



CURRENT AFFAIRS for UPSC

18TH TO 24TH JUNE 2023

DREAMIAS



INTERNATIONAL

A WELCOME STEP

The United States and China this week took a much-needed step towards repairing their relations as Antony Blinken visited Beijing, the first visit by a U.S. Secretary of State since 2018. The main takeaway from the visit, during which he met with Chinese President Xi Jinping, was their agreeing on the need for stability in ties. Mr. Xi told Mr. Blinken that the international community was “concerned” about the current state of relations and “does not want to see conflict or confrontation”. Mr. Blinken said following the talks that “both agree on the need to stabilise our relationship”. Differences, no doubt, remain, and the visit expectedly did not yield breakthroughs on contentious issues such as U.S. export curbs or Taiwan. But the very fact that Mr. Xi met with the visiting U.S. diplomat was a clear sign of progress given the cancellation of Mr. Blinken’s visit in February and the rancour that followed the shooting down of the Chinese “spy balloon” over the U.S. As Mr. Blinken put it, the objective was to “strengthen high-level challenges of communication, to make clear our positions and intentions in areas of disagreement” and to explore areas where both “might work together ... on shared transnational challenges”. Asked in Beijing how the Biden administration will continue with its attempt to fix relations with China as the domestic discourse likely worsens in the lead up to the 2024 elections, he argued that continued engagement was the best avenue to protect U.S. interests, including on trade.

The challenge now is whether they can sustain this effort at arresting the slide and keep diplomatic channels open, even when the next crisis inevitably emerges and against the backdrop of increasingly heated domestic political rhetoric. As Mr. Xi told Mr. Blinken, countries do not want to “choose sides”. This is especially true in the region, where nations continue to have deep economic linkages with China and close security ties with the U.S. That Beijing and Washington are appearing to agree on the need for stability should be welcomed, including by India. While shared concerns about China may be a binding factor, the India-U.S. relationship today has acquired a deeper and broader scope, which will be affirmed this week during Prime Minister Narendra Modi’s state visit, in new agreements expected in the defence domain and in technology cooperation. In the not-too-distant past, high-level visits from Washington to Beijing may have evoked some unease in New Delhi, particularly during the short-lived “G2” phase during the Obama administration, but that is no longer the case.

EMBEDDED HATE

A report on the findings of a sweeping, two-year investigation by the U.S. Department of Justice (DoJ) into violence and racial discrimination of the police in Minneapolis — where George Floyd, an unarmed African-American was murdered in May 2020 in police custody — found that officers had used excessive force, including “unjustified deadly force”, and violated the rights of people engaged in constitutionally protected speech, particularly discriminating against African-American and Native American people and those with “behavioural health disabilities”. The findings appeared to confirm a raft of citizen complaints about police conduct in Minneapolis in the wake of the Floyd murder, for which crime the officers involved were sentenced to prison terms. The report’s salience is underscored by the outpouring of public anger and protests against racism and violent acts by police on minorities, which erupted across major cities, calling for police reforms. The inquiry not only found numerous examples of excessive force, unlawful discrimination, and First Amendment violations upon review of 19 police shooting incidents but it also noted that there was entrenched racism with regarding to police actions in the context of

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



traffic stops and arrests and callous, violent treatment of some who suffered from mental health conditions. The scathing report concluded that the “systemic problems in MPD made what happened to George Floyd possible”.

The DoJ report is a wake-up call to police institutions, most of which continue with their business-as-usual approach toward dealing with the nuances and social complexities of policing multicultural America. The review of police body-worn camera videos, incident and police reports, and hundreds of complaints filed against officers makes it clear that there is an urgent, glaring need for police reforms that address the most challenging issues of the use of excessive force, racial profiling, bureaucratic-militarisation of police culture, and an institutional lack of accountability for police misconduct. Many U.S. States have attempted transformative change, for example by restricting the use of chokeholds and setting up mechanisms for more effective reporting of use of force details. However, public safety, especially in the context of overzealous, armed, police officers using force against persons of colour and other minorities, will genuinely improve only by “limiting when and why police are called upon in the first place”. American culture’s over-reliance on the police to maintain order in public life has meant that the door has been opened to law enforcement officers responding to minor offences in a racially prejudiced manner, especially when in such instances, public health professionals or other service providers might be better able to address the situation.

SPIRALLING VIOLENCE

An Israeli raid in Jenin with combat helicopters that killed seven Palestinians; a gun attack by two Palestinians at an Israeli settlement in Eli that killed four; and a rampage of an Arab village by Israeli settlers in which one Palestinian was killed and several others injured — the occupied West Bank witnessed a sharp escalation in violence this week that is reminiscent of the waves of attacks and counter-attacks during the second Intifada. As Israel tightens its grip over the West Bank, where Jewish settlements have gradually mushroomed, new, local Palestinian resistance groups such as the Jenin Brigade have emerged, carrying out attacks on Israeli soldiers and settlers using home-made weapons and low-tech bombs. Jenin, in the northern West Bank, has emerged as a hotbed of violent Palestinian resistance. Israel carries out raids in the region almost on a daily basis, causing casualties on the Palestinian side. According to the UN, Israel has killed at least 114 Palestinians, including civilians and militants, this year (as of June 12) in the West Bank, while at least 19 Israelis have fallen to Palestinian attacks. Tuesday’s raid was carried out a day after the Israeli cabinet approved plans to build new settlements in the West Bank. After the Eli attack by Palestinian gunmen, Israeli Prime Minister Benjamin Netanyahu announced plans to build 1,000 new settler homes.

The West Bank has been burning for quite some time. Israel, which has established checkpoints that criss-cross the occupied territories, has managed to prevent, so far, the rise of another organised resistance after the second Intifada even while deepening the occupation. As hopes for a political solution waned, Palestinians began launching isolated, often suicidal, knife attacks against Israeli soldiers (in what some call the ‘knife intifada’). But in the latest phase of violence, local Palestinian groups are carrying out bigger attacks and in retaliation, Israel would rain fire on Palestinian villages and demolish the houses of the attackers, with impunity. The Palestinians are divided, with Fatah controlling the West Bank and Islamist Hamas ruling Gaza. The Arab world, which once supported the Palestinian aspiration for nationhood, is now focused on improving ties with Israel. The U.S. and Europe, who are sending billions of dollars and some of their most advanced weapons to Ukraine to help it fight Russia, hardly raise a voice when Israeli



troops are killing Palestinians in the occupied territories every day. The status quo in the West Bank and Gaza (blockaded by Israel for over a decade) is a recipe for disaster. Unless there are genuine efforts to freeze the Israeli settlements and open a dialogue between the two sides, the cycle of violence will continue endlessly.

MASSACRE OF INNOCENTS

The killing of at least 41 people, including 38 students, in an attack on a school on the Uganda-Congo border by suspected Islamist militants is yet another cruel reminder of the worsening security situation in Africa. In recent years, Islamist and militant violence have picked up across the continent, from North Africa to Somalia, as governments look increasingly weaker. The border region between Uganda and the Democratic Republic of Congo is no stranger to militancy. Ugandan authorities have blamed the Allied Democratic Forces (ADF), an Islamist militant group that largely operates from the Congo, for the attack. According to the police, a group attacked the Lhubiriha secondary school, located just two kilometres from the Congolese border, with machetes and grenades on Friday. Students were hacked, some then kidnapped. The dormitory set on fire and the school looted. In 1998, the ADF had attacked another school on the Congolese border, where some 80 students were burnt to death. The outfit, which declared its allegiance to the Islamic State terrorist entity, in 2016, utilises such attacks for their shock value and to use kidnapped students as child soldiers.

The ADF was formed in the 1990s by a number of militant groups opposed to the rule of Ugandan leader Yoweri Museveni. Founded by a former catholic who had converted to Islam, the ADF's main recruiting plank was that Muslims, who make up some 14% of Uganda's population (official figures), are being discriminated against under Mr. Museveni's rule. After the 1998 school attack, the Ugandan and Congolese armies launched a joint operation, which forced the ADF to relocate to the jungles of eastern DR Congo. The group became active again in recent years as different al Qaeda and Islamic State-linked outfits emerged stronger in Africa, particularly after the North Atlantic Treaty Organization invasion of Libya that brought down the regime of Muammar Qadhafi, caused a civil war and triggered a proliferation of weapons in the hands of militant groups across the continent. The situation in Uganda is particularly grave. Under Mr. Museveni, who has been in power since 1986, the country has never been stable or peaceful. He has presented himself as an ally in the war against terror, while at the same time, turning his regime more repressive at home. In neighbouring Congo, another civil strife-hit country, the vast expanses of lawless eastern parts are a safe haven for militant extremists. Uganda and the Congo say they are committed to fighting militants including the ADF, but those words are written in sand unless the regimes take urgent measures to improve the quality of governance, implement law and order and launch joint operations, with help from international actors, against the growing networks of militants in the region.

EXPRESS VIEW ON ARGENTINA'S INFLATION: CARPE DIEM, BUENOS AIRES

The words "let them eat cake" are finding a new spin in Buenos Aires. The Argentinian capital, one of the most cosmopolitan cities in the world, is seeing a restaurant boom thanks to historic inflation — which has gone over 100 per cent — and a crashing peso.

What portenos (residents of Buenos Aires) are saying, apparently, is that if their money is to have no value tomorrow or the day after, why not spend it on something enjoyable today, that if they can no longer afford to buy a car or go on a vacation, why not splurge on a good meal in one of



Buenos Aires's top-notch restaurants? This consumer sentiment has led to a sharp upswing in the fortunes of the city's restaurants, with the owners of many putting their profits into more new eateries.

If there is any wisdom to be gleaned from this attitude, it is the one about seizing the day. When the Roman poet Horace composed the phrase "carpe diem" over 2,000 years ago, the corollary to his coinage was the understanding that it is far better to trust in the here and now, than in an unknowable future. This is what the people in the Argentinian capital seem to be doing so far. They are trusting that, at a time when interest on savings is lower than inflation, putting their hard-earned pesos into the pleasures of the present — an ojo de bife (classic ribeye steak), considered one of the best in the world, a glass of Malbec from the vineyards of Mendoza — is a far safer bet. Perhaps there will be a price to pay in the future — the poverty rate rose to 39.2 per cent in the second half of 2022 — but until then, as they say in Argentina, buen provecho!

UN OFFICIAL FLAGS 'DEFICIT OF ACCOUNTABILITY' IN SRI LANKA

Referring to the Sri Lankan government's plans to set up a Truth Commission, to probe allegations of war crimes and grave human rights violations during the country's civil war, UN Deputy High Commissioner for Human Rights Nada Al-Nashif noted that Sri Lanka has "witnessed too many ad hoc commissions" in the past that failed to ensure accountability.

"What is needed is a coherent plan that connects the different elements of truth, redress, memorialisation, accountability and creates the right enabling environment for a successful and sustainable transitional justice process," she said, in an oral update to the UN Human Rights Council in Geneva on Wednesday.

While it is fundamentally the Sri Lankan authorities' responsibility to directly acknowledge past violations and undertake credible investigations and prosecutions the international community can — and should — play complementary roles in the process until the "accountability deficit" remains, Ms. Al-Nashif said, amid known resistance within Sri Lanka's Sinhala-majority to any international participation.

Further, pointing to recent arrests of a stand-up comedian and a Tamil legislator, the UN official said the past months witnessed "the old reflex of using draconian laws to curtail opposition and control civic space, with a heavy-handed approach to protests far too often".

Dialogue with parties

While "encouraging" President Ranil Wickremesinghe's dialogue with Tamil political parties, and "welcoming" his promise to stop land acquisition for archaeological, forestry or security purposes, the UN official underscored the need for new laws, policies and practices that will "make good on these promises and bring about tangible changes".



NATION

NEPAL BANS SCREENING OF HINDI MOVIES UNTIL THE DIALOGUE 'JANAKI IS A DAUGHTER OF INDIA' IS REMOVED FROM ADIPURUSH

All Hindi films, including Adipurush, were banned in Nepal on Monday following a controversy over its dialogues, including the mention of Sita as "India's daughter".

According to reports, the screening of Om Raut-directed Adipurush has been halted nationwide, after the movie, a retelling of epic Ramayana, was banned in Kathmandu and Pokhara.

Police personnel were deployed across 17 halls in Kathmandu to ensure that no Hindi film was screened.

Kathmandu Mayor Balendra Shah on Sunday said no Hindi film will be allowed to run in Kathmandu Metropolitan City until the dialogue "Janaki is a daughter of India" in Adipurush is removed not just in Nepal but also in India.

Sita, also referred to as Janaki, is believed by many to have been born in Janakpur in southeast Nepal.

Pokhara Metropolis Mayor Dhanaraj Acharya said Adipurush, starring Prabhas and Kriti Sanon, will be barred from screening from Monday onwards.

According to Kathmandu mayor, screening Adipurush without getting one of its dialogues removed will cause "irreparable damage".

"Screening of all the Hindi films will be barred within Kathmandu Metropolitan City from Monday, June 19, as the objectionable words in the dialogue of the film 'Adipurush' has not yet been removed," he said in a Facebook post on Sunday.

As controversy spiralled, Adipurush dialogue writer Manoj Muntashir Shukla on Sunday said the makers of the movie had decided to "revise some of the dialogues" after the film was criticised heavily for its pedestrian language.

Shukla, who has penned the Hindi dialogues and songs of the multilingual saga, said the amended lines will be added to the film by this week.

Produced by T-Series, Retrophiles, and UV Creations, Adipurush also stars Saif Ali Khan as Lankesh (Ravana), Sunny Singh as Shesh (Lakshman) and Devdutta Nage as Bajrang (Hanuman).

THREE YEARS AFTER GALWAN, DISENGAGEMENT HAS NOT BEEN FOLLOWED BY RESOLUTION

Three years after 20 Indian soldiers were killed in a clash with the Chinese army at Galwan at the Line of Actual Control, the tensions in the relationship arising out of China's incursions in April 2020 are no closer to resolution. The Chinese project then was to make unilateral changes to the LAC. The disengagement by troops at five "friction" points — at Galwan after the deadly clash on June 15, 2020; on the north and south banks of Pangong Lake in February 2021; at Patrolling Point 17 in the Gogra-Hot Spring in August 2021, and PP15 in September 2022 — came through 18 rounds of talks between the area military commanders of both sides. De-escalation has not taken



place. Chinese actions of rapidly scaling up war-like infrastructure along the LAC do not inspire confidence that it will ever go back to the cold border it was despite the fundamental cartographic problems that have dogged it since 1949. Vindication for this concern came with an attempt by the PLA to spring a surprise on a forward post in Tawang in Arunachal Pradesh, territory that is claimed by China as part of Tibet, last December. Thanks to lessons learnt in the eastern Ladakh area, the attempt was thwarted. China now seems to believe that the disengagement was the resolution, as evident from the message conveyed by the Chinese Defence Minister Li Shangfu, during a meeting with Defence Minister Rajnath Singh two months ago.

In the process of disengagement, India stepped back from areas where it was previously patrolling to create a demilitarised buffer zone at the five points where the Chinese intrusion had taken place. It is unclear if Indian access to areas in this buffer zone will be restored. In official communication with the Chinese, India has stopped using the phrase “return to status quo” as it existed on April 2020. Both sides have decided that the intrusions in the Depsang Plains and in Demchok are “legacy issues” and need not be taken up now.

At this point, as India and China continue high-level engagement at regional fora such as the SCO and BRICS groupings, it is hard to fathom what a resolution might look like. Meanwhile, bilateral trade continues to touch new heights with India importing more than ever before from the Asian giant. As Delhi and Washington find closer alignment — Prime Minister Narendra Modi’s upcoming visit to the US may bring greater defence co-operation — and seek to “compete” with Beijing through the Quad, India would do well not to see its own problems with China at the long land border through the American security lens focussed on the Taiwan Strait.

WARM WELCOME

Rolling out the red carpet for Prime Minister Narendra Modi during his state visit to Washington, U.S. President Joseph Biden underlined his belief that the India-U.S. partnership will be one of the “defining relationships of the 21st century”, one that he has had a strong belief in as U.S. Vice-President in the Obama administration. The phrase mirrored the one used by U.S. President Barack Obama at the state banquet for former Prime Minister Manmohan Singh in 2009 — one of the “defining partnerships of the 21st century” — denoting the consistent strengthening of ties over the first two decades of the century. The visit by Mr. Modi, his first state visit to the U.S., has not disappointed votaries of the relationship. The two sides announced new deals involving high-end defence cooperation, semiconductor industry investments, and a partnership in quantum and advanced computing and AI. The deal for co-production of jet engines in India — White House called it “trailblazing” — will involve an unprecedented level of technology transfer. India’s decision to join the 11-nation mineral security partnership for critical minerals, where China has a global monopoly, and cooperation on critical and emerging technologies, particularly in clean energy, will strengthen future cooperation here. Finally, India’s move to sign on to the 27-nation Artemis Accords for cooperation in space exploration, and the NASA-ISRO partnerships for human spaceflight will also catapult India’s ambitions in the sphere.

It is significant that areas of discord, such as the differences in policies towards Russia’s war in Ukraine, and confrontation with China, where New Delhi has been more diffident, were sidestepped. Perhaps more difficult to sidestep were increasingly loud questions over the state of democracy and human rights in India, which 75 U.S. members of the Congress raised in a letter to Mr. Biden. While some uber-liberal Democrat lawmakers took the extreme step of boycotting Mr. Modi’s address to the joint session of Congress, it would be harder to ignore the pointed words from Mr. Obama in an interview the same day, on India’s minority rights. Eventually, Mr. Modi’s



response, in a rare press availability with Mr. Biden, dismissed some misgivings over his administration — he denied alleged discrimination against minorities and a crackdown on dissent. Rights issues are not a bilateral concern, and with his warm welcome, Mr. Biden made it clear he did not share the concern. If Mr. Modi wishes to address public concerns, however, he may find it more effective to make the case in a press conference on his return, emphasising his belief that “if there are no human values and there is no humanity, there are no human rights, then it cannot be called a democracy”.

WHAT IS THE SAMOSA CAUCUS IN THE US HOUSE, WHICH PM MODI REFERRED TO

In his speech to the joint sitting of the United States Congress on Thursday (June 22) evening, Prime Minister Narendra Modi referred to the “Samosa Caucus” in the House of Representatives, the name that is sometimes used to refer to the informal grouping of Indian-origin Americans in Congress.

“The foundation of America was inspired by the vision of a nation of equal people. Throughout your history, you have embraced people from around the world. And, you have made them equal partners in the American dream. There are millions here, who have roots in India. Some of them sit proudly in this chamber,” the Prime Minister said.

“There is one behind me, who has made history!” Modi said, referring to Vice President Kamala Harris. He then said: “I am told that the Samosa Caucus is now the flavour of the House. I hope it grows and brings the full diversity of Indian cuisine here.”

The term Samosa Caucus has been in use since at least 2018, and it is said to have been coined by Raja Krishnamoorthy, member of the US House of Representatives from Illinois’s 8th District. It seeks to draw, as a third edit in The Indian Express that year pointed out, that “we ourselves identify strongly with the samosa”, and “even the Internet’s repository of Indian slang is called Samosapedia”.

There are, at present, five US Representatives with Indian roots. A sixth, Vice President Harris, is the leader of the Senate. All are Democrats.

The five Representatives are: Shri Shamal Thanedar (68) from Michigan’s 13th District; Dr Ami Bera (58), representing the 6th District of California; Ro Khanna (46), representing the 17th District of California; Pramila Jayapal, representing Washington’s 7th District; and Krishnamoorthy himself.

Americans of Indian origin hold a range of important positions in the Biden Administration, and represent a powerful voice in American policymaking.

WHY PM MODI GIFTED JOE BIDEN A YEATS BOOK: KNOW ABOUT ‘THE TEN PRINCIPAL UPANISHADS’

Prime Minister Narendra Modi, who arrived at the White House in Washington DC on Wednesday evening as part of his first state visit to the United States, was received by US President Joe Biden and First Lady Jill Biden. At the private dinner hosted by the Bidens, PM Modi presented Joe Biden with the first edition of the book The Ten Principal Upanishads from 1937, among other valuables.



“A copy of the first edition print of this book, The Ten Principal Upanishads published by M/s Faber and Faber Ltd of London and printed at the University Press Glasgow has been gifted to President Biden,” officials told PTI.

The gift, according to the outlet, is a tribute to the US president’s admiration for Irish poet William Butler Yeats. Biden has often quoted poetry from Yeats and made references to his writings and poetry in his public speeches, officials said, adding that Yeats had a deep admiration for India and was greatly influenced by Indian spirituality.

the ten upanishads The Ten Principal Upanishads (Source: amazon.in)

This book is an English translation of the Indian Upanishads, co-authored with Shri Purohit Swami, and published by Yeats in 1937. The translation and collaboration between the two authors occurred throughout the 1930s and it was one of the final works of Yeats.

The Upanishads are the most sacred late Vedic and post-Vedic Sanskrit texts which are considered to contain the ultimate truth and the knowledge that leads to spiritual emancipation. In the Upanishads, we find the finest flowering of the Indian metaphysical and speculative thought. They are utterances of seers who spoke out of the fullness of their illumined experience. Upanishad is derived from upa (near), ni (down) and sad (to sit). Hence, the term implies the pupils, intent on learning, sitting near the teacher to acquire knowledge and truth.

While there are over 200 Upanishads, the traditional number is 108. Of these, only 10 are the principal Upanishads: Isha, Kena, Katha, Prashan, Mundaka, Mandukya, Tattiriya, Aitareya, Chhandogya and Brihadaranyaka.

As such, the book The Ten Principal Upanishads intends to introduce these primary Upanishads to the unversed.

Purohit, who was fluent in both Sanskrit and English, translated selected passages from the 10 principal Upanishads from Sanskrit. He was instrumental in popularising the wisdom of Indian spirituality and philosophy through his translations of ancient Indian texts. His other books include The Geeta: The Gospel of the Lord Shri Krishna, An Indian Monk, The Song of Silence, In Quest of Myself, Harbinger of Love, Honeycomb, and Gunjarao.

The book also carries an introduction by Yeats, who communicated with Swami via letters between the years 1931–1938 concerning their translation of the Upanishads

PM MODI GIFTS JILL BIDEN A LAB-GROWN DIAMOND: WHAT IS AN LGD?

As part of his first state visit to the United States, Prime Minister Narendra Modi arrived at the White House in Washington DC on Wednesday (June 21) evening – Thursday in India – where he was received by US President Joe Biden and First Lady Jill Biden.

The Bidens hosted PM Modi for a private dinner, where the Indian premier presented them with a number of gifts. The prime minister gifted the Bidens with an exquisite sandalwood box, a first edition print of the book The Ten Principal Upanishads from 1937, and a 7.5 carat lab-grown diamond.

The diamond, a gift for First Lady Jill Biden, was gifted in a papier mâché box. “Known as kar-e-kalamdani, Kashmir’s exquisite papier mâché involves sakhthazi or meticulous preparation of



paper pulp and naqqashi, where skilled artisans paint elaborate designs,” a statement from the Ministry of External Affairs said.

Lab-grown diamonds have become increasingly popular in recent years, and are considered to be more socially and environmentally responsible, while being nearly identical to mined diamonds.

“The diamond reflects earth-mined diamonds’ chemical and optical properties. It is also eco-friendly, as eco-diversified resources like solar and wind power were used in its making”, the MEA statement read.

What are lab-grown diamonds?

Lab-grown diamonds (LGDs) are diamonds that are produced using specific technology which mimics the geological processes that grow natural diamonds. They are not the same as “diamond simulants” – LGDs are chemically, physically and optically diamond and thus are difficult to identify as “lab-grown.”

While materials such as Moissanite, Cubic Zirconia (CZ), White Sapphire, YAG, etc. are “diamond simulants” that simply attempt to “look” like a diamond, they lack the sparkle and durability of a diamond and are thus easily identifiable. However, differentiating between an LGD and an Earth Mined Diamond is hard, with advanced equipment required for the purpose.

How are LGDs produced?

There are multiple ways in which LGDs can be produced. The most common (and cheapest) is the “High pressure, high temperature” (HPHT) method. As the name suggests, this method requires extremely heavy presses that can produce up to 730,000 psi of pressure under extremely high temperatures (at least 1500 celsius).

Usually graphite is used as the “diamond seed” and when subjected to these extreme conditions, the relatively inexpensive form of carbon turns into one of the most expensive carbon forms.

Other processes include “Chemical Vapor Deposition” (CVD) and explosive formation that creates what are known as “detonation nanodiamonds”.

Any of these methods can be carried out using renewables or cleaner energy sources, making LGDs more eco friendly than traditional diamond mining. Furthermore, mined diamonds, the production of LGDs skips the most socially exploitative aspects of diamond manufacturing, namely the highly exploitative mining process which often employs impoverished Africans in terrible conditions.

What are the properties of LGDs?

LGDs have basic properties similar to natural diamonds, including their optical dispersion, which provide them the signature diamond sheen. However, since they are created in controlled environments, many of their properties can be enhanced for various purposes.

For instance, LGDs are most often used for industrial purposes, in machines and tools. Their hardness and extra strength make them ideal for use as cutters. Furthermore, pure synthetic diamonds have high thermal conductivity, but negligible electrical conductivity. This combination is invaluable for electronics where such diamonds can be used as a heat spreader for high-power laser diodes, laser arrays and high-power transistors.



As the Earth's reserves of natural diamonds are depleted, LGDs are slowly replacing the prized gemstone in the jewellery industry. Crucially, like natural diamonds, LGDs undergo similar processes of polishing and cutting that are required to provide diamonds their characteristic lustre. Thus, growth in the production of LGDs is unlikely to affect India's established diamond industry which undertakes these tasks.

WHAT'S THE INDIA, U.S. INITIATIVE ON FUTURE TECH?

The story so far:

Earlier this week, India and the United States unveiled a roadmap for enhanced collaboration in high-technology areas, with a focus on addressing regulatory barriers and aligning export controls for smoother trade and "deeper cooperation" in critical areas. This was part of the Initiative on Critical and Emerging Technology (iCET) announced by President Joe Biden and Prime Minister Narendra Modi last year. National Security Adviser (NSA) Ajit Doval and his American counterpart Jake Sullivan, who visited India this week to prepare the ground for the Prime Minister's state visit to the U.S. from June 21, reviewed the progress of the initiative at the second track 1.5 dialogue on iCET on Tuesday.

What is iCET?

The Initiative on Critical and Emerging Technologies is a framework agreed upon by India and the U.S. for cooperation on critical and emerging technologies in areas including artificial intelligence, quantum computing, semiconductors and wireless telecommunication. It was launched in January this year to strengthen their strategic partnership and drive technology and defence cooperation. Mr. Modi and Mr. Biden first announced the framework on the sidelines of the Quad meeting in Tokyo in May 2022. "The United States and India affirm that the ways in which technology is designed, developed, governed, and used should be shaped by our shared democratic values and respect for universal human rights. We are committed to fostering an open, accessible, and secure technology ecosystem, based on mutual trust and confidence, that will reinforce our democratic values and democratic institutions," the White House said.

What are the focus areas of the initiative?

Primarily, the iCET seeks to position New Delhi and Washington D.C. as "trusted technology partners" to build supply chains and support the co-production and co-development of items. A White House fact sheet released after the inaugural dialogue gives a broad outline of areas the two countries intend to explore to expand the depth of tech partnership and cooperation between their governments, businesses, and academic institutions.

Key takeaways include setting up a research agency partnership to drive collaboration in areas like AI; developing a new defence industrial cooperation roadmap to accelerate technological cooperation for joint development and production; developing common standards in AI; developing a roadmap to accelerate defence technological cooperation and 'innovation bridge' to connect defence startups; supporting the development of a semiconductor ecosystem; strengthening cooperation on human spaceflight; advancing cooperation on development in 5G and 6G; and adopting OpenRAN network technology in India.



What has been the progress so far?

India and the U.S. have made “significant progress” in several key areas identified for collaboration since the launch of iCET, a likely outcome of multiple high-profile visits and talks between officials and stakeholders over the past year. As Mr. Doval mentioned in the second round of iCET talks, the two countries have already put in place the Quantum Coordination Mechanism, launched a public-private dialogue (PDD) on telecommunication to drive collaboration in OpenRAN, 5G and 6G, and held “important exchanges” on AI and space. In March, India and the U.S. signed an MoU on establishing a semiconductor supply chain that paved the way for creating a semiconductor sub-committee to review recommendations from an industry-led task force launched in connection with the iCET.

On the defence front, the two countries are close to concluding a mega jet engine deal, with a final announcement expected during Mr. Modi’s visit.

In addition, a new initiative to advance cutting-edge technology cooperation, known as the India-U.S. Defence Acceleration Ecosystem (INDUS-X), is set to be launched during the visit. India and the U.S. have also concluded a roadmap for ‘Defence Industrial Cooperation’ to guide the policy direction for the next few years. The two countries have also established a Strategic Trade Dialogue to remove regulatory “barriers” and review existing export control norms to take forward strategic technology and trade collaborations envisaged under iCET.

Both the NSAs express optimism that the initiative will achieve more specific and tangible results in the near future.

RIGHT TO CHANGE ONE’S NAME IS PART OF THE RIGHT TO LIFE: WHAT TWO HCS HAVE RULED

The right to change one’s name or surname is a part of the right to life under Article 21, the High Courts of Allahabad and Delhi recently said.

Allowing a man called Shahnawaz to change his name to Md. Sameer Rao, the Allahabad HC on May 25 said the fundamental right to keep or change one’s name is vested in every citizen under Articles 19(1)(a), 21, and 14 of the Constitution.

The Delhi HC on May 19 allowed a plea filed by two brothers to reflect their father’s changed surname — from “Mochi” to “Nayak” — on their Class 10 and 12 Board certificates, stating that the right to identity is an “intrinsic part” of the right to life under Article 21.

Why did the petitioners want to change their names?

In ‘Sadanand & Anr. vs CBSE & Ors’, a plea was filed by two brothers before the Delhi HC seeking to set aside a letter issued by the CBSE on June 1, 2017, refusing to change their father’s last name from ‘Mochi’ to ‘Nayak’ in their 10th and 12th Board certificates.

Owing to caste atrocities suffered by him, the father had earlier changed his surname and published it in the newspaper and the Gazette of India as required. His surname was changed across various public documents, such as Aadhaar, PAN, and Voter ID. However, CBSE refused to update the brothers’ certificates with the father’s new surname.

In ‘Md. Sameer Rao vs. State of U.P.’ the Allahabad HC dealt with a petition filed against an order dated December 12, 2020, passed by the Regional Secretary, Madhyamik Shiksha Parishad,

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



Regional Office, Rai Bareli, rejecting Shahnawaz's application to change his name to "Md. Sameer Rao" in his High School and Intermediate certificates, seemingly "for a higher sense of self-worth".

Although the petitioner published his changed name in a popular daily and the Gazette, the Board refused to update the same on his school certificates.

Why were their name-change requests denied by the authorities?

In 'Sadanand & Anr. vs CBSE & Ors', the CBSE contended that a change in the surname of the petitioners would subsequently entail a change in their caste, which could be misused. It also said that seeking a change in the father's name beyond the school records is not permissible.

In 'Md. Sameer Rao vs. State of U.P.' the state argued that a change in the name is not an absolute right and is subject to restrictions imposed by law. It was also argued that the Board rightly rejected the name change as it was barred by limitation.

What did the Allahabad HC hold?

Observing that the authorities had arbitrarily rejected the application for a change of name, the Allahabad HC in its May 25 ruling said that the action of the authorities violated the fundamental rights of the petitioner guaranteed under Article 19(1)(a), Article 21, and Article 14 of the Constitution.

Name changes made in the High School or Intermediate education certificates issued by the educational boards have to be simultaneously incorporated in all documents of identity issued by various authorities like Aadhar, PAN, ration card, etc., the court said, reasoning that congruence in all identity-related documents is essential.

Allowing one to carry identification documents with separate names "would lead to confusion in identity and possibility of mischief," the court said, adding that the state should prevent such misuse.

What did the Delhi HC hold?

The Delhi HC in its May 19 ruling noted that the father had decided to change his surname "in order to overcome the social stigma and the disadvantage faced" by his sons and that CBSE's denial to carry out the requisite change in the certificates was "totally unjustified".

Observing that the petitioners belonged to a Scheduled Caste, the court said that 'Mochi' is a "caste name within the larger cobbler community dealing with leather", particularly footwear, and owing to the work carried out by their father's family, "Mochi" had become their surname.

Additionally, the court noted that the petitioners "have every right to have an identity which gives them an honourable and respectable identity in the society." If they suffered any disadvantage on account of their surname or faced social prejudices due to it, "they are certainly entitled to a change of their identity that gives respectability to the petitioners in the societal structure," the court reasoned.

What did the courts say about Article 21?

In both the Delhi and Allahabad High Court cases, a common thread of Article 21 was found running.



As it allowed Shahnawaz to become “Md. Sameer Rao”, the Allahabad HC observed that the “right to keep a name of choice or change the name according to personal preference comes within the mighty sweep of the right to life guaranteed under Article 21.”

The court relied on the Kerala HC ruling in “Kashish Gupta vs. Central Board of Secondary Education” (2020), stating, “To have a name and to express the same in the manner he wishes, is certainly a part of the right to freedom of speech and expression under Article 19 (1)(a) as well as a part of the right to liberty under Article 21 of the Constitution of India. State or its instrumentalities cannot stand in the way of the use of any name preferred by an individual or for any change of name into one of his choices except to the extent prescribed under Article 19(2) or by a law which is just, fair and reasonable.”

Along similar lines, the Allahabad HC relied on the 2020 and 2021 rulings delivered by the Delhi HC and Supreme Court in “Rayaan Chawla vs. University of Delhi” and “Jigyva Yadav vs. CBSE” to argue against adopting a technical approach to changing names and to say that “name is an intrinsic element of identity,” respectively.

In Rayaan Chawla, the court included the right to change names under the right to freedom of speech and expression under Article 19(1)(a) along with Article 21 of the Constitution. In Jigyva Yadav, the top court ruled that “an individual must be in complete control of her name and law must enable her to retain” and exercise such control freely “for all times”.

Referring to the UN Human Rights Committee’s view in “Coeriel and Aurik v. The Netherlands”, the Allahabad HC also said that a name is an indispensable component of a person’s identity and falls within the realm of the right to privacy.

In the same vein, the Delhi High Court allowed “Lakshman Mochi” to change his last name to “Lakshman Nayak” while holding the “Right to Identity” to be an “intrinsic part of the Right to Life under Article 21”.

The court also said that “There is no denying the fact that the Right to Life includes within its ambit, the Right to Live with Dignity,” which includes “not to be tied down by any casteism” faced by a person due to the caste to which he or she belongs.

Thus, the Delhi HC ruled that “if a person wants to change his or her surname”, to not be “identified with any particular caste” that “may be a cause of prejudice” to them “in any manner”, the same is permissible.

What are some restrictions on the right to change names?

Although the right to change or keep one’s name is a fundamental right “by virtue of Article 19(1)(a) and Article 21”, it is not an absolute right and is subject to various reasonable restrictions, as the Allahabad High Court clarified in Sameed Rao’s case.

However, the restrictions imposed by law on fundamental rights have to be fair, just, and reasonable, the court said, citing the 2017 SC ruling in “K. S. Puttaswamy vs. Union of India,” saying, “The inter-relationship between the guarantee against arbitrariness and the protection of life and personal liberty operates in a multi-faceted plane.”

The procedure for the deprivation of such rights must be “fair, just, and reasonable”, the court said.



The court also highlighted the principle of proportionality as an “essential facet of the guarantee against arbitrary state action,” since it ensures that the nature and quality of the right’s encroachment are not disproportionate to the law’s purpose.

The value of human dignity has an important role in determining the proportionality of a statute limiting a constitutional right, the court said, citing the test of reasonableness in the 2016 SC ruling in “Jeeja Ghosh vs. Union of India.”

ROAD TO 2024 | UNIFORM CIVIL CODE: BJP IS TESTING THE WATERS BUT MAY NOT TAKE THE PLUNGE YET

AFTER THE BJP’s election loss in Karnataka, and the new spring in the Congress step in poll-bound Chhattisgarh and Madhya Pradesh, there seems to be a rising buzz around a Uniform Civil Code (UCC). With Article 370 scrapped and the Ram temple in Ayodhya well on its course, a UCC remains among the last unfulfilled items central to the Sangh Parivar agenda, and part of the BJP’s manifesto promise.

The Opposition has its knives out since the Law Commission last week sought opinions of the public and religious bodies on a UCC, and this might actually suit the BJP in nurturing the impression that the Narendra Modi government is serious about bringing it before the 2024 polls. However, the party is well aware of the obstacles and, sources said, will not rush anything through.

As per BJP leaders, there are unlikely to be any moves from the government on a UCC till the various G-20 meetings are over in September, as the Modi government will not want the shadow of a controversy over its moment on the global stage.

After that, the last chance for the government to initiate the legislative process on a UCC before the 2024 Lok Sabha polls will be the Winter Session of Parliament. But, by then, elections to the key heartland states of Madhya Pradesh, Rajasthan and Chhattisgarh will be near, and the significant tribal populations there are unlikely to welcome any UCC that infringes on their traditions.

In Mizoram, another state that will go to polls in a few months, the state Assembly earlier this year passed a unanimous resolution opposing any move to implement a UCC. The resolution said “any steps taken or proposed to be taken for the enactment of a UCC in India” will terminate religious and social practices, cultures, and traditions of minorities. Given the ethnic fires in Manipur, the government will not risk any move that could further stir tribal fears in the Northeast.

In 2016, the Rashtriya Adivasi Ekta Parishad, a group that claims to work for Adivasi interests and to represent 11 crore tribals, had moved the Supreme Court seeking protection of their customs and religious practices, including their right to practise polygamy and polyandry, all of which would be on a UCC’s agenda.

The Adivasis have their own personal laws and do not fall in the category of Hindus as they worship nature instead of idols and perform burial of the dead, the Parishad had said. It had submitted that the marriage and death ceremonies of tribals were different from Hindu customs as well, and feared these might also see a ban.

Besides the fear of alienating the tribals and of a backlash, the BJP will also have in mind the wishes of friendly parties and potential allies – which it is re-wooing after the Karnataka results, to shore up numbers ahead of the 2024 polls.



The BJP has got good signals from the amiable Biju Janata Dal (BJD) on a UCC, with the party asking the government in Parliament to begin the process over it. The BJD's support may just be enough for the BJP to get its numbers in order for a Bill.

But the ruling Andhra Pradesh party, YSRCP, which has also been friendly towards the BJP, has made it clear that it will not support the move, and neither will the Akali Dal. One of its longest allies till they broke off over the controversial farm laws, the Akali Dal has been dropping hints lately of a return to the NDA.

What the BJP is confident about is that whenever a Bill on a UCC is introduced, its passage will not be an issue. "We are not worried about the numbers. We are confident about the numbers if we bring a Bill," newly appointed Law Minister Arjun Ram Meghwal said last week, adding that the government is waiting for the Law Commission to submit its report.

There is also confidence in government ranks about the report going in their favour, particularly after the Law Commission took a stand aligned to the BJP's views on sedition recently. A number of state BJP governments — Goa, Gujarat, Uttarakhand, Madhya Pradesh and Assam — have already begun efforts to bring in a UCC in their respective states.

Lessons from Manipur unrest

In Mizoram, another state that will go to polls in a few months, the Assembly earlier this year passed a unanimous resolution opposing any move to implement a UCC.

Sources said that the government could walk the middle path by bringing in a Bill that makes concessions for indigenous communities and their practices and customs, removed in shape and form from what has been talked about in the public domain.

A senior Sangh Parivar leader who works closely with tribal communities hinted at the same too. While insisting that he did not want to react to speculation regarding a law, he said: "Let a draft come out. Whatever we are hearing in terms of concerns are just speculation. Who knows, the Bill may have provisions to address the concerns expressed by tribal groups?"

A clue of this lies in the Ranjana Desai-led expert committee appointed by the Uttarakhand government for a UCC, which recently was in Delhi to hold a meeting with top officers in the Central government.

According to sources, the report of the Desai panel may be a model for a UCC Bill at the national level. And the committee's priorities, in its words, are gender equality, raising the marriageable age of women to 21, equal rights for daughters in ancestral properties, legal rights for LGBTQ couples and population control.

OVERKILL

The Manipur High Court, on Tuesday, granted limited Internet access in designated places in the State after a petition seeking the restoration of net access. Shutdowns began following the violent conflagration on May 3 and there were extensions of restrictions since then, the last one being an extension order on Wednesday, till June 25. The request made is legitimate as shutdowns have a crippling effect on many an economic activity and livelihoods. Citizens have been unable to access vital services such as e-commerce-related activities, except for those who can get exemptions from the shutdowns with government permission. Violent incidents have occurred in the State since



May 3 and relations between Meiteis and Kukis remain tense. But the orders seeking to extend the shutdown cite threats to “law and order” and the role of “anti-social elements” — a euphemism for extremists indulging in violent acts or the posting of violence-promoting material — rather than explicitly seeking to retain these bans because of a public emergency or in the interests of public safety, as required by Section 5(2) of the Telegraph Act, 1885 and Telegraph Rules. The Manipur government also told the High Court that the shutdowns were needed to block websites where inflammatory material could be published, but such a sledgehammer approach is clearly problematic.

The Supreme Court, in *Anuradha Bhasin vs Union of India* (2020), had held that an indefinite suspension of Internet services was in contravention to the law as freedom of speech and the freedom to carry out commercial work using the Internet was a fundamental right. It also held that such suspensions should adhere to the “principle of proportionality and must not extend beyond necessary duration”. Continuing a dragnet suspension in Manipur in this fashion suggests that the government is merely using the shutdown as a substitute for enforcing law and order — another ploy that the Court had come down heavily upon in this judgment. The situation in Manipur can be tackled effectively by a regime that seeks to restore the confidence of all stakeholders, engages with civil society actors in restoring inter-community dialogue, isolates the extremists and pursues a step-by-step approach towards restoring peace and normalcy. But with a beleaguered Chief Minister at the helm — a leader who has lost the confidence of many of his colleagues — and the intransigence of many community representatives and their inability to rise above their ethnic identities to pursue peace, sporadic violence continues even as those displaced are unable to return home. This, however, does not lend to the continuation of the Internet shutdown that has been in place for over a month-and-a-half, and which must end.

EXPRESS VIEW ON ALL-PARTY MEET ON MANIPUR: A STEP FORWARD

The Centre’s decision to call an all-party meeting on Manipur, though belated, is a step in the right direction. So is Congress leader Sonia Gandhi’s sober appeal for peace: She avoided blame-laying and underlined the “human tragedy” that has left a “deep wound” for the nation. The attempts so far to mediate peace between the Meiteis of the Imphal Valley and the Kuki-Zomi tribes who live in the hills that ring the Valley, have not yielded results. The continuing violence and the deepening ethnic schisms call for all parties to rise above partisan interests and work together to rebuild trust among the warring communities.

At least 110 people have died and thousands displaced from their homes in the ethnic violence since early May. Central forces have been battling both mobs and snipers, who have taken control of the streets. Union Home Minister Amit Shah had visited the state for four days in May and met a cross-section of the population. He spoke about a 15-day window for political groups to give up arms and give a chance to efforts to restore peace. But the initiatives that Shah announced — for instance, constitution of a peace committee — have failed to take off in the polarised environment. The deep suspicion among communities, entrenched further by violence and rampant rumours, has meant that any peace negotiation may have to be mediated by actors from outside the state. The BJP-led state government is perceived as partisan and the party’s legislative unit is divided on ethnic lines. Mobs on the rampage have targeted ruling party leaders for refusing to side with them openly — the home of Union minister R K Ranjan Singh and the official quarters of Kangpokpi MLA and state minister Nemcha Kipgen were set on fire. State institutions such as the police and bureaucracy are seen as compromised. Chief Minister Biren Singh is now a controversial and discredited figure, having failed to win over the confidence of the whole state



and lead the administration in a way that is fair and seen to be so too. This, perhaps, is the reason why the state could not build on the hope that Shah's visit had generated.

It is ironic that Delhi is today seen as a neutral arbiter in Manipur, which has hosted a large number of separatist groups. The all-party meeting could tap this emergent goodwill and persuade the estranged ethnic groups to sit across the talks table. The message must go out to Manipur that the country is concerned about the loss of lives and destruction of homes. As Sonia Gandhi said, "It is heartbreaking to witness our brothers and sisters who have coexisted peacefully turn against each other. The history of Manipur stands testament to her ability to embrace people of all ethnicities, religions and backgrounds, and the myriad possibilities of a diverse society." Manipur needs to retrieve lost ground and rebuild peace. The all-party meet will, hopefully, provide a roadmap.

UNEDIFYING ROW

The controversy in West Bengal in the matter of deployment of central paramilitary forces ahead of the panchayat elections to be held on July 8 is quite unedifying. The State Election Commission (SEC) initially appeared reluctant to heed calls by Opposition parties to bring in central forces to boost security arrangements. A perceived delay in identifying sensitive areas resulted in the Calcutta High Court ordering the poll body to ask for and deploy central forces. In the ordinary course, the deployment of central forces during local body elections, conducted under the watch of the SEC, would be at the State government's discretion. However, it is an unfortunate reality that West Bengal frequently witnesses poll-related violence. Even in the current poll process, eight people have died, and there are reports of prospective candidates being prevented from filing their nominations for some panchayats. In these circumstances, it would have been in the fitness of things for the SEC to requisition central forces on its own, even if the State government had some grievance over its discretion being overruled by the High Court order. However, the SEC, which ought to have had no misgivings about it, joined the government in approaching the Supreme Court of India against the order. The Court affirmed the High Court's directives, noting that the core issue was free and fair elections. Moreover, the whole State was going to vote on a single day for nearly 74,000 seats, and that given the high number of seats and polling booths, the directions were justified.

In yet another unfortunate turn, the SEC responded to the apex court's order by requisitioning central forces in 22 districts (one company each), in a move that showed pique and resentment rather than compliance. The High Court has once again intervened, noting that the requisitioned number was thoroughly inadequate and directed that more forces, not less than the size of the forces used during the 2013 panchayat polls be sought, when as many as 1.05 lakh police personnel and 82,000 central personnel were deployed. The controversy flags the issue of political violence, which is quite endemic to West Bengal. Each election sets off a round of violence and demands for central forces. The federal principle that law and order is under the State's domain is often strained and tested at such times. The High Court had ordered a CBI investigation into incidents of serious violence after the last Assembly election in 2021. A truly independent election watchdog and a sense of responsibility among all political parties are necessary to preserve the purity of the election process.



EXPRESS VIEW ON GURBANI TELECAST: FACE THE MUSIC

Punjab Chief Minister Bhagwant Singh Mann promised to go after the corrupt, regardless of their political standing. He has made a show of doing that. He said he would give 300 units of power free to people of the state. His government has implemented that. Now his government has passed a bill freeing the telecast of Gurbani from the Golden Temple in Amritsar from the hold of the PTC, the channel owned by Shiromani Akali Dal president Sukhbir Singh Badal, which has had the rights. This is a promise he had made in the run-up to the assembly election last year. It was widely seen as a move to loosen the hold of the SAD on the Shiromani Gurdwara Parbandhak Committee, the body that governs Sikh shrines. With this move, however, he has run into a storm, with questions being raised about the legality of the decision. The move is also being seen by the AAP government's opponents and critics as an undue intrusion into the panthic space.

Even before this, CM Mann has had his fair share of controversy over the past year or so after being elected last March with a runaway majority of 92 in a 117-member assembly. Coming on the heels of the arrest of radical preacher Amritpal Singh, the ruling Aam Aadmi Party's victory in the Jalandhar Lok Sabha bypolls in May has given him a much-needed boost. However, challenges abound. The people of Punjab are not known for their patience. The much-feted free power may come to bite the AAP government if this summer is marked by long outages. Other initiatives like employment, better schools and mohalla clinics are also up for scrutiny by the people. The Opposition is already alleging that "badlaav" (change) is merely cosmetic.

Then there are the unfulfilled promises. Last week, Union Home Minister Amit Shah asked CM Mann about the sum of Rs 1,000 a month that his party had promised to give women of the state. Reeling under a massive debt with free power only adding to it and the Centre refusing to pay it the Rural Development Fee (RDF) for the last four harvest seasons, the state is taking steps such as an increase in the cess on fuel. It also plans to mop up revenue by imposing a levy on home and vehicle loans besides raising the stamp duty on property transfer. Short on funds, it is not in a position to dole out any more subsidies. It must ensure that all its so-called pro-people initiatives work on the ground and its panthic moves are made with sensitivity and care. Or else, the goodwill that catapulted it to power could evaporate as quickly as it built up.

PUNJAB STEPS IN TO HELP KARNATAKA WITH ITS FREE RICE SCHEME

The Congress government in Karnataka, which is struggling to procure rice for its ambitious Anna Bhagya scheme, on Monday received a ray of hope after the Aam Aadmi Party (AAP) government in Punjab agreed in principle to supply the requisite quantum of rice.

As the politics over rice continues, Congress workers will be staging protests across the State on Tuesday, condemning the decision of the BJP government at the Centre to deny rice to Karnataka.

Under the scheme, the State plans to enhance free rice given per person in a BPL (below poverty line) card from 5 kg to 10 kg. This is estimated to cost the exchequer ₹840 crore monthly and ₹10,092 crore annually, said a note from the Chief Minister's Office. The scheme is slated for launch on July 1.

Punjab's offer to supply rice came after the AAP-Karnataka unit took the initiative to intimate the State government that Punjab had enough rice and was willing it to supply to Karnataka in the federal spirit. AAP-Karnataka convener Prithivi Reddy said that Karnataka Chief Minister



Siddaramaiah and Punjab Chief Minister Bhagwant Mann spoke in the morning, when Mr. Mann confirmed that Punjab would be ready to supply the rice.

“It is unfortunate that the foodgrains are rotting in godowns, and the Centre is showing step-motherly attitude towards the non-BJP ruled States. AAP has come forward to help because the scheme is aimed at mitigating the problems of the poor,” he told The Hindu.

Meanwhile, reiterating that the Centre was indulging in politics over supply of rice, Mr. Siddaramaiah on Monday told presspersons that efforts are on to get the price list from National Co-operative Consumers Federation, National Agricultural Co-operative Marketing Federation and the central pool to procure rice for the pro-poor scheme.

When his response was sought on whether the State had time to procure rice to ensure the launch on July 1, he said: “The government is making effort to implement the scheme on July 1.”

SHAKTI SCHEME: IN 9 DAYS, 4.24 CRORE WOMEN AVAIL FREE BUS RIDES IN KARNATAKA

In only nine days after introducing the Shakti scheme, which allows women passengers to travel for free in Karnataka’s government buses, more than 4.24 crore women availed the services and on Monday, the total ticket amount exempted under the scheme crossed Rs 100 crore.

The scheme, which was launched on June 11, witnessed a staggering 4,24,60,089 women passengers who travelled in buses operated by the Karnataka State Road Transport Corporation (KSRTC), Bengaluru Metropolitan Transport Corporation (BMTC), North Western Karnataka Road Transport Corporation (NWKRTC) and Kalyana Karnataka Road Transport Corporation (KKRTC).

On Monday, the four divisions witnessed a record-breaking influx of passengers since the launch of the scheme. A total of 60,89,910 women passengers travelled for free and tickets worth Rs 15,94,32,747 were issued.

Among the four divisions, the BMTC recorded the highest number of female passengers during the nine-day period, with 1,44,06,090 passengers. It was followed by the KSRTC with 1,23,07,847 passengers, the NWKRTC with 1,02,53,506 passengers and the KKRTC with 54,92,646 passengers.

The value of free tickets issued by the KSRTC amounted to Rs 38.25 crore, while the BMTC, NWKRTC, and KKRTC issued tickets worth Rs 17.61 crore, Rs 26.07 crore and Rs 18.28 crore, respectively.

Over the course of the nine days, the average daily footfall of female passengers in buses across the four divisions was 38.60 lakh.

According to the finance department, the scheme will cost the exchequer about Rs 4,000 crore. The state government has reserved 50 per cent of the seats for men in the KSRTC buses and have removed all sorts of reservations in the BMTC buses.

CONGRESS LEADERS IN KERALA FILE PIL AGAINST TRAFFIC CAMERAS PROJECT: WHAT THEY CLAIM

After two Congress leaders in Kerala filed a PIL alleging corruption in the installation of AI-enabled traffic cameras on major state roads, the High Court Tuesday ordered serving of notice to all respondents, including government departments and private entities in the project. The court



also asked the respondents not to make any payment under annuity to the contractor until further orders from the court.

The PIL has been filed by V D Satheesan, Kerala Opposition leader, and his party colleague Ramesh Chennithala.

What is the project?

On April 21, the State Motor Vehicle Department launched a fully automated traffic enforcement system as part of the Safe Kerala scheme, to prevent road accidents and detect traffic crimes. Under it, 726 Artificial Intelligence-enabled cameras have been installed along the highways and major roads in the state, which capture traffic violations and registration numbers of offending vehicles.

Since June 5, the motor vehicle department has started serving notices to the vehicle-owners based on the offences detected by these cameras. Vehicle owners/riders have to pay a fixed penalty, with the sum depending upon the offence.

How does it work?

There are 675 AI cameras on the road. A system erected on the road under this scheme mainly consists of a global shutter ANPR camera, synchronised dual infra flash, an AI processing unit to analyse the visuals from the camera, storage, 4G module, 4G SIM, and a solar power system with LiPO4 battery.

A camera can detect more than one traffic violation at a time with the AI technology, with an algorithm based on deep learning functions. This would be used for detecting violations related to travelling without wearing a seat belt, without helmet and using mobile phone while driving. There are 18 other cameras for the red light violation detection system, four for speed violation detection and 25 for parking violation detection systems. The project has used a global shutter camera for detecting parking violations, 4 D radar to detect the speed of vehicles (up to 240 km per hour), and pulsed infra-red flash to get an image of the number plate of a speeding vehicle. There is also an automatic number plate recognition system to detect the number plates.

What is the role played by AI?

In every camera, a single board computer (NVIDIA) is fitted and an algorithm with deep learning works to detect pre-set traffic violations. These violations are separated with images (for evidence) and number plates of the vehicle, and sent to the control room through a 4G network. No video is collected under the existing system.

How do the control rooms work?

The cameras dispatch the violations to 14 district-level control rooms as well as a state-level control room run by the Motor Vehicle Department. This central control room and the related data centre function 24 hours. The entire data from cameras all over Kerala is downloaded and stored in the servers installed in the central control room. All traffic violations, along with the date of detection, location, time and number of the vehicle are stored in the servers.

At the district-level control rooms, officials access these data from their respective district and send e-challans, through post as well as mobile phone message. The collected penalty goes to the state exchequer.



Who is in charge of implementation?

The project was awarded to state-run Kerala State Electronics Development Corporation Limited (KELTRON) at a cost of Rs 236 crore under the Build, own, operate, transfer (BOOT) model. KELTRON had claimed that in five years, the fines levied would generate a revenue of Rs 188 crore for the government beyond the operation cost of the project.

KELTRON had prepared a Detailed Project Report (DPR) in 2017, which got government approval in 2019. The contract for implementing the system was signed with the Motor Vehicle Department in 2020.

Who are the vendors chosen by KELTRON?

When KELTRON invited tenders, four companies had participated in the process. Bengaluru-based SRIT bagged the work for Rs 151.10 crore. SRIT formed a consortium with two other firms, Presadio Technologies Pvt Limited and Al Hind Tours and Travels, both based in Kozhikode. Presadio, the subcontractor, entered into another agreement with Lyte Master, which emerged after Al Hind withdrew from the project. Lyte Master too withdrew after a financial crisis, giving entry to Eccentric Digital Private Limited.

What is the Opposition alleging?

The Opposition has claimed that the formation of a consortium by SRIT was illegal. KELTRON has to pay SRIT Rs 151 crore in 20 instalments from the first quarter from the day the project goes live. This is against the BOOT model, the Opposition says. They further allege that the actual cost of equipment, software, civil work and service detailed in the tender document would only come to about Rs 75 crore, which was “ballooned” to Rs 236 crore by KELTRON. It then tendered it for Rs 151 crore to SRIT.

Another allegation is that the four companies that participated in the tender floated by KELTRON were all proxies for SRIT, whom the government had already chosen. The SRIT had formed a consortium of various firms to implement the project, which shows it got the sub contract without any technical know-how, the Opposition claims.

They have also claimed that the storing of people’s images by private bodies is a violation of privacy. KELTRON, however, has claimed that only images of traffic violations and related data are despatched to the central control room, where the Motor Vehicle Department is their only custodian.

Which entities does the PIL makes claims against?

The petition has trained guns on SRIT India Pvt. Ltd, Bengaluru, and Presadio Technologies Private Limited, Kozhikode. It says that SRIT got the tender “by violating every tender condition, and Presadio became the project co-ordinator with 60 per cent share in the profit.”

“In reality, persons behind the two entities are persons closely associated with those in the corridors of power. The data collected are kept by the SRIT, which has no legal authority in collecting and keeping the data. The award of contract, the manner in which the files have moved will show the cartel formation to favour these respondents to siphon the public funds,” says the petition.



What does the PIL demand?

The PIL in the High Court has demanded that levying of fine for traffic violations detected by the new system be stayed, and disbursement of payments in instalments to SRIT be stopped. “The project involves a pyramid style of corruption,” the PIL claims, adding that the “BOOT model with five-year warranty has turned to be a Capital Expenditure model.”

WHAT DOES THE ALLEGED COWIN DATA LEAK REVEAL?

The story so far:

On June 12, reports emerged that a bot on the messaging platform Telegram was allegedly returning personal data of Indian citizens who registered with the COVID-19 vaccine intelligence network (CoWIN) portal for vaccination purposes. The bot spewed out personal details like name, Aadhaar and passport numbers upon entry of phone numbers. On the same day, the Health Ministry denied reports of a data breach, and said the allegations were “mischievous in nature.” It added that the Indian Computer Emergency Response Team (CERT-In) was reviewing existing security infrastructure of the portal. Separately, the Minister of State for Electronics and IT Rajeev Chandrasekhar said the nodal cyber security agency had reviewed the alleged breach and found that the CoWIN platform was not “directly breached.”

What does the CoWIN portal track?

CoWIN is a government-owned web portal set up in 2021 to administer and manage India’s COVID-19 vaccine rollout. The health register-style platform leverages existing public digital infrastructure like the Electronic Vaccine Intelligence Network (eVIN), an app that provides data on vaccine cold chains in the country; Digital Infrastructure for Verifiable Open Credentialing (DIVOC), a vaccine certificate issuer; and Surveillance and Action for Events Following Vaccination (SAFE-VAC), a vaccine adverse event tracker.

The platform, on a real-time basis, tracks vaccines and beneficiaries at the national, State, and district levels. It monitors vaccine utilisation and wastage, and maintains an inventory of the vials. For citizens, CoWIN verifies identity, helps schedule vaccine appointments, and issues a vaccine certificate. The database captures information flowing from four separate input streams — citizen registration; health centres; vaccine inventory; and vaccine certificates. Each stream functions independently, and at the same time exchanges data to minimise redundancies. The platform is a microservices-based, cloud-native architecture developed from the ground up on Amazon Web Services (AWS). A microservice architecture is a pattern that arranges an application as a collection of loosely linked, fine-grained services. These services interact with each other through certain set protocols.

What is the background to the data breach?

This is not the first time reports about data leaks have emerged. In January 2022, the personal data of thousands of people in India were reportedly leaked from a government server. The information included COVID-19 test results, phone numbers, names and addresses of citizens. The data could be accessed via online search. In December, in a separate security breach, an Iranian hacker claimed to be in possession of data from the CoWIN database.

Both the reports of the data leak were rubbished by the Ministry of Electronics and Information Technology (MeitY). There is no record of any investigation being carried out by CERT-In in



connection with these data leaks. Even the vulnerability notes which the nodal cybersecurity agency shared on a regular basis made no reference to these breaches.

On the recent data leak, though the IT Minister said that CERT-In has completed review and found no breach in the CoWIN system, the cybersecurity agency has not directly put out any update that it is either investigating or has filed a review on the breach. However, a report in The Indian Express said the agency is in discussion with at least 11 State governments that had developed their own databases.

How did the Telegram bot get access to CoWIN-related data?

There are few ways to look into this data breach to know where things could have gone wrong. Cloud providers like AWS, Microsoft's Azure and Google Cloud typically provide security only for the underlying infrastructure, and not for securing the applications and databases. Customers hosting their data are responsible for what they build in a cloud environment. The absence of AWS in CERT-In's vulnerability notes last year could mean there was no security lapse at the cloud infrastructure's end.

While the cloud offers superior security compared to traditional data centres, legacy systems deployed in virtual servers are the weak links in the chain. Such links are a perfect route for hackers to gain entry into a database. This shifts the focus to CoWIN, which was built leveraging legacy software tools. So, an entry point for those behind the bot may have been an old system that was connected to the portal.

In past data breaches, cybersecurity experts have attributed data leaks to human error or negligence in setting up databases in the cloud. Misconfiguring a system, or involvement of third-party apps with limited privacy features, could have also exposed user data to unauthorised people.

What is the larger picture?

Whatever the outcome of the CERT-In probe, the fact remains that sensitive personal data of millions of Indian citizens who signed up for the COVID-19 vaccination is in the hands of cybercriminals. It is unclear how they plan to use this information. But such leaks reveal India's unfinished data protection business. A data protection law could be a useful tool in fixing accountability and building safeguards around the use and processing of personal data.

In 2017, the Supreme Court of India recognised privacy as a fundamental right, highlighting the need to protect personal information. But the country is still struggling to frame a personal data protection policy.

EXPRESS VIEW ON ARTEMIS ACCORDS: IN A NEW SPACE

With India also signing the Artemis Accords, the space agencies of the two countries are now headed for a closer partnership than ever before. The Artemis Accords are a set of 13 principles guiding the peaceful and cooperative exploration of space by all countries. The Accords were originally established by the US and seven other countries in October 2020. Since then, 19 other countries have joined this US-led initiative, the latest being India.

The Artemis Accords are tied very closely to NASA's Artemis programme that is aimed at a return of human beings to the Moon, development of a self-sustaining permanent station on the lunar



surface, and then using that to launch deep space exploration missions. The Accords are meant to establish common principles and rules for exploration of outer space “with the intention of advancing the Artemis programme”.

India and the US already have a thriving partnership in the space sector, with both countries doing collaborative projects and experiments on each other’s missions. The big highlight of this partnership, the NISAR (NASA ISRO Satellite Aperture Radar) satellite, would be launched from India next year.

By signing the Artemis Accords, India has expressed its commitment to adhere to the best practices in space exploration. But that is the least significant part of the development. After all, India is already a signatory to the Outer Space Treaty, and the associated international regimes that seek adherence to the very same principles.

By signing the Accords, India has decisively thrown its weight behind a US-led alliance on space matters, an alliance that, currently, and most likely in future too, excludes Russia and China, two of the most important spacefaring nations. It is an interesting turn of events. The US was at the forefront of denying crucial space technologies to India in the 1980s and 1990s.

It forced Russia in the early 1990s to renege on a commitment to supply cryogenic technology to India, which slowed down India’s space programme for nearly three decades. Now, in the latest joint statement, it has promised to “address export controls and facilitate technology transfer”.

A lot of what India plans to do in space — human missions, moon landings, planetary explorations, setting up a space station — has already been done by countries like the US, Russia or China. There are benefits of doing things on your own. It brings expertise and confidence. But there are also pitfalls in trying to reinvent the wheel. There is the danger of being left behind. The fact that India has not yet sent manned missions to space, or even landed a satellite on the moon, is not because of lack of capacity or expertise. It has a lot to do with the technology denial regime of the early years. Joining the US-led alliance is an attempt by India to leapfrog and start collaborating on the next generation of technologies, even as it pursues its own efforts to implement its space plans.

Historically, however, Russia has been India’s most trusted partner in the space sector, just like it has been in defence. Even recently, it was Russia that offered its facilities to train Indian astronauts for the Gaganyaan mission. Joining an alliance that is seen to be aimed at promoting US interests in space is not likely to be seen very favourably by Russia. India will have to strike the same careful and delicate balance that it has been doing in the energy sector ever since the war in Ukraine.

GAGANYAAN TRAINING UNCERTAIN, INDIAN ASTRONAUTS MAY HEAD TO INTERNATIONAL SPACE STATION FIRST

The joint statement by India and the United States during Prime Minister Narendra Modi’s ongoing US visit said NASA would provide “advanced training” to Indian astronauts at one of its facilities. India’s astronaut candidates who have been training for Gaganyaan, the country’s first human spaceflight mission, may find themselves travelling to the International Space Station (ISS) on a joint India-US mission next year.

With the schedule of Gaganyaan still uncertain, the just-announced joint India-US mission to ISS might be an earlier opportunity to send the astronauts who have been training for their trip for the last three years.



The joint statement by India and the US during Prime Minister Narendra Modi's ongoing visit said NASA would provide "advanced training" to Indian astronauts at one of its facilities. "The leaders (Modi and US President Joe Biden) hailed the announcement by NASA to provide advanced training to Indian astronauts at the Johnson Space Centre in Houston, Texas, with a goal of mounting a joint effort to the International Space Station in 2024," the joint statement said.

The four selected astronauts, whose identity has not been revealed, have been training for the Gaganyaan flight since early 2020. They have already undergone training in Russia. But Gaganyaan, originally meant to be launched in 2022, in the 75th year of India's Independence, has seen its schedule getting postponed because of the pandemic.

2024 schedule

Recently, the Indian Space Research Organisation (ISRO) chairman hinted that the mission could be pushed back further from its current 2024 schedule.

"There are eight major tests (remaining to be carried out) and if all eight major tests happen successfully without any major glitch, then the launch could be happening in a 2024 timeframe. But if I face problems and challenges, which is natural in this process, then I have to discount the schedule," S Somnath said recently in Bengaluru on the sidelines of an international conference.

Somnath said the primary objective of the mission was to ensure that the astronauts return safely to Earth and ISRO would not "rush" with the mission.

"This means that whenever there is a problem in the mission we have to test and see that the crew is saved. The first of the test missions is going to be in August... Two abort missions have to take place this year. This will be followed by an unmanned mission possibly by the beginning of next year. This will prove the entire event end to end but without a human being," he had said.

The joint mission to the ISS, the only permanent laboratory in space right now, if it sticks to the 2024 date, might happen before Gaganyaan. NASA routinely sends astronauts to the ISS. It does not have to do any additional preparations. The Indian astronauts are already trained, and might only require a few weeks of 'advanced training' at NASA facilities.

AMID SEARCH FOR TITAN, LESSONS FOR PROPOSED INDIAN SUBMERSIBLE DIVE

With hope dwindling on the chances of survival of those in the Titan submersible, scientists in India, preparing to undertake a similar dive in an indigenous vehicle late next year, say that multiple back-up safety measures for the crew are already in place, though there may be reviews of the safety systems employed. The Titan, which previously ferried tourists to the wreck of the Titanic buried 3,800 metres in the North Atlantic, lost contact with its mothership, Polar Prince, on June 17.

The Titan consists of a carbon-fibre sphere with a titanium casing on the front and back. "When we were in the planning stage, there was a proposal to use carbon fibre but we firmly ruled it out and insisted on a titanium enclosure," said G. Ramadass, Director, National Institute of Ocean Technology (NIOT), Chennai, which is in the process of designing a submersible, Matsya-6000, that will take three Indians to a depth of 6,000 metres into the Indian Ocean. Matsya-6000 also has syntactic foam, a flotation device that would rise to the top and help determine the physical location of the submersible, even if it were unable to resurface.



Ahead of the main dives, likely in December 2024 or early 2025, the NIOT divers will undertake several test dives up to 500 metres inside another submersible made of steel. Titanium is stronger than steel but many times lighter — a key criterion that helps the submersible resurface with relative ease from the depths of the open ocean. While the choice of material is made depending on the depth and the cost involved, it's crucial that the submersible's hull is perfectly spherical, so that extreme pressure at the ocean depth is evenly balanced. "Even with the slightest imperfection, say even a millimetre off, it will go off like a bomb," M. Ravichandran, Secretary, Ministry of Earth Sciences (MoES), told The Hindu.

"This accident will certainly have us review and re-check all the safety measures that we will be incorporating in our mission," Dr. Ravichandran added.

IN NON-ENGLISH LANGUAGE WIKIPEDIA, URDU, HINDI AND TAMIL LEAD

In India, if we consider non-English language Wikipedia, the highest number of articles are available in Urdu, Hindi and Tamil. A non-English language Wikipedia is not a translation of English articles. It is self-sustaining: active users and moderators create and moderate content in their languages. Among languages which are mostly confined to a State, Tamil leads by a wide margin, with 1.6 times more articles than the second best, Marathi, followed by Malayalam and Telugu.

Understandably, when all the global languages are considered, English leads the list with 66,71,236 articles. Interestingly, Cebuano, a regional language spoken widely in the Philippines, has the second highest number of articles in Wikipedia (61,23,197). The Cebuano entries are written with Latin alphabets. However, news reports show that many entries were made in Cebuano by a bot.

German (around 28.1 lakh), Swedish (25.6 lakh), French (25.3 lakh) and Dutch (21.2 lakh) are the other prominent languages in which a considerable number of Wikipedia articles are maintained. There are relatively few articles in Chinese and Cantonese (13.6 lakh articles and 1.3 lakh, respectively) despite the fact that many more people speak these languages.

Urdu, Hindi, and Tamil lead with 1.5 lakh-2 lakh articles each, followed by Bangla, spoken widely in West Bengal and Bangladesh, with 1.4 lakh articles. Among other languages confined to a State, Marathi, Malayalam, Telugu, and Punjabi dominate, with 0.5 lakh-1 lakh articles each. There were around 12,000 articles in Sanskrit, and around 15,000 in Sindhi.

There are no Wikipedia articles in two of the 22 languages in the Eighth Schedule of the Constitution: Bodo and Dogri. On the other hand, Bhojpuri, Bishnupriya, and Tulu (with just 1,884 articles and featuring last) are the non-scheduled languages in which Wikipedia articles are available. Of them, interestingly, there were over 25,000 articles in Bishnupriya, which had 79,646 recorded speakers as per the 2011 Census. The number of articles in Bishnupriya is just 5,000 less than the entries in Gujarati and Kannada.

The number of Wikipedia administrators available in each language, who can delete and undelete pages, block users, edit protected pages, and grant rights to others. They have been given extra editing privileges by the Wikipedia community. English language administrators dominate (898), while German and French are a distant second and third. Among the Indian languages, Tamil leads with 35 administrators, followed by Malayalam (15) and Bangla (14). Hindi has six administrators and Sanskrit, three.



A user is one who has created an account on the site. Those who browse Wikipedia without registrations are not considered users. English dominates with over 4.5 crore users, while all the other languages have less than 1 crore users. Among the Indian languages, Hindi dominates with 7.6 lakh users, and among languages mostly confined to a State, Tamil leads with 2.2 lakh.

An active user is a registered user who has performed an action in the last one month, which includes editing an article or taking part in page discussions. The dominant languages of active users were similar to that of the users.

BRIDGING THE GAP

India has climbed eight places from last year in the annual Gender Gap Report, 2023, and is now ranked 127 out of 146 countries in terms of gender parity. But this improved statistic, closing 64.3% of the overall gender gap, is hardly a cause for cheer. On the four key markers of the index — economic participation and opportunity; educational attainment; health and survival; political empowerment — India has a window of opportunity to improve in each so that one half of the most populous country in the world may contribute to the economy, growth and overall well-being of society. India has fared well in education, and in political empowerment, with representation of women of over 40% in local governance, thanks to efforts on the ground after the 73rd and 74th Amendments. But, as the report points out, women represent only 15.1% of parliamentarians, “the highest for India since the inaugural 2006 edition”. This should spur Parliament to take it to the next level by acting on the long-pending Women’s Reservation Bill, which proposes to reserve 33% of seats in the Lok Sabha and State Assemblies for women, and introduced in 1996. To understand where things stand on women’s participation in politics, consider this: Nagaland, which became a State in 1963, elected its first two women MLAs only in 2023.

On providing even access for men and women on economic participation and opportunity, India ranks near the bottom, with less than 40% parity. On the one hand, there are upticks in parity in wages and income, but then shares of women in senior positions and technical roles have dropped. Another concern is India’s performance in health and survival, though an improvement in sex ratio at birth has driven up parity after more than a decade of slow progress. It is imperative that girls get access to education through school and college; and they also need paid work. Women end up doing so much unpaid work at home that many do not have the time or the energy to opt for paid work. Providing girls with a job-assured education will automatically improve all development indices including nutrition, and break the vicious cycle of early marriage leading to poor maternal and child health. If the pandemic revealed the fragility of life, it was harder on women, with their labour participation rates dropping, thus reducing household incomes. Often, even if they get a job, women are impeded by patriarchal and cultural norms; besides, they often have to worry about their safety. The pandemic may have stalled progress to achieve gender equality by 2030, but work towards bridging the gap must go on in earnest.

CENTRE DEFENDS NFHS QUESTIONNAIRE, SAYS DISABILITY DATA WON’T CHANGE FAST

Disability data will not change very fast and there is no reason to collect this data every three years, said the Health Ministry, in response to criticism over the exclusion of disability-related questions in the sixth round of National Family Health Survey (NFHS-6) which is set to begin shortly.



Stating that the primary focus of NFHS is maternal and child health, the Department of Health and Family Welfare (Statistics Division) said that the survey won't be able to collect accurate data on disability in its current form.

It pointed to the disparity in disability data collected by the NFHS and the National Sample Survey Office (NSSO) and asserted that "it is not possible to capture the all-India extent of disability" through the NFHS and warned about the risk of "significantly underestimating the prevalence of disability".

In its two-page communication, dated June 22, the department said that most of the data related to disability were already available in the 'Report of NSS 76th round', which was a dedicated survey conducted during July-December 2018 to collect detailed information on this aspect.

Panel's view

It went on to explain that questions were included in the NFHS-6 based on recommendations by the Technical Advisory Committee (TAC) and other higher-level committees constituted for smooth functioning of the survey. "Taking into consideration the consensus of all the members and availability of other data sources, TAC recommended that proposed questions related to disability estimates need not be included in NFHS-6," it said.

"... Based on NFHS-5 report, it was observed that disability prevalence was only 1% for rural areas and 0.9% for urban areas while NSSO estimates for the year 2018 showed 2.3% for rural areas and 2% for urban areas," it said.

Reacting to the communication, disability rights activists questioned the basis of the explanation and said that people with disabilities in India experienced an average loss of 10-17 years in life expectancy and closing this gap for the world's largest minority group required access to comprehensive health data. "It is crucial to ensure that our needs and experiences are acknowledged and accounted for. We must bridge the disconnect between data collection and effective design of policies," said Satendra Singh from Doctors with Disabilities: Agents of Change.

SAFETY FIRST

Reports of drugs manufactured in India causing severe harm and dozens of patient deaths from across the world continue to trickle in, the latest being the deaths of two patients in Sri Lanka who were administered Indian-made anaesthetic drugs. Just last month, eye drops manufactured in India had caused eye infection in about 30 patients and blindness in 10 in Sri Lanka. While anaesthetic drugs made in India causing deaths are a first in the recent past, eye drops causing infections, blindness and even deaths were reported a few months ago in the United States, with the Atlanta-based Centers for Disease Control and Prevention (CDC) finding a highly drug-resistant bacteria in them. The series of adverse reports against drugs produced in India began last year when the World Health Organization (WHO) linked the deaths of at least 70 children in Gambia from acute kidney injury, to cough syrups. The culprit ingredient in the syrups was diethylene glycol and ethylene glycol — deadly chemicals used as a cheaper substitute for propylene glycol — that should never have been found in any medicine. Soon after the deaths in Gambia, cough syrups made in India and containing the two deadly chemicals killed 18 children in Uzbekistan in December 2022. In end-April this year, Indian-made cough syrup was again in the news when WHO flagged the contaminated drugs found in the Marshall Islands and Micronesia; the contamination was identified by the Australian regulator. Diethylene glycol-



contaminated drugs have led to at least five incidents of poisoning in Chennai, Mumbai, Bihar, Gurugram and Jammu between 1972 and 2020.

The conduct of the Indian drug regulator ever since WHO first raised a red flag in October last year has been on predictable lines. Even after serious violations, it gave a clean chit to the company that had supplied the drugs to Gambia and then went on the offensive to fault the global health body. While WHO held its ground, the drug regulator's stand was exposed — test results from Switzerland and Ghana confirmed the presence of toxic chemicals in the cough syrup sample from Gambia. Also, a detailed causality assessment by Gambia and independent investigations by the Gambian Parliamentary Committee and CDC Atlanta found a link between the deaths and the toxic chemicals. Except for some customary inspections, the Indian drug regulator has so far failed to institute measures to make sure drugs produced in India for export and domestic use are safe. India can continue to be the pharmacy of the global south only if the regulator begins to behave like a watchdog to ensure drug safety, and not as a facilitator for the pharma industry.

HOW CAN INDIA TACKLE ITS DIABETES BURDEN?

The story so far:

There was great interest in the results of the largest, long-term (2008-2020) study on metabolic factors in the Indian subcontinent as part of the ICMR-InDiab study published in The Lancet (by Anjana Ranjit Mohan et al) last week. It was launched in 2008 to estimate the country's NCD (chronic non-communicable diseases) burden, and done over five phases between 2008 and 2020 across the country, with each phase covering five States (all seven northeastern States were covered in one phase). Individuals aged over 20 were recruited for the door-to-door survey and 1.24 lakh individuals were part of the survey.

What are the key findings?

It estimated that about 11% of the population is diabetic, and 15.3 % of the country is in the pre-diabetic stage. Given that the study was conducted in the most populous nation in the world, the actual numbers are naturally staggering. As per these estimates, 101.3 million people in the country are diabetic, and in the pre-diabetes stage, there are another 136 million people. Questions are being raised about whether this constitutes an emergent crisis in India and of the urgent methods that need to be employed to handle this situation, and control possible burgeoning of these numbers in the future. According to the World Health Organization (WHO), about 422 million people worldwide have diabetes, and 1.5 million deaths are directly attributed to the disease each year. Both the number of cases and the prevalence of diabetes have been increasing, and there is a globally agreed target to halt the rise in diabetes and obesity by 2025, according to the WHO.

What are the implications of these statistics?

The thing with metabolic lifestyle disorders, is that with some attention, it is possible to ward off severe complications and a morbid state of life; it is also possible to ensure that the 136 million at the pre-diabetic stage do not proceed to diabetes. "Prevention is key, and here is the window of opportunity," says V. Mohan, Madras Diabetes Research Foundation, which conducted the study funded by the Indian Council of Medical Research. "There is a window of possibility open in a couple of areas and we need to seize it," he explains. He believes the anchor of any intervention programme should be 'prevention' — in the case of diabetics, the aim has to be to prevent the



onset of life-threatening complications; and in the case of pre-diabetics, all efforts must be taken to prevent the progress to diabetes, and in rural areas, where the prevalence is still low, the aim should be to keep it that way.

There are multiple studies that show that poor control of blood sugar leads to complications — cardiovascular disease, kidney disease, neuropathy, blindness, and lower-extremity amputation — which then become a significant cause of increased morbidity and mortality. The question is whether any nation will be equipped to provide comprehensive care to all diabetics who develop complications in the course of living with diabetes. While it is sensible to ensure that there are sufficient facilities to treat the complications, the sagacious approach would be to launch public awareness campaigns on using lifestyle modifications to keep blood sugar within acceptable limits and complications at bay, Dr. Mohan says. Education on a mass scale should be launched across the country for control and periodic check-ups, sticking to the recommended drug regimen and reinforcing health-seeking behaviour, he stresses.

Dr. Mohan explains that while doing the study, researchers encountered a strange phenomenon — that the conversion from pre-diabetes to diabetes was faster in India, in some cases even within six months. So immediate attention must be paid to promoting a healthy lifestyle that would lead to retarding the speed of progress to diabetes, or even prevent movement to diabetes. Urban India accounts for 16.4% of the prevalence while in the rural population the prevalence is 8.9%. Though the prevalence is lower now, this is an area where the possibility for prevention is greater. As traditional lifestyles change and more modern practices take over, it is essential to once again stress on maintaining a healthy diet, getting sufficient moderate to vigorous exercise and periodic testing for those with risk factors and after a certain age group, experts point out.

Periodic epidemiological screening programmes are very important, they say, to catch new diabetics and bring them into the protective net.

Were there any surprises during the study?

The impression, even among researchers, was that the prevalence was high only in metro cities, Dr. Mohan says, adding that they were quite surprised to find that it was similar, or growing in 2-3 tier cities.

In Kerala, said to be top among States with better social development indicators, the prevalence in rural areas had escalated to supersede that in urban areas. This is a side-effect of progress, one that States should be careful to watch over, experts add.

All the northeastern States were covered in one phase, and the surprises included high prevalence in Tripura and Sikkim. While in Tripura, it was averred that the ethnic composition of the State was different from that of the other States in the region, being populated with Bengalis, leading to a high rate of 13% prevalence; in Sikkim where the prevalence of diabetes and pre-diabetes (31%) was high, it was put down to its smaller size and relatively better socio-economic indicators there.

What is the way forward?

Dr. Mohan says there is a plan to do a cross-sectional study to gauge the actual incidence in the community. “What we did was an estimation. For example, in Tamil Nadu, we had the figures from a decade back and that was extrapolated as projections for 2020. We will now do a current study to find out how many actually are diabetic. Now we also intend to go back to the same people —



people who then tested as diabetic to see how they have progressed, to assess their quality of life, and see if they have developed complications. The pre-diabetics in that study will also be approached to see how many of them have converted to the next stage, and among people who were not diabetic a decade ago, to follow up on their status now.”

Some of the islands and Union Territories that could not be covered during the study will now be included in the study. Experts have also indicated tie-ups as part of the public-private partnership mode to involve the larger community in supporting detection and treatment for diabetes.

ISOLATING, ELIMINATING CHRONIC AILMENTS USING DOOR-TO-DOOR SCREENING

Tamil Nadu’s Makkalai Thedi Maruthuvam (MTM), a scheme that takes health services to the doorsteps of people, may be a step in the right direction in the prevention and control of non communicable diseases (NCD). Profiled recently by the WHO for its outreach efforts, health officials in the State claim to have set their focus on doing better, in terms of identification of silent hypertension or diabetes, to ensure proper drug dispensation, to address gaps and promote preventive health measures.

PREPAREDNESS PAYS OFF

A potent cyclonic storm, Biparjoy, swept through Gujarat and parts of Rajasthan last week and while it did cause noticeable destruction to the infrastructure, scores of injuries and cattle deaths, there have been only two reported casualties. The India Meteorological Department began issuing its first reports on the cyclone’s trajectory as early as June 8, and by June 11, the agency first indicated that the storm would not bypass India, as previously estimated, but would likely sharply swing towards coastal Saurashtra, Gujarat. The storm was also categorised as falling in the ‘very severe’ category — average wind speeds of over 115 kmph. The four days of lead time and an estimate of its strength gave enough time for district authorities in Gujarat to begin evacuating people — nearly 1,00,000 people in the coastal regions of the States were moved to shelters and close to 30 central and State disaster relief teams were kept ready. The railways cancelled several trains and fishermen too received advance warnings of the cyclone’s impact, that kept them away from the sea.

There were power outages in 1,092 villages, about 5,120 electricity poles were knocked down and an estimated 186 transformers and 2,502 feeders were damaged in the Saurashtra-Kutch region. While shops and establishments have reportedly re-opened, a full return to normalcy is still awaited. Experience from recent years shows that cyclones, whether in the Bay of Bengal or the Arabian Sea, and their expected impact can be precisely gauged only 36-60 hours ahead. While a greater lead time should in theory mean more time for preparation, the nature of coastal infrastructure, inefficient communication networks and livelihood patterns, combined with the natural fury that cyclones bring about, mean that there are limits to precautionary measures. A cyclone in 1998, that struck Gujarat, reportedly killed nearly 3,000 people, and it can be safely said that India has moved beyond that era. However, there are newer threats on the horizon. Several studies warn that the Arabian Sea, thanks to the effects of global warming, is likely to be the fountainhead of many more severe cyclones. Frequent evacuation cannot be implemented as a permanent policy intervention and efforts must be made to ensure that coastal-regulation-zone norms that prescribe the kind of structures permissible at specific distances from the shoreline must be strictly implemented. The dwellings of rural, coastal inhabitants must be strengthened and natural bulwarks such as mangroves at wetlands must be buttressed for improved resilience.



WHAT MADE CYCLONE BIPARJOY UNIQUE, WHY ITS PATH WAS DIFFICULT TO PREDICT

Cyclone Biparjoy, which struck India last week, was not unusual. Cyclones of this nature and ferocity routinely hit the Indian coastline about three to four times a year. May and June are months when cyclones are expected. On the western coast, Gujarat happens to be the most likely place for the east-moving cyclones in Arabian Sea to make landfall. And yet, Biparjoy had some characteristics that not only made it difficult to predict its path, but also made the cyclone potentially more dangerous.

The case of Biparjoy is a reminder that despite the enormous progress made in developing warning systems and acting on them, cyclones remain a huge threat. The fact that the reported death toll from Biparjoy has been in lower single digits, almost all of them accidental, is a marker of the success of the work done in the past 15 years. But much more needs to be done to minimise the damage to infrastructure, loss of cattle and other animals, and livelihoods of local populations.

Uncertain path

Unlike many other natural hazards, cyclones give adequate warning of their arrival. In the Indian context, it takes them between four and five days to reach the landmass from the north Indian Ocean, both on the Arabian Sea and the Bay of Bengal sides. If a sufficient number of weather instruments are monitoring them, from the oceans as well as from satellites, everything about the cyclones — speed, intensity, trajectory, associated wind speeds — can be predicted accurately.

Biparjoy developed into a cyclonic storm on June 6 and made its landfall on June 15. The 10-day life period, during which it developed into a very severe cyclonic storm and then an extremely severe cyclonic storm, was longer than the average but not the longest. One of the reasons for its longer stay on the sea was its relatively slow speed. Cyclones in the Arabian Sea typically progress with a speed of about 12-14 km per hour. Biparjoy, through most of its life, moved at a speed of 5-7 km an hour while covering a distance of nearly 1200 km to Gujarat.

“Biparjoy was sandwiched between two anticyclonic systems. One of them had the effect of aiding its northwards movement, while the other was sort of pulling it back. The combined effect was that it moved relatively slowly,” explained Mrutyunjay Mohapatra, director general of India Meteorological Department and expert on cyclones.

The influence of these anticyclonic systems also made its trajectory wobble. “We call it recurving tracks cyclone. The trajectory of such cyclones tends to change directions frequently. Predicting the trajectory of recurving cyclones is extremely challenging, with an extra element of uncertainty,” Mohapatra said.

Towards Gujarat

Cyclone Biparjoy was earlier predicted to proceed towards Karachi in Pakistan. The Indian coastline would have felt the impact, but the landfall was not expected over Indian land. It was only on June 11 that the IMD declared that the cyclone was headed towards the northwestern Gujarat coast.

“At that time, most other international agencies were still saying the cyclone was headed to Karachi. That was because a few weather models were indeed predicting that. But we have a strong observational network in this area, and good experience with forecasting cyclones. By



Sunday (June 11), we were reasonably sure the cyclone was coming to the Gujarat coast,” Mohapatra, credited with improving India’s cyclone forecast system, said.

Taking an early call was crucial, because that set in motion the response mechanism. A meeting of the National Crisis Management Committee on June 12 studied the forecast and sent out directives to the state government and the local administration to prepare for a landfall three days later. This was sufficient time to evacuate nearly one lakh people from the danger zones to safer locations.

The intensity of the cyclone was showing unusual variations. At times, it appeared that it was weakening, only to regain its strength later. That produced additional complexities in predicting its likely damage potential.

Persistent cyclone

The relatively slow speed of Biparjoy had extended till the landfall, making the process slightly longer than average, though not extraordinary. Most cyclones of this intensity complete the landfall in about three to four hours. Biparjoy took about five hours. The slow speed meant that even after reaching land, the cyclone remained close enough to the sea to draw moisture and sustain itself.

Longer landfalls have a greater potential to cause destruction. The most dramatic landfall was in the case of the Odisha supercyclone of 1998, the most devastating cyclone to have hit India in recent decades. That process had continued for nearly 30 hours.

Usually, cyclones lose their energy very quickly once they cross over to land. But because it could sustain itself for longer, Biparjoy kept moving on land as well, though with significantly reduced intensity. Its remnants had reached as far inside as Ajmer in Rajasthan on Monday, four days after landfall. Many parts in western and central India received widespread rains because of this system travelling over land.

“In a way, every cyclone is unique. No two cyclones have the same characteristics. Biparjoy had some additional complexities, which made forecasting extremely challenging. But our cyclone forecasting is now among the world’s best. That said, we need to keep improving it because future cyclones, under the influence of climate change, are going to throw bigger challenges,” Mohapatra said.

HEAT AND STATE

In the brutal heatwave beating down on Uttar Pradesh and Bihar, one district in U.P., Ballia, reported the most deaths. The medical superintendent at the local government hospital was reportedly transferred after ascribing the deaths to the heat, followed by a visit by a State-appointed team to assess the local conditions. A member later told journalists that the team had expressed its doubts about the heat being a factor since the toll due to the same heatwave was lower in districts nearby. The member’s statement is a timely reminder that a heatwave is only half heat, the other being bad public infrastructure and social security. Ballia’s toll could be high because of, as the team suspects, contaminated water, or because the local people could not cool themselves. Heat’s deadliness depends on an individual’s general well-being, acclimatisation, physical exertion, comorbidities, location, relative humidity, and extent of heat exposure. But for all the complexity the interplay of these factors augurs, the fight against this mode of the climate crisis, which India is expected to suffer more often, can benefit considerably from some literacy and access to resources. Literacy needs to be rooted in a simple fact: heat is deadly when our



bodies are unable to shed it as quickly as it accumulates. This can happen due to poor living conditions, adherence to caste- and gender-based strictures, or even in overcrowded hospitals. Amenities that can help include access to drinking water, indoor ventilation, health care, regular work breaks, and protections against wage loss. If a person dies in a heatwave, it is only fair to ask whether he/she was able to access these amenities.

If U.P. and Bihar are to forge a better way forward vis-à-vis their heat response, they need to register all heat-related deaths, assign the cause, ensure the medical certificates of the cause of death (MCCDs) follow the proper codes of the most recent revision of the International Statistical Classification of Diseases and Related Health Problems, and issue them. Next, the Office of the Registrar General should compile and release MCCD data every year to facilitate independent research and policy input and to prevent time-wasting disputes over official versus actual figures. However, the office has not released the corresponding reports for 2021 and 2022. In the 2020 report, which was uploaded only last year, Bihar assigned causes to just 3.4% of registered deaths — the worst among States. Not everyone who dies during a heatwave has died due to the heat, but only if good living conditions have been the norm. If they have not, the state is as much to blame as the heat.

GUNS ALONE CAN'T PROTECT FOREST GUARDS IN INDIA: SEVERAL REASONS WHY

Poachers gunned down a forester who was part of a six-member patrolling team in Orissa's Simlipal tiger reserve last Friday. This was the second death in Simlipal since May 22 when another forest guard was shot dead by poachers.

India's frontline forest staff — contract labourers, guards, foresters and rangers — have long fought an unequal battle against poachers, illegal miners, and tree-fellers. They have also been targeted by mass encroachers and insurgents.

This relentless onslaught is not surprising given that the forest staff's job is to protect scarce and lucrative resources — endangered animals, trees, sand and boulders, minerals, and forest land.

Fighting fire with fire

It's not that forest guards are never armed. Depending on the state, they may be issued weapons from basic .303s to INSAS rifles and SLRs, a range that includes 12-bore shotguns, 0.32- and 0.22-calibre revolvers, etc.

Ironically, uncertain law and order situations often prevent forest guards from carrying these weapons, particularly in insurgency-hit areas. This was why the forest staff in Simlipal, part of the red corridor from Chhattisgarh's Indravati to Bihar's Valmiki tiger reserves, stopped carrying guns.

Weapons can be a liability even in the absence of insurgents. In 1994, Rajasthan issued weapons to forest staff with the instruction that if they were carried to forests, there must be at least two persons with firearms lest they were snatched.

Also, forest officials have no power to proactively use their weapons. Like other citizens, they can exercise their right of private defence under Sections 96 to 106 of the Indian Penal Code.



“The main objective of arming the officials is self-defence” and to “provide psychological deterrent” to poachers and other offenders, the 1994 Rajasthan order said. In an inquiry, the onus would be on the forest official to justify the use of firearms, it said.

An early user of one of these guns, forest guard Badan Singh who came under attack for compounding livestock at Ranthambhore’s Bhodal forest post, retired a bitter man with a case still pending against him.

In July 2010, Assam became the first state to make the provisions of Section 197(2) CrPC applicable to all forest officers, giving them protection from arrest and criminal proceedings until and unless a magisterial probe had established that the use of firearms was “unnecessary, unwarranted and excessive”, and the conclusion had been “examined and accepted” by the state.

In 2012, after a spate of tiger poaching cases, Maharashtra issue a similar order.

The Kaziranga experiment

In April 2017, India banned the BBC from all national parks and sanctuaries for five years for “grossly erroneous” reporting in a documentary that explored what the broadcaster called the “dark secrets” of Kaziranga, examining its “ruthless anti-poaching strategy”, where forest guards have powers “to shoot and kill”.

While the government denied the allegations, a 400-page submission in 2014 by then director of Kaziranga M K Yadava to Guwahati High Court in a PIL summed up the core strategy: “It matters who shoots first and who has the better firepower.”

While the allegations of human rights violations piled up, the rhinos of Kaziranga were not immediately safer. Between 2000 and 2010, 17 poachers were shot dead inside Kaziranga, while 68 rhinos were killed. Since the notification, between 2011 and 2016, the number of poachers killed jumped to 59 and the number of rhinos poached to 103. Kaziranga has lost only 20 rhinos to poaching since 2017, thanks largely to diminishing political patronage to wildlife traders.

Bad optics and big risks

The Kaziranga strategy has not been applied elsewhere in the country — for good reasons. To the forest-living communities, frontline forest staff are the most visible arm of the state that guards the resources their livelihood depends on. Not surprisingly, the relationship is usually hostile.

In such a scenario, the risk of misusing firearms or being framed for merely possessing one is high. In August 2022, the divisional forest officer of Madhya Pradesh’s Vidisha district was transferred over the death of a tribal in firing by a team of foresters who were booked for murder.

In July 2019, the Supreme Court stayed proceedings initiated under the SC/ST Act against a woman forest officer in Telangana who was injured by a mob while on duty. The top court intervened again after the deputy conservator of forests of Rajasthan’s Mount Abu was brutally assaulted and also booked under the SC/ST Act in May 2020.

Needed: return to basics

This March, a forester lost his life and a guard suffered injuries in Assam’s Morigaon — but not because they did not have guns. A wild elephant came upon them, but neither of them knew how to fire their weapons.



According to the International Ranger Federation, 31 forest field staff lost their lives on duty in India in 2021. Only eight were cases of homicide. Others were killed in forest fires, elephant and rhino attacks, and motor accidents.

India's frontline forest staff need professional training, adequate compensation, and field incentives for working in some of the world's most hostile conditions. Indeed, no other force faces the risk of getting killed by those whom they are trying to protect.

India's forest establishment often prioritises bureaucracy over the frontline workforce. With too many vacancies across India, too few are left on the ground to defend the forests and themselves.

PM MODI TALKS OF MIYAWAKI FORESTS IN MANN KI BAAT: WHAT IS THIS METHOD, ALSO BEING USED IN MUMBAI

Prime Minister Narendra Modi during his latest 'Mann ki baat' episode spoke about Miyawaki plantation, the Japanese method of creating dense urban forests in a small area. The PM also cited the example of a Kerala-based teacher, Raafi Ramnath, who used the Miyawaki technique to transform a barren land into a mini forest called Vidyavanam by planting 115 varieties of trees.

Meanwhile, to fight climate change, curb pollution levels, and increase the green cover of the financial capital, the Brihanmumbai Municipal Corporation (BMC) has been creating Miyawaki forests in several open land parcels of Mumbai.

What is the Miyawaki plantation method?

Named after Japanese botanist Akira Miyawaki, this method involves planting two to four different types of indigenous trees within every square metre. In this method, the trees become self-sustaining and they grow to their full length within three years.

The methodology was developed in the 1970s, with the basic objective to densify green cover within a small parcel of land.

The plants used in the Miyawaki method are mostly self-sustaining and don't require regular maintenance like manuring and watering.

Over the years, this cost effective method has become the go-to solution for the civic body to restore the green cover in a space-starved city like Mumbai.

How is Miyawaki useful?

The dense green cover of indigenous trees plays a key role in absorbing the dust particles of the area where the garden has been set up. The plants also help in regulating surface temperature. Some of the common indigenous plants that are used for these forests include Anjan, Amala, Bel, Arjun and Gunj.

With several infrastructure projects like real estate metro rail construction in progress in Mumbai over the past few years, it was recorded that the surface temperature in certain pockets of Mumbai has increased. Therefore, to fight this challenge, such forests are being created.

At the industrial neighbourhood in Marol (Andheri East), the BMC is creating an urban forest with the Miyawaki method. "These green patches play a major role in regulating the carbon levels of a given area, which may in return help in maintaining a clean year. Also, these forests encourage



new biodiversity and an ecosystem is developed around it, which in turn increases the fertility of the soil and regulates surface temperature,” said Jeetendra Pardeshi, superintendent of BMC’s garden cell, which is implementing this project.

Which other areas in Mumbai have such forests?

According to the civic body’s data, 64 Miyawaki forests have been planted in Mumbai so far. The Miyawaki drive was launched under BMC’s urban forest project on January 2, 2020 and the first such forest was created in Bhakti Park at Chembur in the eastern suburbs.

The largest Miyawaki forest under this project was created at Chandivali’s Nahar Amrut Shakti Udyan, wherein over 41,000 plants were planted over 13 acres.

Civic officials said that more than 4,00,000 trees have been planted in these 64 forests so far. The BMC’s Garden cell had earmarked 1,100 plots across Mumbai for setting up these forests, back in 2020, out of which more than 60 have been completed.

What are the plans for the future?

In the next one year, the BMC aims to create 14 more urban forests by planting 80,400 trees of various indigenous species. Pardeshi said that Chief Minister Eknath Shinde has given the BMC a target of planting 1,00,000 saplings by the end of this year in various plots that have been earmarked for this project.

The civic body said that some of the new Miyawaki forests are expected to be developed at an open plot close to BEST Colony, Chandivali’s Swami Vivekanand Udyan and a plot at Jogeshwari’s Mahakali caves road, which, with a total bank of 30,000 plants, is going to be the largest in the project.

ARCHAEOLOGIST FINDS MESOLITHIC-ERA ROCK PAINTING IN ANDHRA’S GUNTUR

A Mesolithic period rock painting depicting a person tilling a piece of land has been found by D. Kanna Babu, former Superintending Archaeologist of the Temple Survey Project (Southern Region) of the Archaeological Survey of India, Chennai, in Orvakallu village in Guntur district, Andhra Pradesh.

Mr. Kanna Babu told The Hindu that while surveying the lower River Krishna Valley to ascertain the architectural features of shrines, he identified a new prehistoric rock painting on the walls and ceiling of natural rock shelters on a hillock at Orvakallu.

“After an intensive exploration, it was noticed that these were shelters for prehistoric humans who lived at this place. Among these five naturally formed caves, two are embellished with distinguished depictions of rock paintings on the back walls and ceilings executed by people of Mesolithic Age, roughly [from] 5000 BC,” he said.

Mr. Babu added that the paintings were made with “natural white kaolin and red ochre pigments”, as well as that most of them had been “badly damaged” due to exposure to “air and wind”. “However, some of the sketches and outlines are still intact for the visitors,” he said.

Ochre is a pigment composed of clay, sand, and ferric oxide. Kaolinite is a soft, earthy, and usually white mineral produced by the chemical weathering of aluminium silicate minerals like feldspar.



Culture of people

According to Mr. Babu, the find throws light on aspects of the social life and culture of the people who lived in the area.

One of the paintings depicted a man catching wild goat with his left hand while wielding a hook-like implement to control it. Another showed two couple standing with their hands raised while a child stood behind them.

Mr. Babu also singled out a painted figure of a man holding a plough and appearing to be tilling land — an indication, in his telling, “of a semi-settled life pattern” in which members of this community cultivated crops.



DreamIAS



BUSINESS & ECONOMICS

WILL U.S. FED RESUME THE RATE HIKE CYCLE?

The story so far:

The U.S. Federal Reserve (Fed) last week paused its rate hike cycle by deciding to hold interest rates after ten rate hikes since March 2022. The central bank kept its target for the benchmark federal funds rate between 5% and 5.25% until its next policy meeting. Many analysts, however, expect the Fed to resume its rate hikes and some even expect the federal funds rate to hit 6% soon.

What does a pause in rate hikes mean?

Central banks around the world try to steer their economies primarily by targeting interest rates at which lending/borrowing happens in the short-term credit markets. For instance, if a central bank wants to lower short-term interest rates, it can enter the market where banks borrow funds for their short-term needs with fresh funds, bid up the price of these loans and thus lower interest rates. The fresh money injected into the banking system, in turn, would tend to percolate into the economy and cause prices to rise in the wider economy.

A central bank can thus use monetary policy to influence prices in the wider economy. And keeping inflation within a certain target range is a major goal of central banks.

Another policy goal that central banks try to meet along with the inflation target is to keep the economy operating at its full capacity wherein all resources are fully employed. Many economists believe that there is a trade-off between inflation and unemployment. According to this framework, if inflation falls too low, this can cause a rise in unemployment and hence unused capacity. So, the agenda of most central banks is to keep inflation up at a certain level at which the economy functions at full capacity. Inflation above a certain level, however, is seen as having no positive effect on economic activity.

Why did the Fed decide to hold rates steady?

U.S. Fed Chairman Jerome Powell said that the central bank is waiting for signs that there has been a decisive slowdown in inflation before it decides on further actions. It should be noted that the Fed began raising interest rates after inflation hit multi-decade highs as the U.S. economy slowed down due to COVID-19 lockdowns and the central bank responded by flooding the economy with dollars. While inflation has dropped from a peak of 9.1% in June last year to 4% in May this year, it is still higher than the Fed's stated target of keeping inflation within 2%. And even though U.S. unemployment has risen slightly to 3.7% in May this year, it has witnessed a steady fall since the highs seen during the pandemic. In other words, the labour market does not seem to be heavily affected by the Fed's rate hikes since last year. Moreover, the effects of monetary policy usually take time to impact prices in the wider economy. So, the Fed may be cautious after a series of ten rate hikes about allowing interest rates to rise too much and too soon. A rapid withdrawal of monetary support can cause prices to undershoot the Fed's inflation target, something the U.S. central bank may not want.

What lies ahead?

The Fed's rate hike pause is no guarantee that there won't be any future rate hikes in the short term.



Other western central banks have continued to raise rates after a pause, and major central banks such as the European Central Bank and the Bank of England continue to raise interest rates as inflation continues to be a challenge in their economies.

It is hard to predict the trajectory of economic indicators such as growth and inflation, or even the response of central banks with any level of certainty since there are multiple complex variables at play at the same time.

It can only be said that the U.S. Fed's actions are likely to be influenced by several factors including inflation, economic growth and political compulsions ahead of the U.S. Presidential elections next year.

WHY INFLATION AND WPI IS DOWN, BUT NOT (ALL) PRICES

The headline retail inflation rate fell to a 25-month low in May and the wholesale price index (WPI) is now deep in the red, but groceries and household items continue to appear expensive to most Indians. Why?

While some of the decline in year-on-year inflation rates is statistical, prices of cereals, milk, spices, prepared meals, snacks, and sweets, as well as the costs of education, personal care items, and household goods and services continue to pinch consumers' pockets.

CPI inflation trends

While a high base effect (the impact of the corresponding base, or period of the previous year on current growth estimates) has helped ease the headline number (which has been on a downward trajectory for the last four months and fell below 5% in April and May), the inflation rate for some household items continues to be sticky. Core inflation — the non-food, non-fuel segment — will likely stay around 5% in the near term.

A high base also helped in a sharp decline in the WPI-linked inflation rate, which is expected to pass through to retail inflation with a lag. Data released last week showed wholesale inflation at a seven-and-a-half-year low of (-)3.48% in May on the back of a high base effect, easing global commodity prices, food, fuel, primarily articles, and manufactured items. The wholesale inflation rate was in double digits during April-September 2022, and reached 16.63% in May 2022.

Which items have displayed high inflation rates?

* In the 'food and beverages' category, which carries a weight of 54.18% in the Consumer Price Index (Combined), 'cereals and products' have remained in double digits since September 2022 (when it recorded a 11.53% inflation rate), peaking to 15.27% in March 2023. 'Cereals and products', which has a weight of 12.35% in the CPI, saw the inflation rate fall to 13.67% in April and 12.65% in May.

* The 'milk and products' category too has seen an inflation rate of more than 7% since September 2022, peaking at 9.65% this February. The inflation rate for this category (with a weight of 7.72% in the CPI) eased to 8.85% in April, but rose to 8.91% in May.

* Inflation rate has been sticky in 'spices' and 'prepared meals, snacks, sweets' as well. Over the last one year, barring May 2022, the inflation rate for spices (weight of 3.11%) has remained in double digits, peaking to 21.09% in January this year. In May, it was recorded at 17.9%.



Prepared meals, snacks, sweets too have recorded a 6%-plus inflation rate in the last one year.

Among non-food items, the inflation rate for household goods and services, although easing to 6.05% in May from 6.46% in April and 7% in March, has remained above 6% for the last one year.

Education, which has a weight of 3.46% in the index, has seen inflation above 5% since July 2022. The inflation rate in the 'personal care and effects' category has been rising steadily, with the latest print for May at 9.2% from 9% in April.

Where has inflation recorded a downward trend?

The 'meat and fish' category has been in the deflationary zone for the last three months, with (-)1.29% in May, (-)1.23% in April, and (-)1.42% in March. The gains in inflation have come mainly due to a high base of 6.97% in April 2022 and 8.23% in May 2022.

The 'oils and fats' category, which has a weight of 4.21% in the CPI, has recorded a sharp decline in inflation, remaining in negative territory for the last four months. The inflation rate was (-)16.01% in May and (-)12.03% in April, compared with 13.26% in May 2022 and 17.28% in April 2022. In index terms, the category has seen a sharp decline to 170 in May and 174.9 in April from 202.4 and 199.5 in the corresponding months last year.

A high base has also helped ease inflation for fruits and vegetables. Though vegetables saw a month-on-month increase of 3.34% in May, it has remained in the negative zone for the last seven months on a year-on-year basis. The inflation rate for vegetables was in double digits during April-September 2022, and entered negative territory thereafter.

What kinds of inflation risks lie ahead?

While the headline inflation number is expected to remain below 5% in the near term, after the release of inflation data for May, most economists said they expected the inflation rate to rise marginally in June 2023, the data for which will be released on July 12.

Concerns remain over the potential impact of a poor monsoon on food inflation in the second half of this fiscal. "The development of El Nino conditions would be closely monitored as these could lead to a sub-par monsoon and impact kharif yields and rabi sowing, and thereby impact crop output and food inflation. The headline CPI inflation may rise mildly to 4.5-4.7% in June 2023 from 4.3% in May 2023, based on the early uptrend in the prices of most of the food items, barring edible oils," Aditi Nayar, Chief Economist, ICRA said.

Rahul Bajoria, MD & Head of EM Asia (ex-China) Economics, Barclays, said in a note that the prices of pulses and cereals need to be watched. "Milk prices continue to rise,... cooking oil prices continue to fall amid lower import costs, but sugar is at risk amid rising global prices. Cereal prices...may rise in June given early trends. Given the largely seasonal rise in food prices, we think food inflation is likely to remain manageable, but should rise on a y-o-y basis in H2 FY24," he said.

Among non-food items, core inflation is sticky due to persistence in health, education costs, and in the personal care and effects category, experts said.



DECODING THE ADANI REPORT

The story so far:

The Supreme Court order dated March 2, 2023 led to two parallel inquiries into contraventions of the Adani group of companies, alleged by Hindenburg Research. The U.S.-based investment research firm had alleged in January that the Adani Group was engaged in brazen stock manipulation and money laundering; charges denied by the company. The Security and Exchange Board of India (SEBI), which was asked to investigate whether there was a violation of Rule 19A of the Securities Contracts (Regulation) Rules, 1957, sought an extension after the two-month deadline was over, and will now have to report to the apex court by August 14. In addition, a separate Expert Committee was constituted to inter alia investigate whether there has been regulatory failure in dealing with the alleged flouting of laws by the Adani Group or other companies.

The status of the SEBI probe

The SEBI was directed to probe whether the Securities Contracts (Regulation) Rules, 1957, were violated. The court wanted SEBI to find out whether Rule 19A, which stipulates that every company listed in the stock market has to maintain at least 25% public shareholding, was ignored. It was also asked to find out whether there was a failure to disclose transactions and other relevant information concerning “related parties” to SEBI, in accordance with the law; and also whether there was any manipulation of stock prices in contravention of existing laws. When SEBI sought an extension, citing complexity of the transactions it was investigating, the court granted it more time. Meanwhile, the six-member, court-appointed Expert Committee, submitted a 173-page report to the court on May 6. It has been widely reported that the expert committee has found “no regulatory failure” on the part of SEBI. A perusal of the expert committee report, however, reveals several facts as well as a sequence of events, which not only point towards regulatory failure, but regulatory capture and collapse.

What did the expert panel state?

In the committee’s findings on SEBI’s regulatory performance contained in the fourth chapter of the report, there is an indication of a gigantic scam involving serious economic offences perpetrated by the Adani group.

The expert committee report states that SEBI had begun investigating the Adani group companies in October 2020, following complaints received in June-July 2020. However, regulatory proceedings like the issuance of show-cause notices have not been initiated by SEBI under the ruse of being unable to establish a prima facie case. SEBI has been investigating 13 suspected overseas entities, mostly foreign portfolio investors (FPIs), based in tax havens like Mauritius, which they suspect are front companies of the Adani promoters. These FPIs together held significant shares in five listed Adani group companies as on March 2020 — 15.5% in Adani Enterprises Limited/AEL, 18% in Adani Transmission Limited/ATL, 17.9% in Adani Total Gas/ATG, 20.3% in Adani Green Energy Limited/AGEL and 14.1% in Adani Power Limited/APL, as per SEBI’s compilation.

The promoter group shareholding in the five listed Adani Group companies till March 2020 was above 74%, as per their own disclosures. These listed companies would, therefore, be in violation



of Rule 19A of the SCRR, 1957 if the 13 overseas entities were/are front companies for the Adani Group promoters.

SEBI, despite its suspicion and investigation, however, has been unable to unearth the “ultimate beneficial owner” of these overseas entities till date. This inability to establish prima facie contraventions, however, has been effected by successive amendments to SEBI regulations related to FPIs as well as Listing Obligations and Disclosure Requirements (LODR regulations), as described in the expert committee report. A vital restriction on FPIs having an “opaque structure” was repealed and the definitions of “beneficial owners” in FPI regulations and “related party”/“related party transactions” in the LODR regulations were diluted through successive amendments in 2018 and 2019. These amendments opened regulatory loopholes, enabling the Adani Group promoters, especially Vinod Shantilal Adani, to conceal the ultimate beneficiary owner of the suspected FPIs while claiming regulatory compliance.

SEBI has approached the Enforcement Directorate (ED) and Central Board of Direct Taxes (CBDT) to further investigate in order to establish a prima facie case against the suspected FPIs. But both the ED and CBDT have formally stated that they cannot undertake investigation unless SEBI registers a case under the Prevention of Money Laundering Act, 2002 (PMLA 2002) and tax law violations, respectively. The expert committee report has characterised this investigative paralysis as a “chicken-and-egg” problem.

The intent of the amendments brought in the FPI and LODR regulations by SEBI in 2018 and 2019, seem mala fide from the subsequent amendments made in November 2021. These amendments, which sought to partially plug the regulatory loopholes opened by the earlier amendments, were made with a deferred prospective effect, when the SEBI investigation was already underway. The PMLA (Maintenance of Records) Rules, 2005 were also amended by the Department of Revenue on March 7, that is, after the Supreme Court order setting up inquiries, to amend the definition of beneficiary ownership of FPIs.

These amendments to SEBI regulations have resulted in a complete subversion of Section 12A of the SEBI Act, 1992, which explicitly prohibits contrivances and devices that are structured to bypass the law, enabling securities fraud and insider trading. The expert committee has noted: “SEBI’s pursuit of investigations is based on the premise that it is pursuing the ‘spirit of the law’, which flies in the face of the prospective amendments with deferred effect that SEBI has made on the legislative side.”

Has there been a price manipulation?

A notable aspect in the price movement of the Adani scrips is that their sharpest rise occurred when the five listed Adani companies were already under the SEBI scanner, since October 2020. The price of an AEL share went up from ₹491 on January 1, 2021 to peak at ₹4,190 on December 21, 2022 implying an increase of 753% in almost two years. The price increase of ATL shares from January 2021 to its September 2022 peak was by 874%. ATG shares witnessed a price appreciation of 960% between January 2021 and January 2023. The BSE Sensex had risen from 47868 on January 1, 2021 to reach an all-time peak of 63583 on December 1, 2022, an appreciation of around 32% in 23 months. Thus, Adani scrips had outperformed the market by several times for a period of over two years, from January 2021 to January 2023.

The expert committee report reveals that 849 alerts were generated vis-a-vis the shares of Adani group companies through SEBI’s automated surveillance systems (ASM) between April 1, 2018 and December 31, 2022. Of these alerts, 603 were related to price volume movements, while the



remaining 246 alerts were related to suspected insider trading. While SEBI has reported that the 603 alerts were closed after “processing the same as per approved (sic) standard operating procedures”, “work is in progress” on 246 alerts related to suspected insider trading.

While the large number of ASM alerts were clear signals of excess volatility in Adani scrips, SEBI did not find them “unusual” as long as their prices were rising. It is only when the Adani stock prices crashed post-Hindenburg that SEBI observed “unusual price movement” in a public statement issued on February 4, 2023. The Adani Group promoters have a history of regulatory violations, with the SEBI having indicted them for price manipulation of AEL shares in league with convicted/debarred trader Ketan Parekh; the case was settled “upon payment of certain amounts” in April 2008.

Given this history, SEBI’s public silence on the unprecedented rise in Adani scrips since October 2020, even when the companies were under investigation following complaints; alongside its unwillingness to register a case of regulatory non-compliance and legal violations against the Adani Group promoters till date, comprise prima facie evidence of regulatory failure and SEBI’s complicity in these contraventions.

The expert committee has reported that most of the price rise of AEL scrips occurred between April 1, 2021, when AEL share price was ₹1,031 and December 31, 2022, when the share price reached ₹3,859. The largest buyer of AEL shares during this period was the Life Insurance Corporation of India (LIC), buying around 4.8 crore shares. The 13 suspected FPIs were among the top net sellers during this period, having sold around 8.6 crore shares. The price movement of AEL shares was, therefore, mainly contributed by LIC and the 13 suspected FPIs, and yet the SEBI has so far concluded that it is “impossible to conclude that they (suspected FPIs) had a hand in the price rise” because they were “net sellers” during this patch.

SEBI seems to be operating under the belief that stock prices can only be manipulated through net buying and not net selling, but these large transactions — the FPIs selling 8.6 crore shares of AEL, and LIC picking up around 4.8 crore shares — should be investigated.

What were the final remarks?

Despite collating and presenting a large body of evidence of regulatory failure, as summarised above, the expert committee has drawn ambivalent conclusions like: “at this stage, taking into account the explanations provided by SEBI, supported by empirical data, prima facie, it would not be possible for the Committee to conclude that there has been a regulatory failure around the allegation of price manipulation.” It is now for the apex court bench to study the voluminous report and draw its own conclusions. Given the large body of evidence of regulatory improprieties and subversion contained in the expert committee report, the court’s focus should be on SEBI’s conduct.

UPI PAYMENTS: RELIEF FOR USERS, A HEADACHE FOR BANKS

The dizzying array of daily limits on United Payments Interface (UPI) transactions set by apps and banks — both in terms of value and volume — has put the spotlight on the rapid rise in such transactions in India in recent years.

In 2021, the National Payments Corporation of India (NCPI) limited the number of daily transactions users can make to 20, and the amount to ₹1 lakh per day. However, banks and apps have come up with their own limits at various points in time in recent months. This has created a

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complex web of limitations both in value and volume. For instance, according to ICICI bank's UPI FAQ page, the number of transactions is limited to 10 in a 24-hour period, whereas Bank of Baroda and HDFC Bank allow 20 transactions in the same period.

Such limits were introduced given the surge in the volume of UPI transactions in India in recent years after it was popularised as an alternative to cash in the period after demonetisation. UPI payments were introduced in India as a pilot programme on April 11, 2016.

In May 2018, around 190 million UPI payments were made in India. This rose to 9,415 million in May 2023 — an astonishing increase of nearly 4,855%.

In 2017-18, the share of UPI in all retail payments was just 5.9%, while pre-paid payment instruments (wallets offered by Paytm and Amazon, gift vouchers, etc.) and debit cards dominated with shares of over 20% each. In 2022-23, UPI edged out all instruments with its share increasing to over 73%, while pre-paid payment instruments came a distant second with a 6.5% share. Also, the share of credit cards in retail payments decreased from over 11% to just 2.5% in the same period.

However, it should be noted that the surge in transactions was mostly in terms of volume and not value. The value of UPI transactions carried out in May 2018 was ₹33,288 crore, which amounts to ₹1,756 per transaction. The corresponding figure for May 2023 was ₹14,89,145 crore, which amounts to ₹1,581 per transaction — a fall of ₹175 per transaction in five years.

In 2017-18, the share of UPI in the total value of retail payments was just 0.4%. It increased to 21.1% in 2022-23.

When the surge in volume and the decline in value are read together, two trends emerge. First, consumers are increasingly using UPI as an alternative to petty cash, with the value associated with each transaction becoming smaller and smaller over time. Second, according to PwC's Indian payments handbook, released in December 2020, banks are struggling to keep up with the surge in UPI payments by upgrading their banking infrastructure and technical systems. This struggle is leading to transaction failures. This is also why smaller banks are setting UPI transaction limits which are much lower than even the ₹1 lakh allowed by the NCPI.

PhonePe dominates the apps, closely followed by GPay, while Paytm was a distant third. Among banks, State Bank of India was the remitter bank for a majority of UPI transactions, while HDFC was a distant second.

CREDIT CARD NPAS RISE RS 765 CRORE IN 9 MONTHS TO RS 3,887 CR AMID RBI CAUTION

Bad or non-performing assets (NPA) in banks' credit card segment jumped by Rs 765 crore, or 24.5 per cent, to Rs 3,887 crore in the April-December period of 2022, according to a reply by the Reserve Bank of India (RBI) to an RTI query by The Sunday Express.

However, credit card NPAs made up just 2.16 per cent of the total credit card outstanding or loan exposure as of December 2022, a marginal increase from 2.11 per cent on March 31, 2022.

Though the credit card NPA figure is much smaller when compared to the total outstanding of banks, the rising NPA trend is becoming a source of worry for the RBI. It is learnt that the central bank has cautioned banks on unsecured loans such as personal loans and credit cards.



The banking system's credit card outstanding was at Rs 1.8 lakh crore as on December 30, 2022. The latest RBI data shows that the banking sector's credit card loan exposure stood at Rs 2 lakh crore as on April 21, 2023. This is 1.5 per cent of their total loan book.

The RBI provided credit card NPA data for the nine months ended December 31, 2022, as data for the fourth quarter ended March 2023 was being compiled.

Banks charge a high interest rate — around 38-42 per cent — on outstanding dues after the grace period. According to the RBI's State of Economy article, published in the April 2023 monthly bulletin: "Delinquencies are reducing in the 90+ days past due bracket across all categories of consumer credit, barring credit cards and education loans."

The article was prepared by RBI Deputy Governor Michael Patra and other central bank officials.

In credit card accounts, the amount spent is billed to users through a monthly statement with a definite date for repayment. Banks give an option to the users to pay either the full amount or a fraction of it, i.e., the minimum amount due, on the due date and roll over the balance to the subsequent months' billing cycle.

A credit card account will be treated as a non-performing asset if the minimum amount due, as mentioned in the statement, is not paid fully within 90 days from the payment due date mentioned in the statement.

Banks can report a credit card account as 'past due' to credit information companies (CICs) or levy late payment charges only when a credit card account remains 'past due' for more than three days. The number of 'days past due' and late payment charges is computed from the payment due date mentioned in the credit card statement.

If there is default in unsecured loans, banks do not have any recourse as there is no collateral involved. This could pose a risk to banks' asset quality.

An unsecured loan is one where a borrower is not required to provide any collateral, or security, to a lender in order to avail them. These loans are offered based on the creditworthiness of borrowers.

"RBI is especially monitoring those segments of credit cards where outstanding and overdues are high," according to a person familiar with the matter.

Sources say the RBI is also considering increasing the risk weights on unsecured personal loans, including credit cards. The central bank did not respond to an email seeking comment.

Risk weight is the amount of capital that the lender has to set aside for every loan offered. An increase in risk weight will mean banks will have to make higher capital provisions for every loan.

Currently, the risk weight for consumer credit, including personal loans is 100 per cent. For credit card receivables, it is 125 per cent. Over the last few quarters, consumer durables and credit card loans have grown at a faster pace, driven by higher consumer spending.

As on April 21, 2023, while consumer durables loans registered a year-on-year growth of 30.8 per cent, credit card outstanding rose by 29.7 per cent, RBI data showed. "The rise in credit card outstanding is because the overall economic growth has improved, consumer demand has



increased and also as the number of credit cards has risen. We should be worried only if credit card defaults go up,” said a private sector lender.

In FY2023, the number of credit cards in the system increased to 8.53 crore from 7.36 crore in FY2022.

Fitch Ratings, in a recent report, said credit card lending and personal loans exposure rose to 10.2 per cent of system loans by FY23, from 7.5 per cent at FY18.

WHAT IS THE BULK SMSS SCAM AND WHY DID SEBI BAR 135 ENTITIES FROM MARKETS?

In a new order, the markets regulator SEBI has restrained 135 entities from accessing the securities market and barred them from buying, selling or dealing in securities for manipulation of stocks of five small-cap companies. These entities were allegedly involved in circulating ‘buy recommendations’ in the scrips of these companies through bulk text messages, SMSs, and websites to investors. This resulted in rapid price and volume increase in the scrips of companies.

The regulator imposed a fine of Rs 126 crore on these entities. SEBI has been cracking down on entities and influencers who are involved in manipulating the share prices of companies by providing recommendations on various social media channels to investors.

The scam

The markets regulator initiated an investigation into the trading of scrips of five small-cap companies namely — Mauria Udyog Ltd., 7NR Retail Ltd., Darjeeling Ropeway Company Ltd., GBL Industries Ltd. and Vishal Fabrics Ltd — after it witnessed an abnormally sharp rise in their share prices and trading volume.

In the investigation, SEBI observed certain strong commonalities in the trading pattern followed by various entities in these five scrips. One common feature was that ‘buy recommendations’ for all five scrips were widely circulated through bulk SMSs. Certain websites were also used for recommending buying in all five scrips, except for Vishal Fabrics Ltd, the regulator noticed.

The period of SMS circulation coincided with an astronomical rise in the prices and volumes of the shares of these companies. However, in the case of Darjeeling Ropeway, only volume had increased and the price rise remained under control apparently because of specific surveillance actions that were imposed on the scrip by the stock exchange.

SEBI, in its investigation, found that certain identified suspected entities were allegedly involved in fraudulent acts that led to the abnormal rise in the volumes and prices of the shares of the five companies. The regulator found out that 135 entities were involved in stock manipulation, and that they wrongfully gained Rs 126 crore by indulging in illegal activities. These entities have been barred from accessing the securities market by the regulator. The markets regulator also issued show cause notices to 226 entities, including numerous mule accounts, for violations of regulations. It also indicated a possible requirement of disgorgement of Rs 143.79 crore from these 226 entities.

The modus operandi

SEBI said the entire stock manipulation happened in a pre-planned scheme by these entities, which was mainly centred around the circulation of bulk SMSs in the scrips of five companies with a ‘buy recommendation’ to investors.



It found that there were two distinct but connected phases of dealing with the scrips – one was the ‘pre-SMS circulation’ phase in which the scrips which did not have the backing of any significant corporate announcements or did not have very sound fundamentals, witnessed substantial movement in their prices.

The second phase kicked in with post circulation of bulk SMS with buy recommendations – SMS circulation phase – during which the trade volumes and prices of the scrips further rose as a consequence of the SMS circulations. In this, certain other entities who were either enjoying the connection with each other or with the company through its promoters, took advantage of the price rise and exited from these scrips after pocketing a substantial profit.

As per the first leg of the scheme, PV Influencers were found to have increased the price and volume of the five scrips through manipulative trades. This was followed by the circulation of buy recommendations via bulk SMSs in the five scrips by the SMS Sender- Hanif Shekh, the kingpin who was the mastermind behind the implementation of the entire fraudulent operation. His actions influenced and lured investors to trade in the scrips.

Advise to investors

There have been many instances wherein investors are being misled by influencers or certain entities for buying or selling specific shares. These entities use social media channels like Telegram, Instagram and YouTube to provide wrong investment tips.

SEBI has time and again cautioned investors to be aware of fraudulent activities which are being carried out through SMSs, various websites and social media. It has also advised investors to deal only with registered intermediaries.

WHAT IS THE CONTENTION BETWEEN COAL INDIA AND CCI?

The story so far:

On June 15, the Supreme Court held that there was “no merit” in Coal India Ltd (CIL), a public sector undertaking, being excluded from the purview of the Competition Act. The Court was hearing the PSU’s appeal against the Competition Appellate Tribunal’s order which alleged the former of abusing its position.

What was the case about?

The chain of events goes back to March 2017 when the Competition Commission of India (CCI) had imposed a penalty of ₹591.01 crore on CIL for “imposing unfair/discriminatory conditions in fuel supply agreements (FSAs) with the power producers for supply of non-coking coal.” In other words, CIL was found to be supplying lower quality of the essential resource at higher prices and placing opaque conditions in the contract about supply parameters and quality. The regulator contended that Coal India and its subsidiaries operated independently of market forces and enjoyed market dominance in the relevant market with respect to production and supply of non-coking coal in India.

What did the PSU argue in court?

Coal India argued that it operated with the principles of ‘common good’ and ensuring equitable distribution of the essential natural resource. With this objective, it was secured as a ‘monopoly’



under the Nationalisation Act, 1973 (more specifically, the Coal Mines (Nationalisation) Act, 1973).

The entity said that it may have to adhere to a differential pricing mechanism to encourage captive coal production (referring to mines that are handed over to companies for specific and exclusive use through lease or any other route). Differential pricing, which may be inconsistent with market principles, was to ensure the viability of the larger operating ecosystem as well as for pursuing welfare objectives. Furthermore, coal supply also has a bearing on larger national policies, for example, if the government were to encourage growth in backward areas through increased allocation.

The PSU stated that it did not operate in the commercial sphere. It specifically pointed to 345 out of its 462 mines having suffered cumulative losses totalling ₹9,878 crore in 2012-13.

How did the CCI respond?

The respondents broadened the scope of the arguments. The Raghavan Committee (2020) report, put up for perusal by the respondents, had observed that state monopolies were not conducive to the best interests of the nation. They could not be allowed to operate in a state of inefficiency and should instead, operate amid competition. Furthermore, coal ceased to be an 'essential commodity' in February 2007 and the Nationalisation Act too was removed from the Ninth Schedule (laws that cannot be challenged in court) in 2017. It was also pointed out that Coal India was a fully-government owned entity until the disinvestment in 2010. The government's shareholding reduced to 67% with the rest held by private hands. Moreover, it was stated that the CIL directed 80% of its supplies to power companies. The latter would then pass power generated using coal to discoms (distribution companies), who, in turn, would supply power to the final consumer. The continual supply of coal, adherence to the contract, reasonableness in the rates and quality of coal also serve a common good, the respondents contended. Coal constitutes about 60 to 70% of the costs for power generation companies. Thus, irregular prices and supply will have a significant bearing indirectly on consumers.

What were the SC's observations?

The court said there was "no merit" in the argument that the Competition Act would not apply to CIL because they are governed by the Nationalisation Act, and it cannot be reconciled with the Competition Act. "The novel idea which permeates the Act, would stand frustrated, in fact, if the state monopolies, the government companies and public sector units are left free to contravene the (competition) act," it stated. Separately, it said that entities cannot act with caprice, treat unfairly otherwise or similarly situated entities with discrimination.

According to Anshuman Sakle, partner at law-firm Khaitan & Co, the judgment reinforced the principle of "competitive neutrality" — entailing that the Competition Act equally applies to public and private sector enterprises.

MOUNTING TROUBLES AT BYJU'S: IS THE BUBBLE GOING TO BURST?

Byju's, the education tech startup that witnessed an explosive growth during the pandemic and has been a flag bearer for India's startup ecosystem, is now fighting for survival. The company, which defaulted on a loan recently, is yet to fully finalise the accounts for the last three years, and is fighting with its lenders amid lay-offs and cost cuts. Is it a warning for the Indian startup segment which is borrowing left and right with valuations taking a dive across companies?

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What's the latest on Byju's?

Deloitte Haskins & Sells, auditors of the company, resigned, citing its inability to finalise audit reports for the financial years ended March 2021 and March 2022 amid escalating concerns on the financial front. The market was agog with speculation that three of Byju's directors had resigned. They include G V Ravishankar of Sequoia Capital, Vivian Wu of Chan Zuckerberg Initiative, and Russell Dreisenstock of Prosus.

However, a spokesperson of Byju's denied the resignations. "A recent media report suggesting the resignations of board members from Byju's is entirely speculative. Byju's firmly denies these claims and urges media publications to refrain from spreading unverified information or engaging in baseless speculation. Any significant developments or changes within our organisation are shared through official channels and announcements. We request media outlets to rely on verified sources and official statements for accurate information regarding Byju's," the spokesperson said.

The company, which made a loss of over Rs 4,500 crore in FY2021, is trying to cut costs by laying off employees across various departments and has laid off around 5,000 employees. Its losses for FY22 and FY23 are not available.

What does the auditor say?

Byju's financial woes are worsening, if the comments made by the auditor are any indication. The financial statements of the company for the year ended March 31, 2022 are long delayed. In accordance with the Companies Act, 2013, the audited financial statements for the year ended March 31, 2022 were due to be laid before shareholders in the annual general meeting by September 30, 2022.

What's at stake?

Byju's has reportedly raised over \$5 billion (around Rs 41,000 crore) from various investors. The company recently defaulted on a \$1.2 billion loan and is involved in a legal battle with the lenders.

On the other hand, the company's valuation has crashed from around \$24 billion to \$8.4 billion, according to the valuation made by US investment firm BlackRock. Many venture funds, angel investors, and tech investors who have invested in Byju's can't afford the company to possibly collapse as billions of dollars are at stake.

Further, it will send a wrong message to the Indian startup space at a time when many startups are scouting for financiers and lenders for growth. Moreover, it has enrolled thousands of students for its programmes who will be left in the lurch. "It has been the star amongst the startups. I sincerely hope we don't have to say Bye-ju's!" tweeted RPG group chief Harsh Goenka.

Why is Byju's clashing with lenders?

Byju's failed to pay interest of \$40 million on its term loan B of \$1.2 billion on June 5, and the next day, it initiated legal action against the lenders, calling their tactics "high handed" and "predatory". In November 2021, the firm raised \$1.2 billion through a term loan B (TLB) – loan made by institutional investors whose primary goals are maximising the long-term total returns on their investments – from the overseas market. It raised the amount to fund general corporate purposes offshore, including supporting business growth in the North American market, which is a key to the firm's global aspirations.



The financial result for FY2021 was filed after a delay of 18 months. The numbers were dismal, signalling a cash crunch at the company, later compounded by a weak market owing to geopolitical tensions and rate increases.

Byju's said that on March 3, the lenders "unlawfully" accelerated the TLB on account of certain alleged non-monetary and technical defaults. "On the back of this unconscionable acceleration of the TLB, the TLB lenders undertook unwarranted enforcement measures including seizing control of Byju's Alpha and appointing its own management. Not resting content with this, the TLB lenders (acting through their agent, GLAS Trust Company) commenced litigation in Delaware in an attempt to lend credence to these actions," the company said.

Byju's claimed that the lenders continued to conduct themselves in a "high-handed manner". It said that they issued a notice demanding immediate payment of the entire amount under the TLB, "despite knowing that this purported acceleration was under challenge before the court".

The significance of Byju's in India's startup ecosystem

Byju's is India's most valued start-up and was last valued at \$22 billion, and therefore a flagbearer of India's startup ecosystem – both for firms and investors. According to a Credit Suisse Research Institute report from last month, the ed-tech firm was the twelfth most valuable start-up globally at the end of 2022. Byju's has recently held talks with investors including private equity major TPG to raise more than \$500 million as it tried to stave off potential debt issues.

In October 2022, the firm had fired 5 per cent of its workforce after it had cut hundreds of jobs in June amid a global funding winter that impacted companies across sectors, setting back their plans — including Byju's — to go public last year. The firm had framed the layoffs as a way to improve its finances and achieve profitability.

Its FY21 results, which the firm had filed following an 18-month delay, had shown that Byju's lost more than Rs 12 crore everyday. It posted a revenue of Rs 2,428 crore as its losses in the fiscal rose 17-fold to over Rs 4,500 crore, the highest-ever posted by an Indian start-up.

EXPRESS VIEW ON THE AVIATION INDUSTRY: FLIGHT TO THE FUTURE

Two back-to-back jumbo aircraft acquisition deals over a span of four months seem to mark an inflection point for India's civil aviation sector, reaffirming the country's position as the world's fastest growing aviation market and the third biggest market globally in terms of the domestic traffic. Budget carrier IndiGo's historic 500 aircraft deal Monday with Europe's Airbus consortium was the most aircraft ever bought by a single airline, eclipsing the previous record set by Air India's combined purchase of 470 aircraft from Airbus and Seattle-based Boeing in February. The two deals cumulatively ensure that India is now ensconced in second place in the list of carriers having the largest aircraft order book, behind the US. IndiGo's order of its single-aisle aircraft, coming on the back of Air India's orders, reflects the optimism that the two players have about the potential of India's aviation market, which, in May, saw domestic passenger traffic numbers touch a record 13.2 million flyers, surpassing the pre-pandemic peaks.

Significantly, the two deals come at a time when the India aviation outlook has run into some rough weather, triggered by the unprecedented surge in fares as passenger traffic picked up this year. With Go First's grounding now stretching way longer than initially expected, and hopes of Jet Airways' revival running into fresh headwinds, there is concern that India's domestic aviation market is heading in the direction of a duopoly that has market leader IndiGo and the Tata group



airlines (Air India, Vistara, and AIX Connect). SpiceJet is still grappling with financial troubles and the fledgling Akasa Air is still too small to offer a meaningful challenge. For IndiGo, which dominates the Indian skies with a market share (in terms of passengers carried) of over 60 per cent, this new Airbus order basically ensures a steady supply of aircraft for the carrier till 2035 and equips it to consolidate its position on the leaderboard in India's booming aviation market. The budget carrier is to also receive 480 planes from its earlier orders by the end of this decade, which could mean that the airline will be receiving close to 1,000 planes by 2035. Many of those aircraft would be used to retire older aircraft, of course.

In cumulative terms, Indian carriers have a fleet strength of over 700 aircraft, less than half the 1,500 aircraft with American Airlines, the biggest of the four major carriers of the US aviation market: Delta and United have around 1,300 aircraft each and Southwest Airlines has some 800 aircraft. So, clearly, India has a long way to go. With annual passenger capacity in the six major metropolitan cities likely to nearly double to 420 million passengers by 2030 and the government redoubling efforts to create aviation hubs in India, starting with Delhi, the two aircraft deals could well be another "nose up" moment for the country's aviation sector.



DreamIAS



LIFE & SCIENCE

IS BETELGEUSE FINALLY BEATING THE RETREAT IN CONSTELLATION ORION?

The bright, red star Betelgeuse in the constellation Orion has shown some unexpected behaviour. In late 2019 and 2020 it became fainter than we had ever seen it – at least in records going back more than a century. Briefly it became fainter (just about) than Bellatrix, the third brightest star of Orion. This event became known as the “great dimming”.

But Betelgeuse has since become bright again. For a few days this year, it was the brightest star in Orion – brighter than we have ever seen it. Both events led to speculation about whether its demise in the form of an explosion is imminent. But is there any evidence to support this idea? And how would such an explosion affect us here on the earth?

Stars are, by and large, remarkably stable. They shine with the same brightness year after year. But there are exceptions and some stars – dubbed variable stars – change in brightness. Most famous is Mira, the “star of wonder”, which was discovered as a variable star by the German pastor David Fabricius in 1596 - it is a pulsating star which regularly expands and contracts.

Algol is another well known example: it is periodically eclipsed by a companion star. There are around 30 such variable stars visible with the naked eye, although it requires care to notice their variation in brightness.

Betelgeuse, the seventh brightest star in the sky (discounting the Sun), is the brightest of the variable stars. Sometimes Betelgeuse becomes nearly as bright as Rigel (the blue fourth brightest star in the constellation), while at other times it is notably fainter. The variation is caused by pulsations, similar to those of Mira although not as large or as regular.

Sometimes, however, a star can briefly become extremely bright. The brightest and rarest among those are the supernovae, formed when an entire star ends its life in a powerful explosion.

Supernovae can be bright enough to be visible during the day, although that has only happened a few times in the past 1,000 years. A nearby, bright supernova is the kind of event astronomers live for – but which few of us will ever get to see. We live in hope.

Mysterious behaviour

Although Betelgeuse is a variable star, the great dimming in 2021 was extreme. Within months, it had in fact dimmed by about 60%. This was eventually shown to be caused by a cloud. Stars such as Betelgeuse are continuously expelling gas and dust. A clump of gas in the wind, as large as the star itself, was obscuring half the star. In fact, images of the star showed the southern half of it to be missing. It appears that some stars, like Betelgeuse, have weather. That said, we still don't know what caused the sudden brightening – it is now 50% brighter than usual. But an impending supernova doesn't seem that likely. In these kinds of stars, a supernova explosion is triggered in the core. Brightness variations, on the other hand, are a surface phenomenon.

The extreme brightening may in fact be due to the same dust cloud that caused the dimming, now reflecting light from the star towards us and making it appear brighter.

But we can't be sure, and astronomers are excited. Betelgeuse is about 15- to 20-times more massive than the Sun, and stars of this mass are expected to end their lives in a powerful explosion



known as a supernova. Betelgeuse's red colour shows it is a red supergiant, meaning it's already approaching the end of its life.

But that end may still be a million years away. Stars like Betelgeuse can live in excess of 10 million years – a very brief period to astronomers, but a very long time to anyone else.

Despite this, new models have been run, with some suggesting that a supernova could happen within a few thousand years, while others put this event at 1.5 million years into the future.

There are many mysteries around Betelgeuse. We don't know its precise mass – and even its distance is disputed. It is argued that the star merged with a smaller companion recently: this would explain why it rotates faster than expected. Large stars usually do.

Some ancient manuscripts refer to the star as similar to yellow-ish Saturn, rather than ruddy Mars. Has the star changed colour?

That could point at fast evolution, meaning a supernova may happen sooner rather than later.

Explosion dynamics

If Betelgeuse does go supernova, what would it look like? The star is around 500 light-years away. Following an explosion, we first would detect a rain of massless particles called neutrinos, which would be harmless to us. After that, the star would quickly brighten.

After one or two weeks it would shine with about the same brightness as the full Moon. Betelgeuse would then fade over the next several months but remain visible in the day time for six to 12 months. At night, you should be able to see it with the naked eye for another one or two years. But after that, we would never see it again. Orion would forever lose its red sparkle.

Is there any danger to us? Supernovae produce high energy particles called cosmic rays, which can get past the shield of the earth's magnetic field. But the amounts would be small compared to other radiation we receive for all but the nearest supernovae.

A supernova explosion would also create radioactive iron. In fact this substance has been found in the earth's seabed and on the Moon, believed to have formed in a supernova explosion between 2 and 3 million years ago. That supernova was perhaps 300 light-years from us, closer than Betelgeuse, but far enough to cause no major problems for life on the earth. A very close supernova, closer than 30 light-years, could cause major problems: the cosmic rays could cause ozone destruction and dangerous UV levels on the earth. It could reduce ozone by half over a period lasting hundred to thousands of years: this level is considered capable of causing an extinction event. But such a close supernova would be very rare, and may happen only once per billion years.

Ultimately, Betelgeuse may still be around for some time. And that's good, as it is a fascinating and mysterious star. We still have a lot to learn from it.

MULTIPLE SPACEFLIGHT WITH SHORTER RECOVERY TIME AFFECTS BRAIN

Spaceflight experience, in particular longer missions and shorter inter-mission recovery time, induce fluid changes in the brain that may not return to normal before subsequent flights, reports a study published in Scientific Reports. Ventricles — cavities in the brain filled with cerebrospinal



fluid, expands increasingly with longer spaceflight missions up to six months, and inter-mission intervals of less than three years may not allow sufficient time for the ventricles to fully recover.

The authors found that in seven astronauts who had a shorter recovery time in between missions, there was little to no enlargement of the ventricles— post-flight compared to pre-flight. They propose that less than three years between spaceflights may not be enough time to allow ventricles to recover their compensatory capacity to accommodate the increase in intracranial fluid and they remain enlarged when the astronauts return to space within this time frame.

PHONONS ON THE CHOPPING BLOCK: ARE 'SOUND PARTICLES' QUANTUM TOO?

Quantum computers use qubits as their basic units of information. Physicists have found that packets of vibrational energy (phonons) behave like packets of light energy using a new kind of beam-splitter. This could technically qualify them to act as qubits as well

Quantum computers and artificial intelligence are two of the emerging areas of interest in the realm of computing. Recently, IBM published a paper in which it claimed to have demonstrated that a quantum computer could solve a useful problem that today's conventional computers can't, a result merited by concerns that their computations might become too unreliable when they also become complicated.

What are qubits?

Quantum computers use qubits as their basic units of information. A qubit can be a particle — like an electron; a collection of particles; or a quantum system engineered to behave like a particle. Particles can do funky things that large objects, like the semiconductors of classical computers, can't because they are guided by the rules of quantum physics. For example, these rules allow each qubit to have the values 'on' and 'off' at the same time. The premise of quantum computing is that information can be 'encoded' in some property of the particle, like an electron's spin, and then processed using these peculiar abilities. As a result, quantum computers are expected to perform complicated calculations that are out of reach of the best supercomputers of today.

Other forms of quantum computing use other units of information. For example, linear optical quantum computing (LOQC) uses photons, the particles of light, as qubits. Just like different pieces of information can be combined and processed by encoding them on electrons and then having electrons interact in different ways, LOQC offers to use optical equipment — like mirrors, lenses, splitters, waveplates — with photons to process information. In fact, any particle that can be controlled and manipulated using quantum-mechanical phenomena should, on paper, be usable as an information unit in a quantum computer.

GROUNDWATER EXTRACTION HAS AFFECTED THE EARTH'S TILT: NEW STUDY

Groundwater pumped up from the earth and moved elsewhere to quench the thirst of humans and their activities has caused the earth's axis to tilt nearly 80 cm to the east, a new study has found.

Unlike a globe, which has a fixed axis and rotates stably, the earth's axis wobbles. It's more like a spinning top gone off-kilter, where the planet's rotational pole — a point on the axis about which the planet rotates — tends to wander in a circular pattern several metres wide every year due to the weather, seasonal changes, the molten core, and even powerful hurricanes.



Scientists have been able to track this motion relative to astronomical phenomena such as the centres of bright galaxies or quasars. Scientists have also known for a long time that the movement of water can affect the earth's rotation. A study published in 2016, for example, showed how the movement of water around the world contributed to the wobble in the earth's axis.

But the role of groundwater extraction had not been considered before.

A group of scientists at the Seoul National University, led by Professor Ki-Weon Seo, built and used a climate model that linked the shift in the earth's axis with the movement of water through melting ice caps and glaciers.

The numbers did not add up. They added the effects of water stored in reservoirs and dams but to no avail.

The model only matched the observed drift of the axis once they added groundwater to the equation.

"I'm very glad to find the unexplained cause of the rotation pole drift," Dr. Seo said in a press release. "On the other hand, as a resident of the earth and a father, I'm concerned and surprised to see that pumping groundwater is another source of sea-level rise."

Indeed, the study found that nearly 2,150 billion tonnes of groundwater have been pumped and drained into the oceans between 1993 and 2010, raising sea levels by 6.24 mm. The scientists also said that the location of groundwater depletion is important because that affects how much the axis wanders.

With their model, they found that pumping groundwater from mid-latitude areas affected the drift the most. They also found that the most amount of groundwater redistribution took place in northwest India and western North America, both mid-latitude regions.

Groundwater depletion has been a particular concern across India since the past decade. About 95% of the groundwater extracted in India is used to irrigate agricultural fields.

SUMMER SOLSTICE 2023: WHY IS JUNE 21 THE LONGEST DAY OF THE YEAR?

After half a year of arctic winter, the summer solstice is marked to celebrate the beginning of summer or midsummer, when one of Earth's poles is on the maximum tilt towards the sun.

June 21 is the longest day of the year with the shortest night. After this day, the days start getting shorter, slowly and steadily.

But why is the summer solstice the longest day of the year? It is because of the pole of the Earth that is tilting to a degree of 23.5 more than its usual tilt. This tilt makes the Earth receive more direct sunlight onto its surface.

On the day of the solstice, the Sun reaches its northernmost position at the Tropic of Cancer, after which it stands still before reversing its direction and moving south again.

This year, it will take place on June 21 at 3:58 pm BST in the UK and 10:58 am ET / 7:58 am PT in the US, and 8:27 PM in India.

Many cultures celebrate it opulently. Here is how 7 countries celebrate the Summer Solstice.



England

People gather at the prehistoric monument, Stonehenge, to see the sunrise as the alignment of the stones at that time creates a beautiful sight to behold.

Sweden

In Sweden, the Summer Solstice is known as Midsommar. People gather around maypoles, which they have decorated with flowers, to celebrate and embrace summertime.

Iceland

Known as the Midnight Sun festival in Iceland as the country receives 24 hours of daylight during the day, many bonfires and exhibitions among other things last throughout the night.

Russia

Known as White Night in Russia, the festival is celebrated with pomp and splendour. Firework displays are on show, along with musical concerts and a Scarlet Sails event, in which huge ships sail across the Neva River with bright red sails.

Norway

In Norway, the festival is celebrated as Slinningsbålet, where bonfires are lit to honour the birth of John the Baptist. These fires are said to cleanse the air of evil spirits the beginning of summer or midsummer, when one of Earth's poles is on its maximum tilt towards the sun.

TELEGRAM BOTS: THEIR FUNCTIONING AND POSSIBLE SECURITY THREATS

Bots on Telegram are small applications that run entirely within the platform and can be designed to support any kind of task or service. However, not all of them are secure and safe. They may collect user data, including personal information and chat history

On June 12, reports came out which alleged that a Telegram bot had access to and was presenting the identification numbers of the documents submitted for vaccination purposes which includes Aadhaar, PAN card, and even passport numbers of individuals. In a similar incident, in 2021, a bot on the platform was found selling phone numbers pulled from Facebook. Security researchers reportedly found a network of deep fake bots on the platform that were generating non-consensual images of people submitted by users, some of which involved children. Vox described Telegram as "ISIS's app of choice", saying the real use of the platform was the use of channels to distribute materials to large groups. While the platform has acted to remove public channels affiliated with terrorism, its backers have reiterated that they have no business snooping on private conversations.

What is Telegram?

Telegram is an open-source API messaging platform service launched in 2013. The platform allows developers to create their own apps and use the free-to-use API to develop specialised tools, like bots, to integrate services. The platform currently has over 700 million monthly active users and is one of the 10 most downloaded apps in the world, and is known for supporting file shares of up to 2GB, stored on the cloud that can be accessed from different devices.



Supported financially by Pavel Durov and his brother Nikolai on the technological front, Telegram makes money through its sponsored messages and premium subscriptions. The platform protects private conversations from snooping third parties including officials, marketers, and advertisers, the platform's website says. The platform does not process any requests related to group chats and private conversations among participants. They only entertain requests related to sticker sets, channels, and bots as they are publicly available.

What are Telegram bots?

Bots are computer programs that act as agents of a user or another computer program. Bots on Telegram are small applications that run entirely within the platform and can be designed to support any kind of task or service.

Bots on Telegram can host full Web Apps and can be designed to support everything from online stores to arcade games. Additionally, they can also be designed to make it easier for users to access information held within large databases they are connected to. Users can enter commands, or simply enter the name or description of files they are looking for and the bot can search the connected database to present the information. Bots are listed on the platform as special accounts that do not require a phone number to set up and are connected to the owner's server which processes input and requests from users. They can be found using the search feature on the Telegram app. Users can identify bots by looking at their username which usually has bot as the suffix. They can also have @stickers @gif @wiki or @bing as their suffix.

Who can create bots on Telegram?

Any developer with some skills in computer programming or a third-party service provider can create a Telegram bot using the platform's bot API. The API gives the tools and framework required to integrate code for the bot within the platform. The platform assists the creation of bots through "Botfather" a virtual user designed to be the central development tool for Telegram bots.

Telegram requires bots created using its Bot API to be registered using an authentication token generated by the platform. Bots on the platform can be created using a wide range of programming languages which include Java and Python.

What is the use of bots on Telegram?

Bots are usually used in professional areas for smart communication and pulling information from defined databases. Users can send commands to bots that they respond to with relevant information or perform tasks they are designed to do. For example, if a user does not wish to open their email app to check their messages, they can use a bot to check their email within the Telegram app. Users can also authorise bots to respond to emails from the Telegram app.

Are bots on Telegram safe?

While Telegram encourages developers to create bots that comply with its terms of service, not all bots may be secure and some can pose security risks.

Bots may collect user data, including personal information and chat history and users should read the terms of service and privacy policy to understand how individual bots handle user data. Bots can also be created by threat actors to contain malicious content, such as links to phishing websites or malware. Threat actors can also distribute bots to scam users, promising rewards or discounts on purchases to lure users into sharing their personal data. Some bots could have



security vulnerabilities that can be used by threat actors to compromise the security of users. Introducing a bot to a secure Telegram chat could also downgrade the level of encryption as they may not be using Telegram's encryption protocol, which works by scrambling and making it illegible while in transit, a report from Wired said.

G-20 EDUCATION MINISTERS AGREE ON EQUITABLE USE OF AI

G-20 members have agreed on the need to work together for a resilient, equitable, inclusive and sustainable future via education; they seek to overcome age, gender, socio-economic challenges

A meeting of the Education Ministers of G-20 countries held in Pune agreed to equitable and inclusive use of Artificial Intelligence in education and skilling that respects human rights. All G-20 members also agreed to the critical role that education plays as an enabler of human dignity and empowerment globally.

An outcome statement of the meeting said the G-20 members have agreed on the need to work together for a resilient, equitable, inclusive and sustainable future through education.

"All G-20 members agreed on the need to ensure that everyone, irrespective of age, gender, socio-economic or cultural background, or those who are facing physical, mental or other learning difficulties or special needs have access to quality, inclusive and equitable education and training. All G-20 members agreed that education is not only about academic learning, but also about developing life, technical and vocational skills to make all learners future ready. They also underlined the need for lifelong learning," the statement said.

The meeting recognised the important role of digital transformations, women-led development, green transition and education on sustainable development and lifestyles as accelerators that can advance the progress in sustainable development goals.

Digital divide

"We also reiterated our commitment to overcome the digital divide for all learners by addressing the barriers to technological infrastructure. We agreed on the need to work collectively to develop technology ecosystems and learning resources, including in local languages, that are affordable and easily accessible. We agreed to equitable and inclusive use of Artificial Intelligence in education and skilling that respects human rights," the statement said.

In a video message to the G-20, Prime Minister Narendra Modi said to make the youth future ready, governments need to continuously skill, re-skill and up-skill them.

Skill mapping

"We need to align their competencies with evolving work profiles and practices. In India, we are undertaking skill mapping. Our Education, Skill and Labour Ministries are working in tandem on this initiative. G-20 countries can undertake skill mapping at the global level, and find gaps that need to be plugged," Mr. Modi said.

THE NEW PRIDE FLAG: WHY THE CHANGE, WHAT THE COLOURS SIGNIFY

The month of June, recognised worldwide as the Pride Month, is marked by many events across India to celebrate the LGBTQIA+ community. And you might have noticed that most of these



events are marked by a flag — a simple red-to-violet rainbow, and in some cases, the more updated version of it, which is known as the Intersex-Inclusive Progress Pride Flag, created by Valentino Vecchietti of Intersex Equality Rights UK in 2021. This is actually a new version of the previous Progress Pride Flag created in 2018 by Daniel Quasar.

While most organisations in India still use the older rainbow pride flag in their events, the new variation of it is being increasingly accepted as a more inclusive representation for the community.

What's Pride flag?

A Pride flag essentially represents the pride associated with LGTQIA+ social movements. For centuries people belonging to the community have had to fight for basic rights in countries across the world. The struggle continues in many countries. Uganda, for instance, recently passed a law criminalising the LGTQIA+ community.

In India too, gay sex was decriminalised as recently as 2018. The Pride flag was used by activists, members of the community and allies as a symbol of resistance and acceptance. It was designed by renowned American artist and activist Gilbert Baker.

History of the pride flag

The simple rainbow Pride Flag, designed by Baker, made its debut in 1978 at the San Francisco Gay Freedom Parade. The new flag is based on this very flag. In his memoir, Rainbow Warrior, Baker mentions how he was approached by prominent gay activist Harvey Milk and filmmaker Artie Bressan Jr to come up with a symbol that will represent “the dawn of a new gay consciousness and freedom”.

In 2018, American graphic designer Daniel Quasar redesigned the flag to include the colours of the transgender flag, blue, light pink and white. Quasar added the transgender colours along with black and brown colours (representing people of colour) in a chevron shape to represent forward movement.

The most recent version of the flag was designed by Valentino Vecchietti in 2021 as an intersex-inclusive Pride flag. A purple circle over a yellow triangle was included in the chevron part of the pride flag. This is a reference to the Intersex pride flag.

Why is it called Intersex-Inclusive Progress Pride Flag?

The intersex has been largely been underrepresented within broader queer narratives. According to the United Nations, intersex people are born with sex characteristics (including genitals, gonads and chromosome patterns) that do not fit typical binary notions of male or female bodies.

In 2021, Intersex Equality Rights (UK) decided to adapt the Pride Progress flag design to incorporate the intersex flag, creating the Intersex-Inclusive Pride flag. Intersex Equality rights activist did the redesigning. The colours yellow and purple are used in the intersex flag as a counterpoint to blue and pink which are traditionally seen as gendered colours.

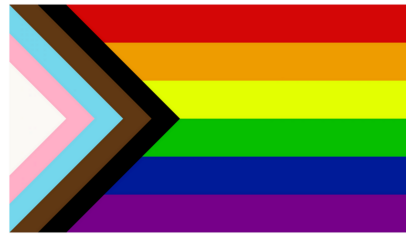
What do the colours of the new flag signify?

- Red= Life
- Orange= Healing

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



- Yellow= New Ideas
- Green= Prosperity
- Blue= Serenity
- Violet= Spirit
- Chevron Part
- Black and brown= people of colour
- White, blue and pink= transpeople
- Yellow with purple circle= Intersex people



EXPRESS VIEW ON RECORD-BREAKING TEMPERATURES: IN THE HOT SEAT

Last month, the World Meteorological Organisation warned that temperatures in at least one of the next four years would be higher than the pre-industrial era average by 1.5 degree Celsius. Now, the EU's Earth Observation Arm, Copernicus, has reported that this threshold was breached in the first week of June. There have been earlier instances when this limit set by the Paris Pact was exceeded. But this is the first time that global mean temperatures have exceeded the 1.5 degree Celsius figure during a summer month. This does not yet mean a point of no return from a climate change perspective. The Paris Agreement refers to global mean temperatures over a 20- or 30-year period. However, as the threshold set by the landmark pact is crossed more frequently, the cumulative effect of these increases is likely to be serious.

Scientists agree that a long-term breach of the 1.5 degree threshold could aggravate climate impacts, including heatwaves, floods and droughts — several such extreme weather events have had telling effects in recent years. Living with such weather vagaries would require paradigm shifts in areas as varied as agriculture, urban planning, and disaster warning and mitigation systems. According to a UN report released at the end of last year, most countries have climate adaptation plans in place, and “instruments are getting better at prioritising disadvantaged groups”. However, as the last IPCC report released in March underlined, “finances for adapting to climate change have been particularly low”. The UNEP estimates that \$340 billion will be needed every year for climate adaptation, but less than \$30 billion gets allocated for the purpose. Moreover, as an OECD assessment shows, 70 per cent of public climate finance is provided through loans where the funder expects a financial return. Interventions such as disaster warning systems or building flood defences do not generate revenue. The current financing structure, therefore, does not address the challenges of a large majority of climate-vulnerable countries, amongst the most resource-strapped. The culpability of these nations for global warming is negligible. Pakistan, for example — which contributes barely 1 per cent of the world's GHG emissions — was set back by more than \$30 billion after last year's floods.

On June 22 and 23, France will hold an international summit “aimed at taking stock of the ways and means of increasing financial solidarity with the Global South”. The decisions taken at the meet are likely to feed into the agenda of the COP 28 in Dubai later this year. The delegates will do well to factor in the challenges posed by the recent rise in temperatures.



WHAT IS THE NEW COLLECTIVE QUANTIFIED GOAL?

The story so far:

The recently-concluded Bonn climate conference in Germany, expected to outline the political agenda for the crucial end-of-year Conference Of Parties-28 (COP28) in Dubai, was critical for reviewing and reforming the climate finance architecture. The conference has, according to Teresa Anderson, ActionAid International's Global Lead on Climate Justice, "exposed a gaping hole in the funding needed to pay for climate action". This comes from a long standing impasse between developed and developing countries, over where money for climate change policies should come from and in what form.

What is the NCQG?

A commitment of '\$100 billion per year till 2020' to developing nations from developed countries was a target set at the Conference of Parties (COP) in 2009. But estimates since then show addressing climate change may cost billions, and even, trillions of dollars. Therefore, the 2015 Paris Climate Agreement agreed on setting a New Collective Quantified Goal (NCQG) for climate financing prior to 2025 — a reference point which accounts for the needs and priorities of developing nations. The NCQG is thus, termed the "most important climate goal". It pulls up the ceiling on commitment from developed countries, is supposed to anchor the evolving needs and priorities of developing countries based on scientific evidence and should respond "to the ever-increasing sums of funding necessary for Loss and Damage in response to failed and/or delayed financial support", climate groups note.

Why do we need a new finance goal?

Out of the promised \$100 billion per year, developed countries provided \$83.3 billion in 2020, as per a report by the Organisation for Economic Co-operation and Development. These figures may be misleading and inflated by as much as 225%, an Oxfam analysis found, as "there is too much dishonest and shady reporting". Moreover, the \$100 billion target set in 2009 was seen more as a political goal, since there was no effort to clarify the definition or source of 'climate finance'.

The economic growth of developed countries has come at the cost of high carbon emissions, and thus they are obligated to shoulder greater responsibility. While funds available for climate finance have quantitatively increased, they are inaccessible, privately sourced, delayed and not reaching countries in need. A recent study by the Centre for Science and Environment found roughly 5% of climate finance comes from grants; the rest through loans and equity which burden developing countries with a "debilitating" debt crisis. Countries most in need of finances have to wait years to access money and pay interest high rates, thus increasing their debt burden.

What do developed countries say?

Developed countries argue that NCQG must be viewed as a "collective goal" for all developed and developing countries. Experts worry this argument pushes the "net zero" pathways onto developing countries, which cannot feasibly pay for mitigation, adaptation, loss and damage, along with sustainably developing key elements of infrastructure. Countries also argue for mobilising private-sector investments and loans as the critical component of climate finance. The Global Stocktake at COP28 will chart a pathway for the long road of climate action.



What is at stake in 2023?

Countries are on a tight deadline to agree upon the NCQG ahead of 2024. There's no official number yet, but a global transition to a low-carbon economy requires investments of at least \$4 trillion to \$6 trillion a year, as per last year's Sharm el-Sheikh Implementation Plan. Some argue that instead of identifying a single aggregate figure, the NCQG could also set separate targets (or sub-goals) for focus areas such as mitigation, adaptation and loss and damage. The aim is to focus on scaling up concessional financing, stopping debt creation and allowing NCQG to be more of a "process" rather than a goal towards equitable and people-led transition.

CLIMATE BREAKDOWN: THE ARCTIC OCEAN COULD BE ICE-FREE BY THE 2030s

The Arctic Ocean could be ice-free in summer by the 2030s, even if we do a good job of reducing emissions between now and then. That's the worrying conclusion of a new study in Nature Communications.

Predictions of an ice-free Arctic Ocean have a long and complicated history, and the 2030s is sooner than most scientists had thought possible (though it is later than some had wrongly forecast). What we know for sure is the disappearance of sea ice at the top of the world would not only be an emblematic sign of climate breakdown, but it would have global, damaging and dangerous consequences.

The Arctic has been experiencing climate heating faster than any other part of the planet. As it is at the frontline of climate change, the eyes of many scientists and local indigenous people have been on the sea ice that covers much of the Arctic Ocean in winter. This thin film of frozen seawater expands and contracts with the seasons, reaching a minimum area in September each year.

The ice which remains at the end of summer is called multiyear sea ice and is considerably thicker than its seasonal counterpart. It acts as barrier to the transfer of both moisture and heat between the ocean and atmosphere. Over the past 40 years this multiyear sea ice has shrunk from around 7 million sq. km to 4 million. That is a loss equivalent to roughly the size of India or 12 UKs. In other words, it's a big signal, one of the most stark and dramatic signs of fundamental change to the climate system anywhere in the world.

As a consequence, there has been considerable effort invested in determining when the Arctic Ocean might first become ice-free in summer, sometimes called a "blue ocean event" and defined as when the sea ice area drops below 1 million sq. km. This threshold is used mainly because older, thicker ice along parts of Canada and northern Greenland is expected to remain long after the rest of the Arctic Ocean is ice-free. We can't put an exact date on the last blue ocean event, but one in the near future would likely mean open water at the North Pole for the first time in thousands of years.

One problem with predicting when this might occur is that sea ice is notoriously difficult to model because it is influenced by both atmospheric and oceanic circulation as well as the flow of heat between these two parts of the climate system. That means that the climate models – powerful computer programs used to simulate the environment – need to get all of these components right to be able to accurately predict changes in sea ice extent.



Melting faster than predicted

Back in the 2000s, an assessment of early generations of climate models found they generally underpredicted the loss of sea ice when compared to satellite data showing what actually happened. The models predicted a loss of about 2.5% per decade, while the observations were closer to 8%.

The next generation of models did better but were still not matching observations which, at that time were suggesting a blue ocean event would happen by mid-century. Indeed, the latest IPCC climate science report, published in 2021, reaches a similar conclusion about the timing of an ice-free Arctic Ocean.

As a consequence of the problems with the climate models, some scientists have attempted to extrapolate the observational record resulting in the controversial and, ultimately, incorrect assertion that this would happen during the mid 2010s. This did not help the credibility of the scientific community and its ability to make reliable projections.

The scientists behind the latest study have taken a different approach by, in effect, calibrating the models with the observations and then using this calibrated solution to project sea ice decline. This makes a lot of sense, because it reduces the effect of small biases in the climate models that can in turn bias the sea ice projections. They call these “observationally constrained” projections and find that the Arctic could become ice-free in summer as early as 2030, even if we do a good job of reducing emissions between now and then.

There is still plenty of uncertainty around the exact date – about 20 years or so– because of natural chaotic fluctuations in the climate system. But compared to previous research, the new study still brings forward the most likely timing of a blue ocean event by about a decade.

You might be asking the question: so what? Other than some polar bears not being able to hunt in the same way, why does it matter? Perhaps there are even benefits as the previous US secretary of state, Mike Pompeo, once declared– it means ships from Asia can potentially save around 3,000 miles of journey to European ports in summer at least.

But Arctic sea ice is an important component of the climate system. As it dramatically reduces the amount of sunlight absorbed by the ocean, removing this ice is predicted to further accelerate warming, through a process known as a positive feedback. This, in turn, will make the Greenland ice sheet melt faster, which is already a major contributor to sea level rise.

The loss of sea ice in summer would also mean changes in atmospheric circulation and storm tracks, and fundamental shifts in ocean biological activity. These are just some of the highly undesirable consequences and it is fair to say that the disadvantages will far outweigh the slender benefits.

THE UPROAR OVER THE NEW COP28 PRESIDENT

The story so far:

Almost a week after the United Nations’ crucial climate meetings in Bonn, Germany from June 5 to 15, which are considered the halfway mark to the COP (Conference of Parties) climate summit in November, questions over the COP28 Presidency of United Arab Emirates (UAE) Industry Minister Sultan Ahmed al-Jaber still remain. Each year, the host country for the COP summit



nominates a president to helm the climate negotiations with almost 200 countries. The UAE announced Mr. al-Jaber, the State oil company CEO, as its pick in January, a move that received immense backlash from Western lawmakers, leaders of some countries, as well as civil society groups.

Who is Sultan al-Jaber?

Mr. al-Jaber, the CEO of the Abu Dhabi National Oil Company (ADNOC) since 2016, was appointed as UAE's Minister of Industry and Advanced Technology in 2020, a new department established that year. The leader, who has a chemical engineering and economics background, was serving as a Minister of State in the UAE government since 2013. Also in 2020, he was for the second time appointed as the UAE's special envoy for climate change, a role previously held by him from 2010 to 2016.

He was also serving in a contrasting role, as the Chairman of Masdar, a renewable energy firm in Abu Dhabi, which he helped start in 2006. According to the BBC, Masdar is now active in more than 40 countries and has invested in mainly solar and wind power projects of a total capacity of 15 gigawatts, which is capable of displacing more than 19 million tonnes of carbon dioxide emissions annually.

In July Mr. al-Jaber was also appointed Chairman of the Emirates Development Bank, which according to his Ministry's website, provides financial services for the sustainable economic and social development of the UAE.

The Guardian reported late last month that Mr. al-Jaber's team was being accused of attempting to "greenwash" his image. It emerged that members of his team had edited Wikipedia pages that talked about his role as CEO of ADNOC; they were accused of inserting a quote from a Bloomberg editorial that said he was "precisely the kind of ally the climate movement needs."

Why is Sultan al-Jaber's appointment facing criticism?

Climate campaigners and groups have been voicing their discontent with the appointment of an oil executive to head a summit responsible for brokering global partner negotiations to mitigate climate change and build a framework to meet the countries' pledge at the 2015 summit in Paris to limit global warming to 1.5 °C as against pre-industrial levels.

Scientists are unanimous on the fact that carbon emissions need to be halved by 2030 and 'net zero' emissions reached mid-century if the goal has to be achieved.

Another agreement within the scientific community and many world leaders is that reducing the production and use of fossil fuel resources— coal, oil and gas— is the way to meeting the promises of the Paris Agreement.

Why has Mr. al-Jaber's advocacy of carbon capture been criticised?

On climate goals, some world leaders have been pushing for a phaseout of fossil fuels as the way to go while others insist on oil and gas continuing to play a role in the future, provided their emissions are somehow curbed. Mr. al-Jaber belongs to the latter school of thought.

Climate campaigners and scientists have expressed caution that technologies proposed so far to capture fossil fuel emissions have not been tested at scale. They also argue that such responses do not hit at the root cause of the problem and look at post facto containment once emissions are



released, pointing out that they could also divert attention and resources from effective alternatives such as renewable energy.

More than 80 countries backed efforts to put oil and gas, not just coal, on notice at the last UN climate summit in Egypt. These are countries in Europe and small and vulnerable island nations which are at risk of sinking and have adopted strict climate action policies. Meanwhile, the U.S and the U.K. have backed Mr. al-Jaber's Presidency.

Many stakeholders argue that having all voices at the table, including a decisive figure from the oil industry, can make negotiations more concrete and realistic. Developing nations like Bangladesh and the Maldives have also said that fossil fuel-dependent economies are critical to climate negotiation and mitigation efforts, and that they have a more difficult task defining their energy transition strategy.

They are banking on Mr. al-Jaber to help secure climate investments supported by sovereign wealth funds and multilateral development banks.

They argue that for the poorer and developing countries, curtailing economic growth is not an option while the rich and developed countries continue to pollute. India, which has been an advocate of climate justice, has also supported Mr. al-Jaber's appointment.

What plans has Mr. al-Jaber highlighted to tackle climate change?

Mr. al-Jaber has reiterated the need to double down on renewables. He said in a speech this year that "reaching net zero will deliver the biggest market transformation, greatest economic and human promise since the first Industrial Revolution," adding that this could be done by tapping into the renewables market.

Supporting the idea that developing nations, while vulnerable to climate change, have their economic and development priorities fulfil, Mr. al-Jaber said one of the important focuses of the negotiations would be to get funds from bigger nations and multilateral development banks, institutions, and to activate already existing corpus funds to which nations have pledged.

THE CLIMATE LAWSUIT AGAINST DELTA AIRLINES

The story so far:

Delta Air Lines in 2020 marketed itself as the "world's first carbon-neutral airline", investing \$1 billion on reducing fuel usage and carbon removal techniques. However, the veracity of these claims is now under scrutiny. On May 30, California-based Mayanna Berrin filed a lawsuit against Delta arguing that the airlines' assertions were bogus, misleading and false.

What does the lawsuit say?

The lawsuit accuses Delta of misleading customers with its sustainability pledges. Delta's in-flight napkins read — "Carbon neutral since March 2020. Travel confidently knowing that we will offset the carbon emitted on your Delta flight."

Delta relied on "carbon offsetting", shorthand for a slew of ways companies can reduce or remove carbon emissions from the environment. Activities like planting trees, shifting to cleaner fuel and funding carbon capture techniques in theory balance out a company's carbon emissions. A single round trip from Mumbai to L.A. generates 4.8 tonnes of CO₂, but the claim is that the carbon



pollution from this trip can be absorbed by trees or carbon vacuums that Delta had supported. All the customer has to do is pay extra to participate in “green flying”. Delta’s carbon offset portfolio consists of “half renewables, mostly wind and solar projects in India,” as per a Bloomberg investigation. According to Delta’s latest ESG report, it was responsible for roughly 43.2 million metric tonnes of CO₂ emissions in 2022 — almost seven times Botswana’s CO₂ emissions from fossil fuels and industry in 2021. The lawsuit against Delta is based on reports that have found glaring loopholes in the carbon offsetting process. Criticism includes, “inaccurate accounting” of projects where reductions would have occurred regardless of carbon market involvement; failure to immediately offset emissions; relying on impermanent solutions such as building projects (like forests) that may be destroyed by natural hazards. A 2022 Bloomberg investigation found the reductions from the Los Cocos II wind farm project in the Dominican Republic which Delta Air Lines paid for would have happened regardless of Delta’s involvement. The airlines has however, denied all allegations.

Have such cases happened before?

A Dutch court in April this year heard a “greenwashing” case against the Netherlands-based airline KLM. Rights group Fossil Fuel alleged that KLM’s advertisements suggest flying with the airline is not directly hazardous to the environment, which violates Europe’s consumer laws by misleading customers about sustainability initiatives. “The only manner to fly sustainably is to not fly or to fly less... Anything that KLM says differently...misleads consumers”, Fossil Fuel’s lawyer said. Misleading carbon-neutral claims in flying aren’t rare — Ryanair urged customers to fly “Europe’s Lowest Fares, Lowest Emissions Airline” which was found to be misleading by a U.K. body in 2019. A 2021 Guardian investigation found that the carbon offset systems of most airlines are “flawed”. A June 2022 Greenpeace report found that seven of the biggest European airlines — including KLM and Lufthansa — were committing “quite offensive” levels of greenwashing. Another study which examined 37 airlines’ claims on carbon offsets found that 44% of these airlines mislead customers and profited from “green” assertions.

What are the reasons for the controversy?

The offset market has been criticised for appealing to climate consciousness without real effort or impact. One line of scrutiny is about the efficacy of offsets in general — growing evidence shows reforestation as a climate adaptation programme is ineffective and misleading. They failed to sequester the carbon in the first place, or the gains made were quickly reversed or inflated, a 2019 ProPublica investigation of Brazil’s rainforests showed.

Another concern hints at the moral problem of greenwashing, where big polluters continue to use fossil fuels and opt for a cheaper route to cutting emissions by way of offsets, all while middle- and low-income nations struggle with climate realities. Experts also argue it lulls people into thinking they are contributing to the environment. One 2015 working paper found that global CO₂ emissions would have been 600 million tonnes lower if countries had cut pollution at the source instead of buying offsets.

Offset programs work only when they remove or reduce carbon emissions that wouldn’t have been eliminated otherwise, what is called “additionality”. Paying to conserve rainforests that no one was planning to cut, doesn’t amount to offsetting carbon emissions. Proving additionality is a structural challenge, for it is hard to track the genuine progress of activities on the ground. A 2021 paper analysed the “world’s largest carbon offset program”, the Clean Development Mechanism,



and found “at least 52% of approved carbon offsets were allocated to projects that would very likely have been built anyway”, amounting to “a substantial misallocation of resources”.

What comes next?

Airlines should focus on decarbonising commercial aviation, with the help of sustainable aviation fuel (SAF), hydrogen, and full-electric propulsion techniques. But these avenues are predicted to face obstacles as air traffic continues to grow and innovative decarbonising technologies are far in the distance.

SUNNY SIDE TO THE LIGHT

Q: Why and how does the sunflower always face the Sun?

A: Certain flowers such as sunflowers are strongly attracted to the Sun. They begin the day facing east and then follow the Sun. This is because of a phenomenon called phototropism.

Phototropism is a growth-mediated response of a plant to stimulation by visible light. The response is stimulated by a hormone called auxin present in the stem.

Auxins promote lengthwise growth of plants. The auxin beta-indoleacetic acid is formed either from the amino acid tryptophan or from the breakdown of carbohydrates known as glycosides.

They promote growth by acting on the chemical bonds of carbohydrates on the cell wall.

In positively phototropic plants, when one side of the plant is shaded, greater quantities of auxin are produced on the darker side. This causes that side of the plant to grow fast. In the case of sunflowers, the phenomenon is pronounced so as to make the flower turn towards the Sun.

STRESS-EATING LINK

Does chronic stress drive the brain to crave comfort food?

Researchers have found (Neuron) that stress can override the brain’s natural response to satiety, leading to non-stop reward signals that promote eating more highly palatable food. This occurred in a part of the brain called the lateral habenula, which when activated usually dampens these reward signals. While some people eat less during times of stress, most will eat more than usual and choose calorie-rich options high in sugar and fat. To understand what drives these eating habits, the researchers investigated in mouse models—how different areas in the brain responded to chronic stress under various diets. According to Dr Kenny Chi Kin Ip from the Garvan Institute, an area known as the lateral habenula, was active in mice on a short-term, high-fat diet to protect the animal from overeating. However, when mice were chronically stressed, this part of the brain remained silent. This allows the reward signals to stay active and encourage feeding for pleasure, by no longer responding to satiety regulatory signals.

CLINICAL TRIALS

WHAT IS IT?

The development of new medicines and medical practices is the forefront of medical research, with researchers endeavouring to find the best thing or way to manage or treat various conditions and diseases. Clinical trials are at the core of this process, especially when humans are the

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



designated recipients of such innovation. These trials ensure that any medicine, surgical method, or, more broadly, an intervention is safe, well-tolerated, and efficacious.

Simply speaking, in a clinical trial, investigators enrol participants who meet certain qualifying criteria, then administer the intervention being tested, and finally measure the outcomes – all according to a predetermined plan.

Trials can test drugs, medical devices, and even procedures. They may compare a course of treatment to existing regimens or a placebo; they may be blinded or double-blinded; in fact, there are several types of clinical trials depending on the investigators' needs.

Ultimately, a trial's results should help investigators determine the safety and efficacy of the intervention to a reasonably high degree of confidence.

Clinical trials also have phases. Vaccines developed against SARS-CoV-2 had to go through four. (Because vaccines are given to healthy people, they need to be tested more than drugs that are given to people who are ill.) Each phase is based on the trial's objective, number of participants, and some other characteristics.

In India, the Indian Council of Medical Research maintains an online public-record system called the Clinical Trials Registry-India. All clinical trials in India are required to register themselves here.

THE REMARKABLE ENDURANCE OF THE Y CHROMOSOME, 'MASTER OF MALENESS'

Many animal species have a genuine fear of losing the Y chromosome in the distant future. This has happened in some species that have naturally lost this chromosome. Such animals provide us with models to understand the process of sex-chromosome turnover and a means to repurpose another chromosome into a sex chromosome

The Y chromosome, often referred to as the "master of maleness", has long captivated scientists and historians alike. In humans, in addition to the 22 pairs of chromosomes in each, we have a pair of sex chromosomes called X and Y. Sex as a specification is determined by these sex chromosomes. They carry sex-determining genes. All biological males have X and Y chromosomes and all biological females have two X chromosomes. The 'sex-determining region Y' on the Y chromosome determines the biological male sex.

'Juvenile delinquent'

Estimated to have emerged around 200-300 million years ago in a common ancestor of all mammals, the Y chromosome has had a unique genetic journey, and embedded within its DNA lies a remarkable tale of evolution. Scientists published the complete genetic sequence of the Y chromosome in 2003. This sequence provided an outline of 23 million bases of the 60 million or so bases that together make up the Y chromosome. In total, the chromosome encoded for only 55 genes and accounted for around 2% of the genetic material inside a cell.

Many researchers jokingly refer to the Y chromosome as the "juvenile delinquent" among chromosomes thanks to its abundance of repetitive sequences, poor functional utility (with a small number of genes), reluctance to socialise (i.e. recombine with other chromosomes), and a high proclivity to degenerate over the course of evolution.



Indeed, because it has little potential to recombine, the diminutive Y chromosome has been passed from father to son, carrying the legacy of generations. Scientists have extensively studied it to understand human migration and evolution. It has also fuelled countless debates, unravelled the mysteries of paternity, revealed genetic diversity, and illuminated the intricate tapestry of our shared past.

Vital genes

In a landmark genetic study, published in March 2003 in the American Journal of Human Genetics, researchers reported that around 0.5% of all the men in the world have inherited a Y chromosome from the Mongol emperor Genghis Khan or one of his descendants. While the Y chromosome has been at the centre of many scientific and social controversies involving sex determination and gender discrimination, we would be better off not underestimating its influence on other aspects of health as well.

In fact, contrary to initial assumptions that the chromosome is degenerating and shrinking over time, and possibly has little functional role, researchers have discovered of late that the Y chromosome possesses genes that are vital to biological functions, including those linked to ageing and lifespan regulation (recent studies have shed light on an intriguing connection between the human Y chromosome and longevity).

In the animal kingdom (including mammals), scientists have noticed substantial differences in lifespan between the sexes: the females tend to live longer than the males.

This phenomenon has been attributed largely to the absence of a second Y chromosome in males, exposing the deleterious mutations in the X chromosome.

It is also well known that men lose the Y chromosome (LoY) with age and that this is associated with a higher frequency of cancers, Alzheimer's disease, and a shorter lifespan. This has been corroborated by studies on mice models that showed that LoY resulted in shorter lifespans and that older mice with LoY displayed significant memory deficiencies compared to younger mice.

However, a recent study in fruit flies from France's National Centre for Scientific Research, published in the journal Nature Ecology and Evolution on June 12, attributed the longevity to the phenotypic sex of the animal rather than the presence of a Y chromosome. Phenotypic sex refers to an individual's sex as deduced from their genitalia.

Losing the Y

Studies conducted by researchers at the University of Virginia School of Medicine, U.S., and Uppsala University, Sweden, together with others have shown that LoY in humans occurs with age and is associated with several debilitating medical conditions – a finding that has been validated in mice with LoY, resulting in weak heart muscles (cardiomyopathy), stretched or thickened heart tissue (fibrosis), and heart failure.

Scientists corroborated these observations with association studies in large human cohorts, such as the UK Biobank. Yet all is not in vain for the male members of the species: researchers have also found that the pathological effects observed on account of LoY in mice's hearts could be negated by transforming growth factor beta 1-neutralising antibodies, suggesting a potential treatment for this medical condition in future.



In another paper published in the same journal, on June 2, researchers performed an analysis of 29 primate sex chromosomes and suggested that in the last 80 million years, there has been a rapid evolution of the Y chromosome. This is exemplified by the fact that the human Y chromosome is about one-third as big as the X chromosome. So, many animal species, including humans, have a genuine fear of losing the Y chromosome in the distant future.

Relinquish the title

In fact, this has already happened in some species, such as rodents, which have naturally lost their Y chromosome. Such animals provide us with models to understand the process of sex-chromosome turnover and a means to repurpose another chromosome (i.e. one of the autosomes) into a sex chromosome.

Further, the evolutionary path leading to the appearance of modern humans provides clues as to what could be in store for the Y chromosome.

Genome sequences of the Neanderthals, an ancient relative of the modern human, harbour telltale signs of the replacement of the Y chromosome beginning from modern humans.

This suggests that such replacement is not new to the human lineage, and that it is quite possible that the Y chromosome may have to relinquish its coveted title of “master of maleness” to another chromosome in the times to come.

INDIA'S FIRST MRNA VACCINE AGAINST OMICRON APPROVED

GEMCOVAC-OM, India's first indigenous mRNA vaccine for the Omicron variant of the novel coronavirus, was approved under emergency use guidelines by the Drug Controller General of India (DCGI) late on Monday. This comes a year after the Pune-based Gennova Biopharmaceuticals Ltd. got approval for GEMCOVAC-19 against COVID-19.

Both the vaccines are yet to be commercially available, though Gennova officials said at a press conference on Tuesday that the vaccines were likely to be formally “launched and rolled out” within the next “two to three weeks”.

The company said GEMCOVAC-OM was stable in a 2-8 degrees Celsius range and hence could be stored in ordinary refrigerators. It could be administered into the skin via a “needle-free” PharmaJet system.

Data from clinical trials, which are not public yet but submitted to the DCGI for review, suggested that GEMCOVAC-OM had a “greater” safety profile as Covishield and generated more neutralising antibodies, said Gennova CEO Sanjay Singh.

RETHINKING IMPORTANCE OF CORD BLOOD IN REGENERATIVE MEDICINE

A few days before her baby girl was born on June 20, 2023, Upasana Kamineni, wife of actor Ram Charan, announced on Twitter that she had chosen to preserve her baby's cord blood. She's not the first celebrity to have done so. A while ago, Aishwarya Rai Bachchan said she too, had saved cord blood.

Umbilical cord blood is a rich source of stem cells that can potentially develop into different types of cells and be used, via a transplant, in the treatment of certain blood, immune and metabolic



disorders. These are known as hematopoietic stem cell transplantations (HSCT) and require certain markers to match between the cord blood and the patient, to work.

While over the past decade or so the popularity of cord blood banking has increased among new parents, witnessed by the many banking facilities that have come up across the country, doctors' associations say private banking of cord blood is not a routine recommendation for pregnant women, its use in transplants is decreasing and the areas of regenerative medicine where it could potentially be used, are still, mostly, experimental.

'Community' or 'social' banks, are repositories of stored cord blood from multiple donors, accessible to those who register for these services with the stem cell banking companies. Gurugram-based Cryoviva Biotech says the firm offers private as well as social banking. The stored stem cells remain the property of the client for the first two years after which they are transferred to the social banking repository, said Sajesh Padman, manager of the company's southern operations

"To find a match you need a large pool of donors," says Mr. Abaya. "Since we have 80,000 cord blood units stored with us, we are able to provide a good match." Cryovia says it has over 40,000 units of cord blood stored. Cord blood banking, can cost patients thousands of rupees.

A FAQ on cord blood banking by the Indian Council of Medical Research(ICMR)says "the likelihood of the stored blood being used for HSCT is very small, probably as low as 0.005 to 0.04% in the first 20 years of life." Consensus has also emerged in recent years, that stored cord blood should not be used for treating one's own genetic condition in the future, because these stem cells could harbour the same genetic abnormality that caused the primary disease.

Of late, the use of cord blood in transplants has been on the decline, says Revathi Raj, paediatric hemato-oncologist at Apollo Hospitals, Chennai. "Up until about five years ago, stem cells from cord blood were used for transplantations in children who had inborn errors of immunity or metabolism: the transplanted stem cells could help cure these genetic conditions. Now, however, a newer method - haploidentical transplants -is more common, where healthy cells from a half-matched donor such as a family member are used to replace the unhealthy ones in a patient." This method, she says, is faster and has a higher success rate. She however expressed the belief that emerging technologies to increase the number of cells in cord blood units and promote faster growth of new blood cells, may help the future use of cord blood.

The ICMR's 'Guidelines for Umbilical Cord Banking' 2023 too state that the trend is decreasing utilisation of cord blood for transplants in recent years. "Presently, the cord blood stored in private cord blood banks remains under-utilised," it adds.

The Indian Academy of Paediatrics, in a 2018 statement, said: "Private cord blood banking is not a 'biological insurance' and its role in regenerative medicine is still hypothetical. [It] is recommended only if there is an existing family member (siblings or biological parents only), who is currently suffering from diseases approved to be benefitted by allogenic stem cell transplantation."

For would-be parents considering cord-blood banking, awareness is important. "There is still a lack of awareness among stakeholders about the uses of cord blood banking. This needs to be countered through widespread information dissemination," says a senior ICMR official.



MONKEYPOX OUTBREAKS IN ASIA-PACIFIC REGION

Over a month ago, the World Health Organization (WHO) declared the Mpox, the global health emergency over. Even though cumulative cases across the world continue to decline, there has been an increase in reported cases from some countries, particularly in Southeast Asia and the Western Pacific Region.

What is monkeypox?

Monkeypox, or Mpox, is a viral disease that primarily spread to the human population through zoonotic spillovers, with rodents and primates serving as potential reservoirs. Mpox can be transmitted between humans through close contact and exposure to infected bodily fluids or lesions. Sexual contact is also believed to contribute to the spread of the disease particularly among certain demographics.

Mpox was a rare infection that was predominantly restricted to some countries in Africa until early 2022, when a rise in cases across the globe where the disease was not endemic, particularly in Europe and North America. According to WHO, over 87,000 cases of Mpox have been reported to date since January 2022, including 146 deaths.

Global situation update

In recent weeks, overall global cases of Mpox have been decreasing, but some regions are seeing an increase in reported cases. In the European region, new cases have been reported from Spain and the U.K. But the large European and North American outbreaks observed in 2022 have been brought under control through vaccination campaigns and increasing awareness about the disease. The global situation of Mpox is, however, far from being resolved, with an increasing number of reports from new countries. Significant impacts observed in Southeast Asia and Western Pacific region.

In June 2023, China reported four cases of Mpox —two from Beijing and two from Guangzhou — raising concerns about the spread of the disease in the country. Two cases were also reported from Sri Lanka, in patients who had a travel history to Dubai. Earlier this year, Mpox was also detected in Thailand, Taiwan, Pakistan and Japan. Incidentally, several cases have a travel history to the Middle East, however, reports from Middle East do not indicate an increase in the number of cases.

Mpox being reported from newer territories is worrisome as the disease is potentially expanding its reach through an undetected spread, posing new challenges in its containment efforts.

Cause for concern

The lack of a corresponding surge in reported cases suggests that there may be challenges in accurately capturing and documenting cases in the Middle East, suggesting that there may be challenges in detecting cases in the region. This also highlights the need for improved reporting mechanisms to obtain a more comprehensive understanding of the situation in the Middle East. Meanwhile, the African region has also experienced a surge in cases, notably in Cameroon, the Democratic Republic of the Congo, and Nigeria.

Amidst increased globalisation and travel, the need for global public health efforts, cooperation, and resource sharing has never been more crucial. Genomic surveillance of the monkeypox



pathogen allows for contact tracing and monitoring of its evolution. There is a noticeable lack of genomic data from developing countries, particularly in Asia.

As we move forward from the global pandemic, it is crucial to remain vigilant and prepared for future challenges, taking proactive measures to curb infections and protect vulnerable populations.

INCREASE IN LIVER DISEASE 'CAUSED BY POOR DIET AND LIFESTYLE'

If alcohol consumption could impact the health of your liver, a sedentary lifestyle, a high calorie diet and excess fats associated with obesity and high blood sugar can be equally detrimental. That Non-Alcoholic Fatty Liver Disease (NAFLD), and its advanced form, Non-Alcoholic Steatohepatitis (NASH) cases are steadily rising is worrying doctors.

"We are used to hearing about alcohol-related liver damage; however, NAFLD is now steadily becoming a leading contributor to cirrhosis and liver transplantation. It is critical to educate the public on the fact that while excess alcohol causes damage to our liver, a sedentary lifestyle, overeating and a high calorie diet such as processed sugar is almost as bad as the damage from alcohol, making it an equal contributor to liver diseases today," said N Murugan, Hepatologist and Transplant Physician, Apollo Hospitals. Globally, prevalence of NAFLD is around 25% (22%-28%), prevalence in Asia is around 27% (22% - 32%), he said: "However, we have seen the trend to be much higher in India with prevalence among adults at 39% and among children at 35%."

"We have observed that among three lakh persons who underwent health checks at Apollo Hospitals in the last year - that includes both urban and rural population - 23% were found to have a fatty liver condition. Of these, three-quarters of the people did not have a history of consuming any alcohol," he wrote in an email.

NASH is an advanced form of NAFLD, R. Surendran, former director, Department of Surgical Gastroenterology, Government Stanley Medical College Hospital, pointed out. "Throughout the world, it is increasing at an alarming rate. About 6.5% of the population had NAFLD irrespective of age and 20% of this has already gone into NASH. The prevalence of NASH will lead on to cirrhosis of liver and later, liver cancer," he said. He added that the difference between NAFLD and NASH was the presence of inflammation in the liver in NASH.

K. Premkumar, associate professor, Hepatology and director in-charge, Institute of Hepatobiliary Sciences, Madras Medical College and Rajiv Gandhi Government General Hospital, said that NASH was a wide spectrum of disease severity, including fibrosis, cirrhosis and hepatocellular carcinoma. "The global prevalence of NASH is estimated between two and six per cent in the general population," he said.

Awareness of NAFLD remains low among patients and healthcare providers, he said. "It is an asymptomatic and slowly progressive disease, in adults and in children, but fibrosis rapidly progresses in 20% of cases. It is diagnosed only when individuals undergo health screening or is incidentally detected," he added. Currently, NAFLD is increasing in India and is becoming an important cause for end stage liver disease for which transplantation is the curative option.

Dr. Surendran said that it was alarming that 50% of diabetics, 75% of obese persons and 100% of obese and diabetics have NAFLD. Even non-obese can develop NAFLD and NASH because of lack of activity and junk food. Childhood obesity is increasing at an alarming rate due to consumption of junk food, he said.