety of scenarios, some



fragments of DNA are 'released' from their containers and are present outside the cell, in body fluids. These small fragments of nucleic acids are widely known as cell-free DNA (cfDNA).

Scientists have been aware of such degraded fragments of nucleic acids in body fluids since 1948. But only in the last two decades or so, since genome sequencing technologies started to become more accessible, have they really figured out what to do with that knowledge.

A useful tool

cfDNA can be generated and released from a cell in a number of possible situations, including when a cell is dying and the nucleic acids become degraded. Since an array of processes modulates the degradation, the amount, size, and source of the cfDNA can vary across a range as well.

In addition, the release of cfDNA could occur together with a variety of processes, including those required for normal development, those related to the development of certain cancers, and those associated with several other diseases. One of the initial reports of the levels of cfDNA in diseases came from studies that were taking a closer look at an autoimmune disease: systemic lupus erythematosus – where the body's own immune system attacks specific cells.

So it is not surprising that researchers around the world are increasingly finding cfDNA to be a useful tool to understand human diseases and to use the knowledge to improve diagnosis, monitoring, and prognosis.

Checking the baby

By far, one of the most widely used applications of cfDNA has been in screening fetuses for specific chromosomal abnormalities, an application known as non-invasive prenatal testing. The application stems from one of the first reports of cfDNA in pregnancies, published in *The Lancet* in August 1997. The availability of affordable genome-sequencing approaches will allow clinicians to sequence cfDNA fragments that correspond to foetal DNA. They can then use it to understand specific chromosomal abnormalities that involve changes in the chromosomal copy number. Such changes can lead to conditions such as Down's syndrome, which is due to a change in chromosome 21 (there are three copies of chromosome 21 in place of two, so it is also called trisomy 21).

As a result, thanks to a cfDNA-based technique, clinicians can now screen mothers from a few millilitres of blood, obtained after nine or ten weeks of pregnancy, to ensure the developing foetus is devoid of such chromosomal abnormalities.

The test is almost 99% accurate for trisomy 21 or Down's syndrome and a bit less so for other common trisomies (of chromosomes 13 and 18).

Screening for such abnormalities before the genome-sequencing era would have entailed inserting a fine needle into the body to retrieve the amniotic fluid and cells covering the developing foetus, and analysing them in the lab. This method carries risks to both the foetus and the mother.

It is, therefore, not surprising that the cfDNA-based approach has now become the mainstay for screening high-risk pregnancies.

That said, the test is not without its limitations – which means a positive test result on a cfDNA test should always be followed up with a confirmation test.



Catching a cancer

Another emerging application of cfDNA is in the early detection, diagnosis, and treatment of cancers.

Last month, researchers at the Johns Hopkins Kimmel Cancer Centre, Maryland, reported developing a new test they have dubbed 'Genome-wide Mutational Incidence for Non-Invasive detection of cancer', or 'GEMINI'. They adopted a whole-genome-sequencing approach to cfDNA extracted from patients.

Specifically, the researchers examined a type of genetic mutation that, when combined with machine-learning approaches, could provide a way to detect cancer early. Using a particular machine-learning model, some genomic data, and data from a computed tomography (CT) scan, the researchers could successfully detect lung cancer – including those with early stage disease – in more than the 90% of the 89 people they studied.

The team also found that it could replicate the findings using cfDNA derived from a prospective observational cohort of over 300 individuals who were at high risk of developing lung cancer. They found that combining the new approach with the existing approaches could significantly enhance their ability to detect cancers early.

The researchers also identified seven individuals who did not have cancer but had a high chance of developing it – and subsequently did so 231 to 1,868 days after the initial test.

The team's findings were published in the journal *Nature Genetics*.

Almost infinite applications

There are a number of emerging applications of cfDNA, including in understanding why a body is rejecting a transplanted organ. Here, some cfDNA obtained from the donor of the organ – called donor-derived cfDNA, dd-cfDNA – could provide an early yet accurate estimate of how well the organ is being taken up. This is an attractive proposition because changes in the levels of cfDNA in the blood would precede any biochemical or molecular markers that researchers currently use as a proxy for organ acceptance. That is, the cfDNA could send a signal earlier than other markers if something is going to go wrong.

Indeed, cfDNA seems to have an almost infinite number of applications, especially as nucleic-acid sequencing becomes rapidly democratised and finds more applications of its own in clinical settings. There have already been some reports suggesting that cfDNA could be used as a biomarker for neurological disorders like Alzheimer's disease, neuronal tumours, stroke, traumatic brain injury, and even metabolic disorders such as type-2 diabetes and non-alcoholic fatty liver disease.

In a true sense, cfDNA genomics promises to set us on the path of more effective disease-screening and early diagnosis, and on course for a healthy world.

LACKS FAMILY SETTLES CASE OVER USE OF HELA CELLS WITHOUT NOD

More than 70 years after doctors at Johns Hopkins Hospital took Henrietta Lacks' cervical cells without her knowledge, a lawyer for her descendants said they have reached a settlement with a biotechnology company that they accused of reaping billions of dollars from a racist medical system.



Tissue taken from the Black woman's tumour before she died of cervical cancer became the first human cells to continuously grow and reproduce in lab dishes. HeLa cells went on to become a cornerstone of modern medicine, enabling countless scientific and medical innovations, including the development of the polio vaccine, genetic mapping and even COVID-19 vaccines.

Despite that incalculable impact, the Lacks family had never been compensated.

Lacks' cells were harvested in 1951, when it was not illegal to do so without a patient's permission. But lawyers for her family argued that Thermo Fisher Scientific Inc., of Massachusetts, continued to commercialise the results after the origins of the HeLa cell line became well known.

The family filed its lawsuit in 2021.

The settlement came after closed-door negotiations that lasted all day on July 31 inside the federal courthouse in Baltimore. Some of Lacks' grandchildren were among those who attended the talks.

Attorney Ben Crump, who represents the family, announced the settlement late Monday and said the terms are confidential.

In a joint statement, Thermo Fisher representatives and attorneys for the Lacks family said they were pleased to resolve the matter and declined to comment further.

A poor tobacco farmer from southern Virginia, Lacks got married and moved with her husband to Turner Station, a historically Black community outside Baltimore. They were raising five children when doctors discovered a tumour in Lacks' cervix and saved a sample of her cancer cells collected during a biopsy. Lacks died at age 31 in Johns Hopkins Hospital.

While most cell samples died shortly after being removed from the body, her cells survived and thrived in laboratories. They became known as the first immortalised human cell line because scientists could cultivate them indefinitely, meaning researchers anywhere could reproduce studies using identical cells.

The remarkable science involved — and the impact on the Lacks family, some of whom had chronic illnesses and no health insurance — were documented in a bestselling book by Rebecca Skloot, *The Immortal Life of Henrietta Lacks*, which was published in 2010. Oprah Winfrey portrayed her daughter in a movie about the story.

Johns Hopkins said it never sold or profited from the cell lines, but many companies have patented ways of using them.

THREAT OF DENGUE FEVER ESCALATES GLOBALLY

Dengue fever, caused by the dengue virus (DENV), is a highly prevalent infectious disease estimated to be infecting over 400 million people each year as per the WHO. DENV is an RNA virus of the Flaviviridae family with four serotypes (DENV-1 to 4). Infection with one serotype provides lifelong immunity to that type, but subsequent infections with different serotypes can lead to severe, life-threatening forms of the disease.

There is no specific antiviral treatment for dengue, so prevention relies on controlling mosquito populations and raising public awareness. Despite global efforts, dengue cases continue to rise, with millions reported annually worldwide.



Outbreaks in 2023

Since the beginning of 2023, several regions in America have witnessed significant dengue outbreaks, reporting over two million cases till July, with Brazil, Peru, and Bolivia having recorded the highest number of cases this year. Although cases have been reported across all subregions of the Americas, a majority of cases stem from the Southern Cone, encompassing countries such as Argentina, Brazil, Chile, Uruguay, and Paraguay. Several countries in the Americas have reported a co-circulation of all four DENV serotypes, thus presenting several challenges for public health authorities in controlling and managing the outbreaks. Changing climatic conditions in Europe, such as increased heat waves, floods, and prolonged hot summers, have created favorable environments for dengue-causing mosquito species. The European Centre for Disease Prevention and Control (ECDC) has warned of an increase in DENV infections across the region. In 2022, Europe saw a significant rise in locally acquired dengue cases.

This month, there was an outbreak of dengue fever reported in Egypt's Qena province after several positive cases. Prior to this, Sudan recorded its first-ever dengue case in February, even though it is not considered endemic in the Middle East due to unfavorable climate conditions. While the Middle East has experienced some outbreaks, they have been relatively small in scale compared to countries in Asia.

Dengue cases have soared in India, mostly due to heavy rains and inadequate control measures, which create the ideal breeding environment for mosquitoes. States like Kerala, Odisha, Assam, Tamil Nadu, Maharashtra, West Bengal, and Karnataka are reporting large numbers of dengue cases. The recent surge in dengue cases worldwide including India demands immediate attention and action. While public health measures are being implemented to control the spread of the disease, individual awareness and responsibility play a crucial role in curbing dengue transmission. Recently, Takeda released the first vaccine for the disease, which has been approved in a few countries. The vaccine has modest efficacy in preventing severe disease but still has much ground to cover in terms of preventing infection, providing uniform protection against all serotypes, and ensuring long-term immunity.

Continued research and collaboration, including genomic surveillance of the virus, are essential to understanding the evolution and adaptation of the virus, developing effective strategies to combat dengue and other mosquito-borne diseases and safeguarding global health and well-being.

SINGLE PILL STRATEGY TO BEAT CARDIOVASCULAR DISEASES

Last week, in a major policy change, the World Health Organization included three fixed dose combinations of cardiovascular medicines or polypills on its revised Model Lists of Essential Medicines 2023 for use in primary and secondary prevention of atherosclerotic cardiovascular diseases.

The WHO Expert Committee on selection and use of essential medicines noted the evidence from large randomised-controlled trials that the use of the polypill is associated with reduced risks of cardiovascular events, including fatal and non-fatal myocardial infarction and stroke, and the need for revascularisation in primary and secondary prevention settings.

For Salim Yusuf, a cardiologist and researcher at McMaster University, Canada, and a Keralite, this endorsement from the WHO is the culmination of the two decades or more that he spent on



building clinical evidence that polypills are a safe and effective strategy to reduce the risk of heart attacks and strokes.

Studying since 2005

This four-drug combination (simvastatin + ramipril + atenolol + hydrochlorothiazide), along with acetylsalicylic acid or aspirin, is what Dr. Yusuf and his co-researchers from India had been studying since 2005.

The polypill is not a new drug but a drug delivery mechanism, which improves medication adherence (because it is a single pill) and saves money by preventing hospitalisations.

WHAT DOES ASPARTAME BEING 'POSSIBLY CARCINOGENIC' MEAN?

While aspartame has been classified as a 'possible carcinogen', it is still safe to be used as a food additive in various products in reasonable quantities. But taking all the available evidence together, ultra-processed and processed foods are not good for health and well-being.

The World Health Organization (WHO) recently declared aspartame, an artificial sweetener used in the food industry, as a possible carcinogen. Substances that potentially cause cancer are called carcinogens.

Aspartame is present in a wide range of food products – sugar-free diet soda, ice tea, ice cream, low fat yoghurt, cereals, and medicines such as chewable vitamins. In fact, it is quite difficult to avoid consuming at least some amount of aspartame in our diet.

The expert committee

The report in which aspartame was evaluated – and several such declarations that christen a substance as being carcinogenic – are authored by a committee of experts under the authority of the International Agency for Research on Cancer (IARC).

The agency, headquartered in Lyon, France, was established under the WHO in 1965 with a mandate to study the causes of cancer. To date, the IARC has assessed more than a thousand substances or putative risk factors for their roles in carcinogenesis.

The expert committee

In order to create a common reference point for the recommendations that arise from the deliberations of the expert working committees, the IARC uses a grading system.

Grade 1 substances are factors known to cause cancer in humans, with sufficient evidence supporting their carcinogenicity. This category includes smoking, asbestos, and processed meats, all of which have been linked to a higher cancer hazard.

Grade 2 substances, or exposures, are classified as being probably or possibly carcinogenic to humans. Within Grade 2, there are two subcategories. '2A' includes agents that are probably carcinogenic in humans, supported by ample evidence of carcinogenicity in experimental animals but limited data regarding humans. Red meats, DDT pesticide, and night-shift work fall into the 2A category.

On the other hand, '2B' includes agents that are possibly carcinogenic in humans but for which there is insufficient evidence of carcinogenicity in animals and limited or inadequate evidence in

humans. For example, cell phone radiation and occupational exposure as a hairdresser falls under 2B.

A Grade 3 recommendation is assigned to agents that can't be classified as carcinogenic due to limited or inadequate data, even in experiments. Coffee, mercury, and paracetamol are examples of agents in this category.



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