CURRENT AFFAIRS FOR UPSC

17TH TO 23RD MARCH 2024

DreamIAS

INTERNATIONAL

HOLLOW VICTORY

The result of Russia's March 15-17 elections was known to everyone even before the first ballot was cast. The only question that needed to be answered was what the winning margin of President Vladimir Putin, who has been at the helm for nearly a quarter century, would be. On Monday, Russia's Central Election Commission (CEC) said Mr. Putin had won nearly 88% of the vote, while nearest rival Nikolay Kharitonov of the Communist Party, got 4.31%. The country saw a record turnout of 77.44% and the results showed that Russia "is united" under the long-time leader, according to Ella Pamfilova, the CEC chief. In all practical sense, it was a carefully managed election that would have only one possible outcome. Only Kremlin-tolerated candidates were allowed to stand contest. Those critical of Mr. Putin's policies were barred on technical grounds. The state had also passed legislation in the election run-up criminalising any criticism of the Ukraine war. For Mr. Putin, who faces international criticism over the war, the election was an opportunity to tell the world that the country was united behind his leadership.

Over the years, Mr. Putin, 71, has mastered a complex model of a tightly-held state with regular elections and little dissent. To his credit, he remains a popular leader. For many Russians, he rebuilt the state in the early 2000s after the "decade of humiliation" of the 1990s that followed the collapse of the USSR. Statism, rooted in Orthodox Christian conservative values, replaced the state-sanctioned communism of the Soviet years. He stood up to the West, seeking to restore Russia's great power glory. He brought wars within Russian territories to an end, ensured economic and political stability and expanded the country's borders with the annexation of Crimea in 2014. But he also turned the state into a militaristic, authoritarian machinery that sought complete dominance at home and counterbalancing against the West abroad. Two of his most vocal political opponents are gone — Boris Nemtsov and Alexei Navalny — while several others are in jail. The media have been muzzled. And state institutions have practically become branches of the Kremlin. With his sweeping victory, Mr. Putin will likely project further strength and preserve the status quo. But the meticulous way in which the regime staged the election, with the goal of bolstering Mr. Putin's numbers, and its overzealous attempt to stamp out even the slightest dissent expose the underlying weakness rather than endorsing the strongman image that hangs on the facade of the regime Mr. Putin has built.

IRISH PM LEO VARADKAR ANNOUNCES RESIGNATION

Leo Varadkar on Wednesday announced that he was stepping down as Ireland's Prime Minister and leader of the Fine Gael party in the governing coalition, citing "personal and political" reasons. Pundits called the move, just 10 weeks before Ireland holds European Parliament and local elections, a "political earthquake". The country must also hold a general election within a year. Deputy Prime Minister Micheal Martin, leader of the Fianna Fail coalition partner, said the announcement was "unexpected" but added that he expects the government to run its full term. An emotional Varadkar, 45, said he felt he was no longer the "best person" to lead the country. "I am resigning the presidency and leadership of Fine Gael and will resign as Taoiseach (Prime Minister) as soon as my successor is able to take up that office," Mr. Varadkar told reporters.

Earlier this month, Mr. Varadkar was widely blamed for a twin defeat, including the biggest ever referendum loss by a government, on proposals to reform references to women, the family and care in the Irish Constitution.

Mr. Varadkar said his centre-right Fine Gael party will have a leadership contest, and that he will remain as premier until the new leader is elected, after Parliament returns from recess next month.

ON THE MASS KIDNAPPINGS IN NIGERIA

The story so far:

Battling its worst economic crisis in years, Nigeria is also facing serious security challenges amid a resurgence of kidnappings in its troubled northern region. Over 600 people, including at least 300 schoolchildren, have been kidnapped in the northeastern and northwestern parts of the country since the end of February.

What is the latest crisis?

Reports of a mass abduction first emerged from a remote area in northeastern Borno earlier this year. On February 29, suspected Boko Haram militants abducted at least 200 internally displaced people, mostly women and children, while they were gathering firewood outside their camps, in the Ngala Local Government Area. Similar incidents were reported from the northwestern region in quick succession. On March 7, 287 students were kidnapped from a government school in the Chikun area of Kuriga town in Kaduna State. The attackers abducted children and a few staff members, demanding one billion naira (about $6,00,000) for their release. Around 48 hours later, assailants attacked a boarding school in Sokoto State at around 1 a.m., abducting 15 children from the hostel as they slept. The gunmen fled before security forces could arrive. Tragedy struck the northern region again on March 11. Sixty-one people were kidnapped from a village in Kaduna. Nearly 100 others were abducted by gunmen in two attacks in Kaduna between March 16 and March 17

The spate of kidnappings drew condemnation from human rights activists, with the UN High Commissioner for Human Rights Volker Türk saying that he was “appalled” by the recurrent mass abductions. He called for perpetrators to be identified and brought to account “as a first step towards reining in the impunity that feeds these attacks and abductions.”

Nigeria last experienced a surge in targeted attacks on educational institutions in 2021. Approximately 150 students were kidnapped by armed men in four months. Although most were eventually released, at least five were killed. The 2014 kidnapping of 276 girls by Boko Haram insurgents from a school in the Chibok town of Borno State continues to be one of the worst crimes committed in recent years. Of the 276, several were forced to marry and endure physical and psychological abuse. A decade later, 98 are still missing.

Who’s behind the mass abductions?

At the time of the first attack in February, Boko Haram emerged as the primary suspect, given its track record of violence in Nigeria. The group has been engaged in a prolonged insurgency, causing widespread devastation and displacement. Kidnapping has been a key component of their terror tactics. However, with no organisation claiming responsibility for the recent abductions, there are suspicions that local armed gangs in these regions, commonly referred to as bandits, might be behind the incidents. Relatively new actors in the turbulent security landscape, bandits are believed to be an outcome of years of conflict over land and water between nomadic herdsmen and farming communities. While disputes earlier centred around such basic needs, bandits have

evolved into organised armed groups in recent times. They have taken to looting, kidnapping for ransom, and forcibly seizing control of valuable assets like gold mines and farmlands.

What's fuelling the surge?

The rise of kidnapping as a 'lucrative' industry in Nigeria has stemmed from a combination of economic, security, and political issues, including a struggling economy, high unemployment rates, surging inflation, increasing food insecurity, and instability in the Niger delta. Ransom payments have become the primary motivation behind the kidnapping incidents, as successive governments have struggled to tackle these complex security challenges. Africa-focused consulting company SBM Intelligence says Nigeria faces security crises across all six geopolitical zones, including threats from Boko Haram, bandit groups, criminal gangs, sea piracy, and agitation by armed separatists.

Nigeria's economic challenges have worsened due to monetary policies which caused the currency to plummet against the dollar, leading to widespread protests and increased desperation. This, in turn, drives youth to join armed gangs. The ransom menace has escalated in recent years, with armed gangs controlling significant territories and amassing a formidable arsenal of weapons. These gangs have seized control of mining sites and farmlands, forcing rural residents into labour and threatening the country's food security by controlling vital agricultural areas. As per former federal lawmaker Shehu Sani, bandits target schoolchildren because they know "it will evoke public sympathy for the pupils, and pressure will be mounted on the government to bow to their demands."

How has the government responded?

While government security forces are working to obtain the safe release of the victims, President Bola Tinubu has rejected the idea of paying ransom for nearly 600 people abducted in separate incidents this month. Notably, in Nigeria, anyone found paying a ransom to free a hostage could face at least 15 years in jail. This law was enacted in 2022 due to the prevalence of kidnappings for ransom in the region. Security operations, however, are expected to last months as forces navigate the remote forest areas where the victims are being held. Activists say the government must initiate dialogue with the bandits to resolve the ongoing conflict, expressing concerns over the potential consequences of using force.

HONG KONG PASSES NATIONAL SECURITY LAW GIVING GOVT MORE POWER TO CURB DISSENT

Hong Kong on Tuesday passed a new national security law that expands the government's power to crush dissent, news agency AP reported. It will come into effect from on March 23.

The legislature president said that the passage of the law is a "historic moment".

The proposed law threatens stringent penalties for a wide range of actions authorities call threats to national security, with the most severe — including treason and insurrection — punishable by life imprisonment. Lesser offenses, including the possession of seditious publications, could also lead to several years in jail. Some provisions allow criminal prosecutions for acts committed anywhere in the world.

The lawmakers had met in a special session to resume debate on the proposed national security law Tuesday, a day before the Legislative Council's regular Wednesday sessions.

The legislation is widely seen as the latest step in a sweeping political crackdown that followed pro-democracy protests in 2019. It would come on top of a similar law imposed by Beijing four years ago that has already largely silenced opposition voices in the financial hub.

The bill was first tabled on March 8, following an appeal by Hong Kong leader John Lee to push the law through "at full speed."

Officials insist the new security law balances security with safeguarding rights and freedoms. The city government said it's necessary to prevent a recurrence of the protests, and that it would only affect "an extremely small minority" of disloyal residents.

The measure targets espionage, disclosing state secrets, and "colluding with external forces" to commit illegal acts, among others. Its provisions include tougher penalties for people convicted of endangering national security by certain acts if they're also found to be working with foreign governments or organizations to do so. Those who damage public infrastructure with the intent to endanger national security could be jailed for 20 years, or, if they colluded with external forces, for life.

SRI LANKA MAY SECURE MORATORIUM FROM IMF ON DEBT OWED TO INDIA

Sri Lanka is close to finalising a debt treatment plan with India and the Paris Club, sources familiar with the negotiations said, pointing to a likely moratorium of up to six years and a reduced interest rate during the repayment period.

"The discussions are at an advanced stage. A formal agreement on the terms can be expected very soon," the Colombo-based source told The Hindu on Thursday, after a recent discussion among members of the Official Creditor Committee (OCC).

As many as 17 countries that have extended loans to Sri Lanka formed the Committee last year for ease of debt restructuring negotiations. China opted to stay out of the platform, but has been attending its meetings as an observer. Meanwhile, Colombo has repeatedly assured the OCC that it would negotiate repayment of Chinese loans on comparable terms.

Finalising agreements with the official creditors and reaching "in principle" agreements with the key private creditors would be "critical next steps" in Sri Lanka's economic recovery plan, the International Monetary Fund (IMF) said on Thursday. After defaulting on its nearly $50 billion external debt in April 2022, Sri Lanka has been engaging with its diverse lenders to work out a debt treatment plan that is compatible with its pace of recovery. While Colombo is said to have made considerable progress in negotiating a deal with its bilateral creditors, private creditors holding the largest chunk of Sri Lanka's foreign debt continue to pose a challenge.

Meanwhile, Sri Lanka got a step closer to receiving the next instalment of the IMF's assistance, as part of the $3 billion package it obtained last year, to recover from the unprecedented financial crash witnessed in the island nation in 2022. Authorities reached a staff-level agreement with the Fund on the second review of its four-year Extended Fund Facility (EFF) arrangement. Upon completion of the IMF Executive Board's review, Sri Lanka would have access to about $337 million, taking IMF assistance it has received so far to $1 billion, the Fund said in a statement.

Commending Sri Lankan authorities for "making good progress" in implementing an "ambitious" reform agenda, IMF officials told a media gathering in Colombo that the government had shown "commendable outcomes".

BLOWBACK

When the Taliban returned to power in Kabul in August 2021, Imran Khan, the then Prime Minister of Pakistan, claimed that Afghanistan had broken the "shackles of slavery". Two and a half years later, the Afghanistan-Pakistan border is a source of friction between the two countries. Pakistan carried out air strikes in the Afghan provinces of Paktika and Khost earlier this week, killing at least eight civilians. Pakistan says it was targeting the Tehrik-I-Taliban Pakistan (TTP), which it blames for a surge in terror attacks on its territory. In retaliation, the Taliban launched attacks on Pakistani military posts along the border. An uneasy calm prevails on the border and the bonhomie the Afghan Taliban once enjoyed with the Pakistani military establishment is now lost. Pakistan, which played a key role in the Taliban's rise in the 1990s, has backed the Sunni Islamist group for years. In the late 1990s, when the Taliban were in power, Pakistan was one of only three countries to formally recognise the regime. Islamabad turned against the Taliban under pressure from Washington after the September 11, 2001 terrorist attacks, but it tactfully played a double game over two decades by remaining an American ally in its war on terror while backing the Taliban. The entire Taliban leadership was based in Quetta, Balochistan, during this phase.

Pakistan cultivated the Taliban against the U.S.-and India-backed Afghan government. When the Afghan government of President Ashraf Ghani collapsed in 2021 in the midst of America's withdrawal from Afghanistan and the Taliban's return to power, Pakistan expected to deepen its strategic presence in South Asia through a client regime in Kabul. But the opposite happened. Historically, Afghan governments have not had very good relations with Pakistan, given their disputed border, the Durand Line. When the Taliban were an insurgency, they needed Pakistan and Pakistan needed them as a counterweight to the government in Kabul. But today, the Taliban are the government in Kabul. Besides, the return of the Taliban to power in Afghanistan strengthened the TTP, also known as the Pakistani Taliban. The Afghan Taliban and the TTP are two different organisations but ideological brothers — both Pashtun, and who follow the strident Deobandi interpretation of Islam and believe in the rule of the Sunni Islamic clergy. In other words, what the TTP wants to achieve in Pakistan is what the Afghan Taliban have already achieved in Afghanistan. The Afghan Taliban have not severed their ties with the TTP despite Pakistan's calls and threats, which has put both countries on a collision course. Pakistan has no quick fixes. It has a history of supporting Islamist insurgency, which has come back to haunt the state in one way or the other. In Afghanistan, this policy is facing its latest blowback.

What triggered the airstrikes?

On March 16, seven Pakistani soldiers were killed after a suicide bomber rammed an explosive-laden truck into a post in North Waziristan. The next day, while offering the funeral prayers, President Asif Ali Zardari vowed to "respond strongly." Hours later, the Taliban released a statement, alleging that Pakistani planes had bombed the Barmal district of Paktika province and Sepera district in Khost at 3 a.m. on March 18, resulting in the deaths of civilians.

What has the Taliban said?

The Taliban have warned Pakistan of "very bad consequences which will be out of Pakistan's control" in case of continued attacks inside its territory. The Taliban spokesperson claimed that attacks took place on houses of civilians, killing five women and three children. The Taliban denied Pakistan's Special Representative to Afghanistan Ambassador Asif Durrani's recent charge that Afghanistan was providing shelter to 5,000 to 6,000 TTP militants, but acknowledged the possibility of their presence due to Afghanistan's rugged terrain.

WHO ARE THE MAJEED BRIGADE, THE BALOCH MILITANTS WHO CARRIED OUT GWADAR ATTACK?

The Majeed Brigade of the separatist group Baloch Liberation Army (BLA) has claimed responsibility for Wednesday's attack on a complex outside Pakistan's strategic Gwadar Port. Pakistan has said eight militants and two security personnel were killed in the attack; the BLA has, however, claimed to have killed 25 security personnel.

The BLA is the most prominent of the many separatist groups in Pakistan's restive Balochistan province. The Majeed Brigade, which has been active since 2011, is the BLA's dedicated suicide squad. The unit is named after two brothers, both of whom were called Majeed Langove. This is their story.

The Balochistan context

Balochistan, in Pakistan's southwest, is the country's largest and most sparsely populated province. It has oil reserves and abundant natural resources, but the ethnic Baloch are Pakistan's poorest and most under-represented people.

At the time of Partition, Balochistan comprised multiple chiefdoms owing allegiance to the British. Ahmed Yar Khan, the chief of Kalat, was the most powerful of these tribal chiefs, and hoped to secure an independent state for his people. However, he was forced to accede in 1948, after Pakistan invaded Kalat.

This triggered an insurgency which remains ongoing, fuelled by persisting economic disaffection, political disenfranchisement, and repression by the Pakistani state.

In many ways, the China-backed Gwadar Port is a symbol of the economic injustice faced by the Baloch — despite rampant unemployment in the province, engineers and technical specialists were hired from Punjab, Sindh, and even China.

In recent years, Baloch militants have repeatedly targeted both Gwadar and Chinese nationals in the country.

Majeed Sr and Bhutto

In May 1972, the National Awami Party (NAP) came to power in Balochistan. Nationally, the NAP sat in opposition to Prime Minister Zulfiqar Ali Bhutto's Pakistan Peoples' Party (PPP). The NAP had long advocated for greater regional autonomy in Pakistan, and it was emboldened by the secession of Bangladesh in 1971.

But Bhutto, chafing from the humiliation of Pakistan's defeat to India, was unwilling to grant any major concessions. From the beginning of the NAP's term in the provincial government, Bhutto attempted to undermine its working, using the office of the governor and the bureaucracy of Balochistan, which remained under the control of the Pakistan central government.

Meanwhile, the more radical Baloch nationalists continued the insurgency, which created a serious law and order situation in the province.

After a cache of arms supposedly meant for insurgents was discovered, Bhutto dismissed the NAP government in February 1973. This led to both the insurgency and the Pakistani state repression becoming worse in Balochistan. Between 1973 and 1977, thousands of fighters and military

personnel were killed in the fighting, and there were reports of mass atrocities against the Baloch by Pakistani forces.

It is in this context that Majeed Langove Senior, then a young Baloch man, decided to assassinate Bhutto. On August 2, 1974, as Bhutto arrived in Quetta to attend a public gathering, Majeed Senior waited atop a tree, a grenade in hand. He had no plans to escape, and was most certainly going to lose his life in his bid to kill Bhutto.

And he did — even before he had a chance to kill the Pakistani leader. The grenade burst in Majeed Senior's hand as he waited for Bhutto's motorcade, killing him instantly.

Jr's sacrifice, Majeed Brigade

The death of Majeed Senior was mythologised for posterity by the actions of his younger brother, Majeed Langove Junior, who was born two years after Senior was killed.

On March 17, 2010, Pakistani forces surrounded a house hosting a number of Baloch militants in Quetta. One man — Junior — decided to put up a fight, and buy time for his comrades to exit. After an hour's resistance, Junior was killed.

Majeed Junior's death was mourned by nationalists across Balochistan. After it became widely known that he was the younger brother of Senior, who too had given his life for the cause of Balochi freedom, the Majeed Langove brothers were raised to near-mythical status.

When Aslam Achu, a BLA leader, decided to establish a suicide squad, the name 'Majeed' was chosen for it. The Majeed Brigade carried out its first suicide attack on December 30, 2011, targetting a tribal leader and Pakistan Army proxy called Shafiq Mengal. While Shafiq himself escaped unhurt, at least 14 persons were killed and another 35 were injured.

After a long hiatus, the group became active again in 2018, attacking a bus carrying Chinese engineers in Dalbandin near the Pakistan-Afghanistan border. This attack was carried out by Rehan Aslam Baloch, the 22-year-old son of Aslam Achu.

The Majeed Brigade has also attacked the Chinese Consulate in Karachi (2018), the Gwadar Pearl Continental Hotel (2019), and the Pakistan Stock Exchange in Karachi (2020), according to the South Asia Terrorism Portal.

AMID NEPAL'S CONTINUING POLITICAL TURMOIL, CONFIDENCE VOTE WIN FOR PM PRACHANDA, THE TASK FOR INDIA

Nepal's Prime Minister Pushpa Kamal Dahal Prachanda won a vote of confidence in the 275-member lower house of Parliament last week, securing the support of 157 of the 268 MPs who were present.

The trust vote, the third won by Prachanda in a little over a year, took place after the Prime Minister broke his party's alliance with the Nepali Congress led by Sher Bahadur Deuba, and forged a new alliance with K P Sharma Oli's Communist Party of Nepal (Unified Marxist-Leninist).

Under Nepal's constitution, the Prime Minister must seek a vote of confidence after an ally withdraws support to the ruling coalition. The Nepali Congress, with 89 MPs, is the largest party in Parliament, followed by Oli's CPN-UML (79) and Prachanda's CPN-MC (30).

Politics of convenience

Prachanda, 69, took oath for the third time on December 26, 2022 (he had been Prime Minister earlier in 2008-09 and 2016-17), and won 268 votes in the floor test of January 10, 2023 after receiving support from almost all parties, including both the Nepali Congress and the CPN-UML.

However, he had to seek a second vote on March 20, 2023 after CPN-UML and the monarchist Rashtriya Prajatantra Party withdrew support over Prachanda's backing for Ramchandra Paudel of the Nepali Congress to be President. Deuba supported Prachanda in the second trust vote, and the Nepali Congress joined the government.

On March 4 this year, Prachanda dumped Deuba and went back to Oli, which triggered the vote in Parliament.

Prachanda, who led Nepal's Maoist insurgency that caused 17,000 deaths between 1996 and 2006, has proven himself to be a consummate survivor in the years after he joined the mainstream. Even though support for him in Parliament has declined from 268 in January 2023 to 172 two months later to 157 now with only 32 votes from his own party, he has clung on to power — demonstrating a political flexibility that provoked Deuba to denounce him as "dhokhebaaz (betrayer)".

Over the last decade, Prachanda, Deuba, and Oli have been the leading political actors in Nepal, which has had 13 governments since 2008, the year in which the country's 239-year-old monarchy was abolished and a republic was proclaimed.

View from New Delhi

The extraordinary political instability in Nepal is of concern to India, where Prachanda's moves are being watched with a mix of caution and admiration. However, while Prachanda retains significant goodwill in New Delhi, his now partner in government, Oli, does not.

The actions and statements by Oli in 2015 during the drafting of the Nepalese constitution, which led to protests and the infamous border blockade, had caused a fair bit of bitterness in South Bloc. Oli, who was Prime Minister then, portrayed India as the neighbourhood bully in his country.

Politicians in Nepal have often described the country as being "India-locked", meaning it needs India for access to ports — a fact of geography that Indian diplomats prefer to frame as being "India-open". New Delhi has sought to project itself as a benevolent "elder brother" to Nepal, as the former External Affairs Minister Sushma Swaraj put it, rather than a controlling and hectoring "big brother".

The Indian foreign policy establishment points out that India is Nepal's largest trade partner, with bilateral trade crossing $7 billion in FY 2019-20, and that India provides transit for almost all of Nepal's third country trade. Indian exports to Nepal have grown more than eight times over the past decade, while exports from Nepal have almost doubled.

During the Covid-19 pandemic, India provided assistance of more than $7 million to Nepal, which included the supply of more than 23 tonnes of medicines and medical equipment, more than 9.5 million doses of vaccines, and a medical oxygen plant.

About 8 million Nepalese citizens live and work in India, and some 6 lakh Indians live in Nepal. Indians are about 30% of foreign tourists in Nepal. The bilateral remittance flow is estimated at

$3 billion from Nepal to India, and $1 billion in the opposite direction. Cooperation in power, water, and infrastructure has been a major element of India's diplomatic toolkit with regard to Nepal.

India vs China, in Nepal

Nepal is sandwiched between the two Asian giants, and the Nepalese political leadership, including the country's former monarchs, has long sought to play the China card to manage the relationship with India. China has been pouring aid and investment in infrastructure to wean Kathmandu away from New Delhi. Nepalese imports from China almost tripled from (Indian) Rs 49.5 billion in 2013-14 to Rs 138.75 billion ($1.67 billion) in 2022-23.

With Oli, who has clear China leanings, back in government in Kathmandu, New Delhi would be keenly watching the expected efforts by Beijing to play a more active and influential role in Nepal's domestic affairs.

Some analysts in Nepal view India under the BJP as trying to nudge Nepal in the direction of a "Hindu state" — which has triggered some pushback in that country.

In an editorial published last month, The Kathmandu Post wrote: "The competition (in Nepal) now seems to be for who can make a solid case for "Hindu Rashtra", even while trying hard not to sound too regressive. One such party that is touching on the idea of restoring Hindu Rashtra is the Nepali Congress. …Second- and third-tier leaders are making a case for restoring Hindu Rashtra. That 'fringe' was at least 30 per cent in the last Congress Mahasamiti meeting in 2018. This time, around two dozen influential leaders…raised this issue at the central working committee."

According to the editorial, developments in India such as the "consecration of the Ram Lalla temple in Ayodhya…has emboldened some Nepali leaders to ride on the rising popularity of the idea". However, the editorial said, "the political ideology of Hindutva, based on the idea of nativism and monoculturalism,…has no place in a democracy".

The political instability in Nepal has impacted the country's economy. Thousands of young Nepalis are heading abroad, mainly to the Middle East, South Korea, and Malaysia, in search of work. In 2022-23, about 7.7 lakh people got permits to go to foreign job destinations, and remittances sent by Nepalese expatriates has been a major source of both sustenance for many Nepalese families, and of foreign exchange for the country.

As he works with new partners in government, Prime Minister Prachanda has his task cut out: he must stabilise Nepal's economy, undertake reforms, crack down on corruption, and build infrastructure in the country. India needs to step up cooperation with Nepal in all these areas, and India's development and economic aid must remain open.

New Delhi's position on the politics and future of Nepal must remain nuanced and flexible, with the people of Nepal at its centre — it must ensure that China or its proxies do not get an opportunity to ride on suspicion or prejudice against India. More than an "elder brother", India should seek to be an equal partner for Nepal.

NATION

SC ISSUES SUMMONS TO RAMDEV IN PATANJALI MISLEADING ADS CASE

The Supreme Court on Tuesday asked self-styled yoga guru Baba Ramdev to personally appear in a contempt case initiated against Patanjali Ayurved for publishing misleading advertisements in violation of the Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954 despite an undertaking given to the court in November last year.

A Bench of Justices Hima Kohli and Ahsanuddin Amanullah issued a show cause notice to Baba Ramdev to file his response against initiating contempt proceedings against him.

The Bench further directed Acharya Balkrishna, the Managing Director of Patanjali Ayurved, to be present in the court along with Baba Ramdev for the next hearing on April 2.

The court ordered the presence of Balkrishna after learning that he did not file a response to the show cause notice issued to him on February 27. The Bench brushed aside the explanations offered by senior advocate Mukul Rohatgi, appearing for Patanjali, for not filing a reply.

The Bench indicated that Baba Ramdev should be heard in the case as he had endorsed the Patanjali advertisements prohibited by the court on November 21, 2023.

The Bench had issued show cause notice to Patanjali and Balakrishna on February 27 for violating an assurance given to the Supreme Court on November 21, 2023 that they would refrain from advertising or branding its products as "permanent relief" for diseases such as obesity, blood pressure, asthma, etc, in violation of the 1954 Act.

On November 21, the court directed the company to not make any "casual statements" to the print or electronic media about the efficacy of their medicinal products or indulge in any disparaging statements about other disciplines of medicine such as allopathy.

"This court is prima facie of the opinion that he has also violated the provisions of the Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954," the court observed.

Patanjali Ayurved has tendered an unconditional apology to the Supreme Court in response to a notice asking it to show cause why contempt of court proceedings should not be initiated for allegedly flouting an undertaking given to the top court on November 21, 2023.

DON'T USE COUNSELLING TO TURN LGBTQ PERSONS AGAINST THEIR IDENTITY, SAYS SC

The Supreme Court has cautioned judges against using the court-ordered counselling of members of the LGBTQ+ community as a way to turn them against their own identity and sexual orientation. In such cases, they are often in distress or have been separated from their partners by their own relatives, it observed.

A three-judge Bench headed by Chief Justice of India D.Y. Chandrachud said that ascertaining the wishes of a person is one thing; however, it would be inappropriate to attempt to overcome the identity and sexual orientation of an individual through a process of counselling.

"Judges must eschew the tendency to substitute their own subjective values for the values which are protected by the Constitution," the Chief Justice observed, in a judgment published on Wednesday.

The verdict laid out a series of guidelines for courts to follow while dealing with habeas corpus petitions and pleas for protection from family or police interference filed by members of the LGBTQ+ community. "The judges must showcase sincere empathy and compassion for the case of the detained or missing person. Social morality laden with homophobic or transphobic views or any personal predilection of the judge or sympathy for the natal family must be eschewed. The court must ensure that the law is followed in ascertaining the free will of the detained or missing person," the court directed.

The verdict came in a petition filed by a Kerala-based woman, represented by advocates Sriram Parakkat and Luke J. Chirayil, who had filed a habeas corpus petition to know the whereabouts of her same-sex partner. The Kerala High Court had ordered the partner, found to be with her parents, to be counselled. Following this, the High Court had a woman judicial officer interact with her. The final report was that the partner did not want to live with the petitioner and looked ahead to a career.

The petitioner had appealed to the Supreme Court, which refused to intervene. However, Mr. Parakkat raised an apprehension that the counselling ordered by High Courts would become a means to push a person against his or her sexual orientation or chosen partner. "The concept of 'family' is not limited to natal family but also encompasses a person's chosen family. This is true for all persons. However, it has gained heightened significance for LGBTQ+ persons on account of the violence and lack of safety that they may experience at the hands of their natal family. When faced with humiliation, indignity, and even violence, people look to their partner and friends who become their chosen family. These chosen families often outlast natal families," the Chief Justice observed.

EXPRESS VIEW ON SC STAY ON FACT CHECK UNIT: JUDGE, JURY, EXECUTIONER

In April 2023, the Ministry of IT and Electronics first notified the amendments to the 2021 IT Rules to enable the creation of a Fact Checking Unit (FCU) that could effectively censor online content related to "any business of the central government" deemed as "fake" or "misleading". At the time, Minister Rajeev Chandrashekhar had said that "any doubts in the minds of people that the power will be misused on behalf of the government will be addressed".

Earlier this week, as the Centre sought to notify the FCU as a statutory body under the Press Information Bureau, even though the constitutionality of the amended Rules has been challenged in the Supreme Court, it became clear that the minister's assurance held little water. The Court has stayed the government's move but the fundamental problem with granting a body under the Ministry of Information & Broadcasting the power of censorship remains.

The FCU makes the government judge, jury and executioner. There is little clarity in the Rules about terms like "fake", "misleading" and "false". Once a piece of news is deemed misleading, it must be taken down by the "intermediaries" — social media and media platforms, and internet service providers. Fake news is indeed a problem, especially when it incites violence. But the determination of liability, of truth and falsity, cannot be done by the government alone.

The judiciary and existing laws — criminal and civil — are part of a system that can deal with fake news that is harmful to individuals and society. It is not for the PIB to usurp the role of the courts. That the FCU is not required to provide written orders detailing its reasoning only adds to the apprehension that it can likely suppress inconvenient journalism, dissent and disagreement.

The timing, too, raises questions. The Rules were challenged before the Bombay High Court and a division bench delivered a split verdict on January 31. A larger HC Bench refused to grant an interim stay order. Before the Supreme Court could weigh in on the appeal, the government — with elections around the corner — decided to grant the FCU statutory status.

On the face of it, the FCU is violative of Article 19 of the Constitution — the right to free speech. Democratic politics is an open contestation of ideas and personalities. The Centre must heed the words of Justice GS Patel, who delivered the dissenting judgment in the Bombay HC: "…[The] state cannot coercively classify speech as true or false and compel the non-publication of the latter. That is nothing but censorship".

KERALA TO MOVE SC ON PRESIDENT WITHHOLDING BILLS

Kerala will soon challenge before the Supreme Court the legality of President Droupadi Murmu withholding her assent to the Bills passed by the Kerala Legislature.

The President had withheld assent to Kerala University Laws (Amendment No. 2) Bill 2022, University Law Amendment Bill, 2022, and the University Law Amendment Bill, 2021 from the seven Bills that were referred to her in November 2023. However, she gave her assent to the Kerala Lok Ayukta (Amendment) Bill, 2022. The State is yet to hear about the fate of two other University Law (Amendment) Bills.

The unusual move of the Kerala government will open doors for a Constitutional debate on the scope of a judicial review of the decisions of the President of India. The State would contend that the legality of the President's decisions and the factors that influenced them can be judicially reviewed.

March 22

The State plans to bring up the issue before the Supreme Court on March 22 when the court considers its writ petition seeking to issue a directive to the Governor to act on the Bills passed by the State Legislature. Kerala would argue that the Governor should not have referred the Bills to the President as their subject matters were confined to the State List of the Constitution where the State has powers to legislate. None of the Bills were in conflict with any Central legislation.

Also, the Bills did not belong to the special categories for which prior Presidential assent was required, sources pointed out. Kerala would also state that the Bills, which followed the Ordinances cleared by the Governor, should not have been sent for Presidential assent.

TAMILISAI RESIGNS AS GOVERNOR AND L-G, TO CONTEST LOK SABHA ELECTION

Tamilisai Soundararajan, Governor of Telangana and Lieutenant-Governor of Puducherry, on Monday resigned from her posts to contest the Lok Sabha election as a BJP candidate from Tamil Nadu.

She resigned after giving a send-off to Prime Minister Narendra Modi, who had stayed at the Raj Bhavan in Hyderabad.

Before her appointment as the Governor of Telangana in September 2019, Ms. Soundararajan was the president of the Tamil Nadu unit of the BJP for over five years. She unsuccessfully contested the 2019 Lok Sabha election in Thoothukudi against DMK deputy general secretary Kanimozhi Karunanidhi. She was also given additional charge as the Lieutenant-Governor of Puducherry in February 2021.

Ms. Soundararajan has joined a list of leaders who vacated the post of Governor to come back to politics. Even during her tenure as the Governor, Ms. Soundararajan continued to voice out criticism on political developments in Tamil Nadu. Her return to active politics and her likely candidature in the Lok Sabha poll is seen as an attempt by the BJP to field a known face in the State.

HOW WERE THE NEW ELECTION COMMISSIONERS SELECTED?

The story so far:

The President has appointed Gyanesh Kumar and Sukhbir Singh Sandhu, both retired IAS officers, as Election Commissioners (ECs) to fill up two vacancies in the three-member Election Commission of India. The two officials are the first to be appointed under the new law governing appointments to the constitutional body, the Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023.

How were the new ECs selected?

In terms of the new law, the two ECs were selected by a three-member Selection Committee, comprising Prime Minister Narendra Modi, Union Home Minister Amit Shah, and the Leader of the Indian National Congress in the Lok Sabha, Adhir Ranjan Chowdhury, as leader of the largest party in the Opposition. They were chosen out of a shortlisted panel of six names. The shortlisting was done by a committee which, according to the Act, is headed by the Union Minister for Law and Justice and includes two officials of the rank of Secretary to the government.

What was the process before this?

Article 324 of the Constitution vests the "superintendence, direction and control of elections" in an Election Commission. It also says the EC shall consist of the Chief Election Commissioner and such number of other Election Commissioners, if any, as the President may fix from time to time. This provision was subject to any law made in that behalf by Parliament. However, for nearly 40 years from the adoption of the Constitution, the EC only had a Chief Election Commissioner (CEC). It was not until October 1989 that it became a multi-member body. However, the appointment of two Election Commissioners was rescinded within a short time, that is on January 1, 1990.

A law was enacted in 1991 to fix the conditions of service of the CEC and the ECs, and amended in 1993. However, it did not provide for any appointment process. In the absence of any particular process being laid down by parliamentary law, the President has been appointing the CEC and ECs. The only known process is that the Law Ministry puts up a panel of names to the Prime Minister, who recommends the appointment of one of them as EC to the President. It had become a convention to appoint officials as ECs first and then, on the completion of the tenure of the CEC, the senior EC was elevated as CEC.

What did the SC rule on the process?

In Anoop Baranwal versus Union of India, a five-member Constitution Bench ruled that it was the intention of the makers of the Constitution that the power to appoint the CEC and other ECs was not meant to be given exclusively to the executive and that the power was to be exercised "subject to any law made by Parliament". Noting that no such law was enacted since the inception of the Constitution, the court laid down an interim arrangement for the appointment. This was to operate until Parliament made its own law. The court said the appointments should be made by a three-member committee comprising the Prime Minister, the Leader of the Opposition in the Lok Sabha (or the leader of the party that is largest in the Opposition) and the Chief Justice of India. It was in response to this that Parliament enacted the 2023 Act, which received presidential assent and was notified late in December 2023.

What is the criticism against the Act?

The foremost criticism from those who have challenged the new Act is that it has removed the CJI from the selection panel and has made a Union Minister a member instead. This gives the executive a two-one majority in the three-member committee. The government has argued that the Act does not really remove the CJI from the appointment process, as the inclusion of the CJI was only a stop-gap arrangement put in place until the enactment of a law. The Supreme Court has repeatedly rejected attempts to obtain a stay on the new Act. The petitioners have approached the court again against the appointment of the two ECs. Their primary argument is that the Act violates the main principle in the Constitution Bench judgment — the need to free the appointment process from the executive.

ON THE BALLOT

The general election to the 18th Lok Sabha will be spread over seven phases and 44 days, with the counting of votes scheduled for June 4. The announcement marks a formal beginning but campaigning has become a perennial affair of Indian politics as if to vindicate the ruling BJP's call for 'one nation, one poll', which it argues will reduce the time spent in electioneering. Simultaneous elections and other contentious questions form the backdrop for the long-drawn election season, the largest such exercise anywhere in the world. While India has enough reasons to be proud of its vibrant democracy and exhilarating diversity, an honest introspection can be sobering. From 2019, India has witnessed rapid and massive changes, the good and the bad. The BJP, naturally, is trying to present its second term as an era of progress and prosperity. While its propaganda has been blaring, the Opposition's attempts to critique it have been feeble. This uneven playing field is largely the outcome of the BJP's misuse of state power to influence other parties and actors in the political process such as the media, the bureaucracy and the private sector. Inherent problems weaken the Opposition further. The fact that the principal Opposition party's bank account is restricted on the basis of an alleged procedural lapse, which is a minor one even if proven, says a lot about how state agencies are tilting the scales.

The revelations so far around the electoral bond scheme, which was declared unconstitutional by the Supreme Court of India, also paint a deeply disturbing pattern of shrinking fairness in the election process. Given the circumstances, the Election Commission of India (ECI) has a difficult job in ensuring that the poll process is not only fair but also seen as such. This challenge has been complicated by the abrupt exit of an ECI member, and two hurried appointments. The process of appointing the members of the ECI remains controversial, given the complete control that the political executive has given itself in it. Opposition leaders have questioned the need for such a

prolonged poll schedule. In West Bengal, where the BJP is pulling out all stops, polls have been staggered across all seven phases. While the ECI is justified in its defence of the electronic voting machine, it needs to do more to ensure public trust in them. In the conflict between the claim of a right to privacy by donors and the voter's right to information, the ECI's equivocation is unwarranted, particularly after the Court has settled the question. The ECI must know that all eyes are on it when it comes to assessing the biggest democratic exercise on the planet.

WAGE REVISION OF MNREGA

The Election Commission of India has given the Ministry of Rural Development the go-ahead to notify revised wages under the Mahatma Gandhi National Rural Employment Guarantee Act for the next financial year, effective April 1.

The Centre fixes state-wise wage rates for MGNREGS workers under sub-section (1) of section 6 of the MGNREGA, 2005. The wage rates are fixed according to changes in the CPI-AL (Consumer Price Index-Agriculture Labourer) which reflects the increase in inflation in rural areas.

It is learnt that all states have seen a hike in the MGNREGS wages for the financial year, with the overall increase being in the range of 5-6 per cent. Last year, the government had notified the MGNREGS wage rates for the financial year 2023-24 on March 25. Last month, a Parliamentary standing committee had recommended that the Centre should take a "considered view" on the issue of suitable increase in the wage rates under MGNREGA.

Under MGNREGA, every rural household, whose adult member volunteers for unskilled manual work, is entitled to get at least 100 days of wage employment in a financial year. However, in some cases, the government allows additional 50 days of wage employment (beyond the stipulated 100 days). In the current financial year, about six crore rural households have availed the MGNREGS until March 20. Of these, 35.5 lakh households have completed 100 days of work.

EXPRESS VIEW ON DEEPFAKES OF DECEASED POLITICIANS: CAMPAIGNING, DEAD OR ALIVE

Even in the analogue age, the great men and women of Indian politics used to cast a long shadow. They built movements and parties, mobilised communities and won elections, ran governments and brought them down. In death, the assumption went, they would continue to inspire but would no longer have to perspire. A photo on the wall, an invocation at a political meeting of the "guiding light", was enough. Apart from allowing the deceased to rest in peace, the passing of a generation — in politics, as in much else — allows new leadership to emerge and find its own vocabulary and practice. With AI, deepfakes and no barrier to distribution, however, the Digital Age is ensuring that deceased leaders do not, in a sense, die.

This election season has already witnessed a wide variety of content generated through artificial intelligence tools. There are parodies featuring leaders of the ruling party and the Opposition that have them singing songs and making statements. These videos and sound files mimic the appearance and voice of the leaders — sometimes so accurately that they are almost indistinguishable from the genuine article. And, as reported in this newspaper, the deepfake as a campaign tool is also indulging in necromancy. Both the DMK and AIADMK have used likenesses of their deceased leaders. A video of M Karunanidhi (died, 2018) was released by the former in which he is praising his son, Chief Minister M K Stalin. AIADMK workers received a message in the late J Jayalalithaa's voice last month, asking them to support party leader Edappadi Palaniswami.

The all-too-real fakes will present a challenge for the Election Commission. But the issue in using the likenesses of deceased leaders is not just one of authenticity. It also speaks of a failure of imagination in terms of defining future politics — by looking ahead, not by going back to the past. The challenge for leaders of today is to take a legacy forward, to re-imagine and re-invent. But then, who wants to lose their star campaigner, dead or alive?

EXPRESS VIEW ON SHOBHA KARANDLAJE'S ANTI- TAMIL REMARKS: LABELLING THE PEOPLE

In the run-up to elections, with the Model Code of Conduct in place, the Election Commission has done well to take note of BJP leader and Union Minister of State Shobha Karandlaje's irresponsible and polarising statements about "people who come from Tamil Nadu" to "plant bombs here". Karandlaje is the BJP's Lok Sabha candidate from North Bengaluru. Her remarks, made to reporters on Tuesday, are also surely an embarrassment for her party, which has intensified its focus on the southern states — the push is led by the Prime Minister himself.

The Madurai City Police on Wednesday registered a case against Union Minister of State Shobha Karandlaje on charges of promoting enmity between different groups of people on the grounds of language. Ms. Karandlaje was booked under Sections 153, 153A, 505 (1) (b) and 505 (2) of the Indian Penal Code based on a complaint from an individual, C. Thiagarajan of Kadachanenthal.

Separately, the Election Commission of India (EC) directed the Chief Electoral Officer, Karnataka, to take immediate action on a complaint filed by the DMK against alleged violation of the Model Code of Conduct by the BJP leader. The EC also sought a compliance report within 48 hours.

Karandlaje's latest outburst — which also included sweeping statements that labelled "people of Delhi" and "people who come from Kerala" — has drawn strong condemnation from Tamil Nadu's ruling DMK government as well as the ruling LDF and opposition UDF in Kerala. She has stoked similar controversies earlier. In 2020, Kerala Police had filed a case against her for a social media post suggesting that Hindu families in Malappuram were denied water for supporting the Citizenship Amendment Act (CAA). Now, Karandlaje has apologised, but she may well have contributed to making the BJP's challenge in the region — an uphill task — more difficult. For a party hoping for a third term at the Centre, making gains in the south may be crucial. In the 2019 Lok Sabha polls, out of 129 seats from the region, the BJP won 29 — of these, 25 were from Karnataka and four from Telangana. Of the five states, Kerala and Tamil Nadu, which send 20 and 39 MPs respectively, have been the toughest for the BJP to crack. It has never managed to get its candidates elected to the Lok Sabha from Kerala, while in Tamil Nadu, the party has only won from two constituencies — Coimbatore in 1998 and 1999 and Kanniyakumari in 2014. These are the odds that the BJP is trying to overcome as it makes an all-out effort to woo voters down South, with development projects worth thousands of crores, multiple rallies and roadshows addressed by the PM across the five states.

Polarising remarks of the kind made by Karandlaje don't just pose a hurdle to her own party's ambitions, they also drag down the level of public discourse ahead of a crucial election. In the weeks to come, other attempts will be made to deepen divides and embitter the contest. Going ahead, the challenge will be to ensure that even as they plunge into the heat of battle, both parties and their candidates respect the inviolable rules of the game.

BONDED FAVOURS

Sordid revelations that keep pouring from the disclosure of details about the purchasers and recipients of electoral bonds confirm the early apprehension of sceptics that the anonymous political funding scheme will have undesirable consequences. Ranging from likely quid pro quo deals to flagrant proximity between companies being investigated by central agencies and the purchase of electoral bonds worth hundreds of crores by these firms, the scheme has played out exactly as its detractors predicted. Fears that shell companies and loss-making entities may be used to buy the electoral bonds and donate them to parties seem to have come true. The argument that waiver of the rule that political donations can be made by companies only up to a certain percentage of their profits will render the scheme illegal has been proved right. The Supreme Court of India did well to voice these concerns, flagging the potential for wrongdoing and striking down the bonds scheme in its entirety as unconstitutional. However, the delay in disposing of the multiple challenges to the scheme, without ever staying its operation over the years, has had its own cost. It is a sobering thought for all those invested in democracy to note that the political and corporate classes have lived up to the public expectation that they are ready to use the scheme for mutual benefit rather than solve the problem of unclean funds vitiating the election campaign.

Some details about who donated to which party are emerging now, thanks to a few parties having disclosed their names and given them to the Election Commission of India on the Court's orders. However, it is disappointing that both the ruling BJP and the Congress did not disclose them even in sealed covers. It is possible that there will be more revelations in the coming days when unique numbers given to each bond are disclosed. The role of investigative agencies has been politically controversial, especially under the present regime, but the strong correlation between searches and arrests on one hand, and the dates of purchase of bonds on the other, shows the Centre in a bad light. It will be a dark day for democracy if it emerges that the agencies were used to arm-twist people into making political contributions. The BJP has, unsurprisingly, emerged the largest beneficiary, having received well above ₹6,000 crore and nearly half the contributions made through the bonds route. However, its attempt to describe contributions as comparatively low if seen against the fact that it has the largest number of Lok Sabha members is quite naive, or worse, self-incriminating. Power and influence do attract political funding, but misusing them either by muscular demonstration or the promise of reward will ultimately be subversive of democracy.

DECODING ELECTORAL BONDS DATA

The first tranche of data on electoral bonds disclosed by the Election Commission of India on March 14, 2024, under the directions of the Supreme Court, provides an incomplete picture of the transactions that have taken place between various companies and individuals on the one hand and registered political parties on the other, between April 12, 2019 and January 24, 2024. The apex court has now directed the State Bank of India (SBI) to ensure "complete disclosure of all details in its possession" by March 21, 2024 including "the alphanumeric number and serial number of the Electoral Bonds which were purchased and redeemed".

Unique alphanumeric numbers

The SBI has recorded every detail of 18,871 purchases and 20,421 encashments of electoral bonds between April 2019 and January 2024. However, in the absence of the unique alphanumeric numbers, only the total amount of electoral bonds purchased by each company or individual can

be estimated as also the total amount of electoral bonds each political party has encashed; but it is impossible to establish who has paid whom and when.

The disclosure of the unique alphanumeric numbers becomes imperative because the apex court has struck down the entire electoral bond scheme as unconstitutional. It is only natural that the very large sum of ₹12,155.1 crore worth of electoral bonds, purchased by corporate groups, companies and individuals between April 2019 and January 2024 are matched accurately with ₹12,769.08 crore total worth of electoral bonds encashed by political parties during the same period. In other words, the people need to know which political party got how much from whom, and on which date(s). No further inquiry or investigation can be conducted into these "unconstitutional" transactions, without linking the purchasers of the electoral bonds with the encashers.

Information asymmetry

The Union Home Minister has countered the embarrassment caused to the government by the disclosure of the BJP accounting for ₹6,060 crore, that is over 47% of the total amount of electoral bonds encashed, by pointing at the amounts encashed by other Opposition parties (Table 1).

The problem is that the total amounts encashed in electoral bonds by the various parties neither reveal much, nor can they be cited as actionable evidence of corruption and malfeasance. It is only through an analysis of the granular details of the electoral bonds, like their amounts, dates of purchase and encashment and the linked identities of the purchaser and encasher of each bond that possibilities of quid pro quo can be hypothesised, investigated and legally established as evidence. This explains the reluctance of the SBI to reveal the unique identification numbers of the electoral bonds. The political strategy of the ruling party appears to be simple: stall any investigation or legal proceeding against any transaction till the end of the election campaign.

The Union Government, as the owner of the SBI, is already in possession of the entire electoral bond database, which implies that BJP — as the ruling party — has access to complete information in this regard. Both the Opposition parties and the electorate, however, do not. Each political party other than the ruling party, knows about its own transactions only. The voters have no information beyond what has been disclosed by the Election Commission of India. This information asymmetry provides the BJP with an undeserved advantage by virtue of its being the ruling incumbent.

This is similar to the non-disclosure of the politically sensitive data on the caste census, which was collected during Census 2011 but has not been released till date. The BJP has utilised the caste census data to its electoral advantage in every election held since May 2014, while the Opposition and citizens have been denied access.

Such abuse of power, through suppression of information and data that are public goods, should be prevented.

Preliminary analysis

The data disclosed so far provides ample grounds for suspecting malfeasance. Table 2 provides a list of companies and corporate groups who have purchased electoral bonds worth over ₹100 crore in total between April 2019 and January 2024, along with a list of individual purchasers of the bonds totalling above ₹5 crore. What stands out from the list are the following:

(a) Some of the largest purchasers of electoral bonds are under investigation by central agencies such as the Enforcement Directorate (ED), Central Bureau of Investigation (CBI) and/or the Income Tax (IT) Department. Table 3 provides a list of 19 such companies which have together purchased ₹4,787.3 crore in bonds; over 39% percent of the total amount.

(b) The names common in Tables 2 and 3 are Future Gaming, Megha Engineering, M K Jalan group, Vedanta Group, Haldia Energy Limited (Sanjiv Goenka Group) etc. If the bulk of the electoral bonds purchased by these companies, which are under investigation by central agencies like ED, CBI or IT department, are found to have been redeemed by the party in power, that is, the BJP, it would imply serious conflict of interest issues and probable quid pro quo.

(c) The largest individual purchasers of electoral bonds are either heads of corporate groups and companies or their employees. It is clear that corporate houses and companies have tried to conceal their identities by deploying individual frontmen or making large donations in multiple small tranches. This generates suspicion of large scale bribery, money laundering and other forms of quid pro quo, like award of lucrative project contracts and policy changes in exchange for party donations.

As the party in power at the Centre and the largest redeemer of electoral bonds, the BJP has much to answer for. The Modi government has tried to evade such accountability during the Lok Sabha election campaign, first by delaying the disclosure of data and then by withholding the unique alphanumeric numbers of the electoral bonds.

AAP TRAP

Delhi Chief Minister and Aam Aadmi Party (AAP) leader Arvind Kejriwal's arrest by the Enforcement Directorate (ED) raises disturbing questions about the direction of India's democracy and federalism. The political intent of the arrest of a key leader of the Opposition, and a serving Chief Minister in the run-up to the general election, is unmistakable. The Delhi excise policy case, in which Mr. Kejriwal has been arrested, was registered by the CBI in August 2022, based on which the ED launched its money laundering probe. Several other AAP leaders are in jail — Manish Sisodia from February 2023, and Sanjay Singh from October 2023. If the ED had evidence of corruption, it should have taken the case to trial on a war footing. Keeping the accused in jail, while investigators continue their roving expedition, should be unacceptable in a society ruled by law. When the accused are political opponents of the ruling party, the arrests will be seen as selective enforcement of the law and impairs public confidence in democracy itself. The Supreme Court of India had earlier asked the ED to provide an unbroken chain of evidence showing that ill-gotten money had flowed from the liquor lobby to Mr. Sisodia. The Court had remarked that the competence of the ED lay in bringing to the fore uninterrupted proof linking an accused with the crime proceeds. Later, the Court went on to deny bail to Mr. Sisodia.

This is not the first time a central agency has gone after a constitutional functionary. Hemant Soren resigned as Chief Minister of Jharkhand before his arrest by the ED. As things stand, the democratic politics of this country can be brought to a standstill by central agencies, even as the Court and the Election Commission of India continue to consider all this as routine law enforcement. The pretext that the law is taking its course will not be convincing to any reasonable mind. It is not a coincidence that central agencies are arresting only Opposition leaders on charges of corruption, and even those leaders who faced corruption charges are let off the moment they

join hands with the Bharatiya Janata Party. Mr. Kejriwal rose to national prominence by campaigning for an all-powerful agency that would obliterate corruption from public life. He and his band of anarchists challenged a constitutionally elected government through mobocracy, and amplified conspiracy theories such as notional loss to exchequer more than a decade ago. Mr. Kejriwal himself is now ensnared in the logic that he popularised. But two wrongs do not make a right.

KEJRIWAL ARRESTED: WHAT IS THE DELHI EXCISE POLICY CASE, AND WHAT IS THE DELHI CM ACCUSED OF?

A Delhi court on Friday sent Chief Minister Arvind Kejriwal to the Enforcement Directorate's (ED's) custody until March 28 in connection with the excise policy case. The previous evening, Kejriwal had become the first serving CM in the country to be arrested. He spent the night in a cell at the central agency's headquarters.

Kejriwal had challenged the arrest in the Supreme Court, but withdrew the plea before it could be taken up on Friday.

What is Kejriwal accused of?

The ED said in court that the Aam Aadmi Party (AAP) chief was the "kingpin and key conspirator of the Delhi excise scam". Kejriwal, the ED said in its remand application, "was involved in the conspiracy…to favour certain persons and…in the demanding kickbacks from liquor businessmen in exchange of favours".

He was also "involved in the use of proceeds of crime…in the Goa election campaign of the AAP of which he is the…ultimate decision maker", the ED said.

Earlier, in a supplementary prosecution complaint, the ED had alleged that Kejriwal spoke to one of the main accused, Sameer Mahendru, over a video call and asked him to continue working with co-accused Vijay Nair, whom he referred to as "his boy". Nair is a former communications in-charge of the AAP.

Additional Solicitor General S V Raju, who appeared for the ED, told the court on Friday that "AAP is a beneficiary which exists as a company. Every person responsible for the conduct of the company is responsible. Apart from being liable as an individual, the CM is also vicariously liable… Since Arvind Kejriwal is the national convener of AAP, he is responsible for its conduct. He controls the major activities of the party."

What is the alleged connection of Kejriwal with the 'South Group'?

According to the ED, Kejriwal was "directly involved in the formulation" of the excise policy, which was drafted "considering the favours to be granted to the South Group".

The so-called South Group is a group of individuals from South India that the ED claims "secured uninhibited access, undue favours, attained stakes in established wholesale businesses and multiple retail zones (over and above what was allowed in the policy)", and paid Rs 100 crore to AAP leaders in return.

One of the alleged members of the "South Group" is K Kavitha, leader of the Bharat Rashtra Samithi (BRS), and daughter of former Telangana Chief Minister K Chandrashekar Rao. Kavitha was

arrested on March 15. It was after Kavitha's arrest that the ED alleged, for the first time on March 18, that Kejriwal was a conspirator in the case.

"ED investigation revealed that Ms K Kavitha along with others conspired with the top leaders of AAP including Arvind Kejriwal and (former Deputy Chief Minister) Manish Sisodia for getting favours in the Delhi excise policy formulation and implementation. In exchange for these favours, she was involved in paying Rs 100 crore to the leaders of AAP," the ED spokesperson alleged.

"By the acts of corruption and conspiracy in the formulation and implementation of Delhi Excise Policy 2021-22, a continuous stream of illegal funds in the form of kickback from the wholesalers was generated for AAP," the ED said.

And what did Kejriwal argue in court?

Senior advocate Abhishek Manu Singhvi said Kejriwal had been arrested over facts that were "static and frozen for months", and that the arrest was "based on three or four names".

"There is a pattern," Singhvi said. "Step 1: Many witnesses will give statements — Kejriwal won't be mentioned. Step 2: arrest the witnesses and deny them bail. Last step: make a deal making them the approvers. The next day a statement will come which will be against Kejriwal. The next step is record the statement of the co accused. An approver is the most unworthy friend…his statements have zero credibility," Singhvi said.

Singhvi argued that "more than 80%" of those connected with the case have not mentioned Kejriwal or any dealings with him. "The case has been stitched together by the words of some co-accused and the (Delhi) L-G and approvers. There is no evidence of any wrongdoing. No incriminating material has been found against me even after over one year has elapsed," Singhvi said.

What is the Delhi excise policy case?

Two cases have been registered in relation to the excise policy — one by CBI, and the other, on alleged money laundering, by the ED.

The case arose out of a report submitted by Delhi Chief Secretary Naresh Kumar to Lieutenant Governor (LG) Vinai Kumar Saxena in July 2022, pointing to alleged procedural lapses in the formulation of the Delhi Excise Policy 2021-22. The policy came into force in November 2021, but was scrapped in July 2022.

The chief secretary's report said "arbitrary and unilateral decisions" taken by Sisodia in his capacity as Excise Minister had resulted in "financial losses to the exchequer" estimated at more than Rs 580 crore.

It was alleged that "kickbacks…received by the AAP Delhi government and AAP leaders" from owners and operators of alcohol businesses for preferential treatment such as discounts and extensions in licence fee, waiver on penalties and relief due to disruptions caused by the Covid-19 pandemic, etc., were used to "influence" the Assembly elections in Punjab and Goa in early 2022.

This report was referred to the CBI, and led to Sisodia's arrest on February 26, 2023.

The ED alleged that the scam was to give the wholesale liquor business to private entities and fix a 12% margin, for a 6% kickback. In its first prosecution complaint in November 2021, the ED said

the policy was "formulated with deliberate loopholes" that "promoted cartel formations through the back door" to benefit AAP leaders.

Before his arrest, Kejriwal had been issued a total of nine summonses by the ED, which he had skipped.

CAN ARVIND KEJRIWAL BE BOOKED FOR MONEY LAUNDERING, EVEN IF HE IS NOT NAMED IN DELHI EXCISE POLICY CASE?

"One need not be an accused in the predicate offence to be an accused under PMLA," Additional Solicitor General SV Raju told a Delhi Court on Friday (March 22), while seeking remand of Delhi Chief Minister Arvind Kejriwal.

What Raju meant was that even if Kejriwal has not been named as an accused in the corruption case itself — the Delhi excise policy case — he can be booked for the offence of laundering "proceeds of crime" derived from the case. This distinction brings to focus the debate on whether money laundering is a standalone offence or if it is extrinsically linked to a larger predicate offence.

What is a predicate offence and how can an individual be booked for money laundering separately?

What is a predicate offence?

The Prevention of Money Laundering Act (PMLA) criminalises money laundering as: "Whosoever directly or indirectly attempts to indulge or knowingly assists or knowingly is a party or is actually involved in any process or activity connected with the proceeds of crime including its concealment, possession, acquisition or use and projecting or claiming it as untainted property shall be guilty of offence of money laundering."

Here, "proceeds of crime" is " any property derived or obtained, directly or indirectly, by any person as a result of criminal activity relating to a scheduled offence…"

The law also defines scheduled offences, which are listed in two schedules attached to the PMLA. These acts in the schedules (scheduled acts) are also called predicate offences.

A plain reading shows that to be accused of money laundering, one has to be tied to the scheduled offence, which in Kejriwal's case would be under the Prevention of Corruption Act. However, he is not named as an accused in the excise case itself.

What have the courts said?

In a judgment delivered on July 27, 2022 in the Vijay Madanlal Choudhary & Ors v Union of India case, where the Supreme Court upheld key provisions of the PMLA, the court had said that if an accused in the predicate offence is acquitted or discharged, he cannot be prosecuted for the offence punishable under the PMLA.

But what if an accused is not even shown as an accused in any scheduled or predicate offence? The Supreme Court in Pavana Dibbur v Enforcement Directorate verdict, delivered in November last year, answered this question.

The verdict by Justices Abhay Oka and Pankaj Mithal said that an accused in the PMLA case who comes into the picture after the scheduled offence is committed, by assisting in the concealment

or use of proceeds of crime, need not be an accused in the scheduled offence. Here, the proceeds of crime that the accused has allegedly concealed or possessed must simply be linked to the scheduled offence.

"Such an accused can still be prosecuted under PMLA so long as the scheduled offence exists," the court had said.

Essentially, whether Kejriwal has "used" allegedly tainted money that forms the proceeds of crime in the excise scam will be a question that will only be decided at the time of his trial. However, for that trial to happen, the trial in the excise scam itself has to take place.

CAN ARVIND KEJRIWAL CONTINUE TO BE CM WHILE IN CUSTODY?

Questions are being asked about whether Delhi Chief Minister Arvind Kejriwal can continue to occupy a public office that demands a high degree of morality after being remanded in judicial custody.

Earlier judgments in the Supreme Court and High Courts have concluded that constitutional morality, good governance, and constitutional trust are the basic norms for holding a public office.

A recent judgment by the Madras High Court in S. Ramachandran versus V. Senthilbalaji referred to arguments made in court on whether a Minister must forfeit his right to occupy a public office that demands a high degree of morality if he is accused of a "financial scandal". Mr. Senthilbalaji, a former Tamil Nadu Minister, was arrested by the ED on money-laundering charges last year. He continued to be a Minister without portfolio while he was in judicial custody.

The High Court heard arguments on whether he "has virtually forfeited his office as a Minister on account of being arrested and detained in prison".

The arguments referred to a 2014 Constitution Bench judgment of the Supreme Court in Manoj Narula versus Union of India, which had held that the basic norm for holding a public office was constitutional morality, that is, to avoid acting in a manner contradictory to the rule of law. The second norm was good governance. It was argued in the Madras High Court that "the government has to rise above narrow private interests or parochial political outlook and aim at doing good for the larger public interest". The third was constitutional trust, that is, to uphold the high degree of morality attached to a public office.

The Madras High Court judgment highlighted discussions by lawyers in court about the practical difficulties of being a Minister while in custody. For one, a "Minister sitting in prison cannot ask the Secretary of the State to get the files concerning any of the departments without breaching the oath of office", it was pointed out.

The High Court agreed that these were arguments based "more on the concern for public morality or constitutional morality" as Mr. Senthilbalaji did not "completely suffer a disqualification as an MLA under the Representation of the People Act, 1951".

However, the High Court had agreed that citizens expect that persons in power had high standards of moral conduct.

CAN YOU BE SUED FOR DEFAMATION IF YOU RETWEET DEFAMATORY CONTENT?

The Supreme Court this week restrained a trial court from proceeding with a defamation case against Delhi Chief Minister Arvind Kejriwal for retweeting a YouTube video against the BJP's IT cell.

A Bench of Justice Sanjiv Khanna and Justice Dipankar Datta said retweeting need not always mean endorsement. "If it is an endorsement, then it may have its own consequences," Justice Khanna said. "The other way to look at it is, you found something on the Internet or the website, and you are just sharing that information."

Counsel for Kejriwal senior advocate Abhishek Manu Singhvi said, "There's no problem in admitting that this was a mistake if he had known that these would be the consequences."

What is this case, and what is the issue involved?

The court was hearing Kejriwal's challenge to a February 5 order of the Delhi High Court order upholding the summons issued to him in a criminal defamation case for retweeting an allegedly defamatory video posted by YouTuber Dhruv Rathee in 2018.

Justice Swarana Kanta Sharma of the HC had observed that "Every retweet of defamatory imputation would ordinarily amount to 'publication' under IPC Section 499", and that when a public figure tweets a defamatory post, the ramifications extend "far beyond a mere whisper in someone's ears".

Kejriwal had gone to the HC against two orders — by a magisterial court in July 2019 summoning him, and by the sessions court in October 2019 dismissing his revision plea against the summons.

The complainant, Vikas Sankrityan, had claimed that Rathee had circulated a video on YouTube titled 'BJP IT Cell Part-2', in which "certain defamatory statements were made" against him.

How does the law define defamation?

Under Indian law, defamation can be a civil wrong or a criminal offence. Civil defamation can be libel (through writing) or slander (spoken word), and is based on tort law. It is punishable with financial compensation, and damages are computed based on probabilities.

In criminal cases, defamation must be proven beyond reasonable doubt. Section 499 of the Indian Penal Code (criminal defamation) says: "Whoever, by words either spoken or intended to be read, or by signs or by visible representations, makes or publishes any imputation concerning any person intending to harm, or knowing or having reason to believe that such imputation will harm, the reputation of such person, is said, except in the cases hereinafter excepted, to defame that person."

Criminal defamation can attract a jail term up to two years, with or without fine (Section 500 IPC).

What about the right to free speech?

In its 2016 ruling in 'Subramanian Swamy vs. Union of India', the SC upheld the constitutionality of IPC Sections 499 and 500, saying that the right to reputation is protected under Article 21 (Protection of life and personal liberty) of the Constitution, and that criminal defamation is a reasonable restriction on the right to freedom of expression.

While Article 19(1)(a) of the Constitution protects the right to speech and expression, Article 19(2) allows the state to impose "reasonable restrictions" on this right in the interest of "sovereignty and integrity of India, the security of the State, friendly relations with Foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence".

In its 2017 ruling in 'Kaushal Kishore vs Union of India', a five-judge Bench of the SC said that no additional restrictions can be imposed on free speech except those under Article 19(2).

The erstwhile Section 66A of The IT Act, 2000, had criminalised sending "offensive messages" by means of "a computer resource or a communication device". This provision was quashed by the SC in 2015 in 'Shreya Singhal vs. Union of India' in view of the ambiguity in the definition of the term "offensive", and on the ground that the provision was "violative of Article 19(1)(a) and not saved under Article 19(2)."

So does retweeting allegedly defamatory content amount to defamation?

Senior advocate Madhavi Goradia Divan, author of the textbook 'Facets of Media Law', said: "An essential ingredient of defamation is the lowering of one's reputation in the public eye. Also, the defamatory statement must be communicated to a third person."

Divan said that "a [defamatory] retweet multiples quickly and reaches others", and "thus, the damage is far greater in cases of online abuse".

While a complaint for online defamation is made under Section 499 IPC, such alleged defamatory material will be taken down under Section 69 of the IT Act, which allows the Centre to issue takedown or blocking orders to intermediaries for content undermining national security.

In Kejriwal's case, the Delhi HC ruled that "retweeting a content which is allegedly defamatory on the Twitter account and projecting it to be as if his own views, will prima facie attract the liability under Section 499 of IPC for the purpose of issuance of summons".

The court noted that "while the petitioner may plead absence of any malicious intent in the act of retweeting", it has to consider the "responsibility that accompanies the petitioner's political and social standing". The large social media following of a Chief Minister "undoubtedly implies a wider reach, making any retweet a form of public endorsement or acknowledgment", the HC said.

DO NOT SEAL PREMISES FOR VIOLATING KANNADA NAMEBOARD LAW, SAYS HC

The Karnataka High Court on Monday directed the State government not to suspend the trade licence and seal the premises of private establishments for not changing the display to 60% in Kannada on the upper half of nameboard, if the date for implementing the amended Section 17(6) of the Kannada Language Comprehensive Development Act, 2022, is notified in the official gazette.

However, the court restrained the Karnataka government and its agencies from taking any precipitative action against private establishments for not complying with the amended law, if the government has not notified the date for implementation of the Act in the official gazette.

Justice M. Nagaprasanna passed the interim order on a joint petition by various companies.

Though the court refused to stay the operation of the amended law, the court noted that the Act has provision for only imposing penalty, ranging from ₹5,000 for not displaying the nameboard

in Kannada as specified, but the law does not empower the government or its agencies to suspend the trade licence or seal the business premises for violation.

Earlier, the petitioners' advocate Manu Kulkarni pointed out that the circular issued by the Bruhat Bengaluru Mahanagara Palike (BBMP) empowers the officials to suspend the trade licence and seal the business premises contrary to the Section 23 of the Act, which prescribe only fine as penalty for violation.

The amended Act was notified in the gazette February 26 on obtaining assent from the Governor on February 25, and Section 1 (2) of the amended Act states that "it shall come into force on such date as the State government may by notification in the Official Gazette appoint".

But the government is yet to issue official gazette notification as per Section 1(2) announcing the date from which the amendment will come into force, the advocate contended.

WHO WILL BENEFIT FROM THE NEW CAA RULES?

The story so far:

On March 11, the Ministry of Home Affairs (MHA) notified the Citizenship Amendment Rules, 2024. The notification enabled the implementation of the Citizenship Amendment Act (CAA) that was passed by Parliament on December 11, 2019, which for the first time allows citizenship based on religion. It amended the Citizenship Amendment Act, 1955, making two key changes to facilitate citizenship to undocumented migrants belonging to six non-Muslim communities — Hindu, Sikh, Buddhist, Jain, Parsi or Christian— from Afghanistan, Bangladesh and Pakistan, who entered India on or before December 31, 2014, and reduces the period to qualify for citizenship from existing 11 years to 5 years.

What do the rules say?

Though the legislation was brought in for undocumented migrants, the Rules specify several documents that are to be uploaded on an online portal before the application is processed. A document issued by a government authority in the three countries, one document issued by Indian authorities, a sworn affidavit declaring the country of origin and date of entry in India along with an eligibility certificate to be issued by a locally reputed community institution certifying that a person follows one of the six faiths are mandatory.

The Ministry has specified the following nine documents to prove that the applicant belongs to the three countries — any document, copy of the passport, birth certificate, school or educational certificate, any identity document, licence, land or tenancy records issued by the government of Afghanistan or Bangladesh or Pakistan, any document that shows that either of the parents or grandparents or great grandparents of the applicant is or had been a citizen of one of the three countries or registration certificate or residential permit issued by the Foreigners Regional Registration Officer in India.

The applicant has to upload any one of the 20 listed documents such as Aadhaar, PAN card to prove entry in India. The MHA has not specified the nature of the institution that would certify an applicant's faith.

Is the total number of beneficiaries known?

When the legislation was passed in the Rajya Sabha, Union Home Minister Amit Shah said "lakhs and crores" of people would benefit whereas Derek O'Brien of the Trinamool Congress mentioned that the Director of the Intelligence Bureau had said in a report that around 31,000 people would be the immediate beneficiaries.

Mr. Shah in an interview said the government will soon find a way for people who do not have the required documents to apply under CAA.

What is the implication of the CAA in different States?

A large number of Hindus and Sikhs from Pakistan and Afghanistan who came to India through legal means but find that their documents like visas and passports have expired stand to gain from the CAA as it reduces the waiting period to avail citizenship to five years. However, they were anyway eligible for citizenship under Section 5 and Section 6 (1) of the Citizenship Act, 1955. According to Hindu Singh Sodha, Seemant Lok Sangathan, a group that advocates for the rights of Pakistani minority migrants in India, around 80,000 applications of Hindus from Pakistan have been pending with the authorities since 2010. Most Pakistani Hindus and Sikhs came here either on long term visas (LTV) or pilgrim visas. The LTVs given for five years are a precursor to citizenship. The Congress-led United Progressive Alliance government in 2011 had decided to grant LTVs to hundreds of Hindus and Sikhs who came to India claiming religious persecution in Pakistan in 2010.

In West Bengal, a section of the Matua sect, who had migrated from Bangladesh (earlier East Pakistan), celebrated after the CAA rules were notified. There are around 2.8 crore people from the Scheduled Caste community who stand to benefit but they will have to declare their connection with Bangladesh first.

Assam is the only State where a National Register of Citizens (NRC) was compiled in 2019 on the directions of the Supreme Court. More than 19 lakh of the 3.29 crore applicants in Assam were left out of the list that took five years to compile at a cost of ₹1,220 crore. The Hindus, excluded from NRC and who stand to benefit from the CAA, may be reluctant to apply. According to Aman Wadud, an Assam-based lawyer, under the CAA, the Bengali Hindus will have to declare that they came from Bangladesh whereas they applied as Indians for NRC.

ALLAHABAD HC TERMS U.P. MADARSA ACT A VIOLATION OF SECULARISM

Terming the Uttar Pradesh Board of Madarsa Education Act, 2004 unconstitutional, the Allahabad High Court on Friday said it was found to be a violation of secularism.

The court said it was not possible to segregate and save any portion of the Act that would be of any relevance and maintained that the State has no power to create a board for religious education or establish a board for school education only for a particular religion and philosophy associated with it.

A Bench of Justices Vivek Chaudhary and Subhash Vidyarthi — while dealing with a writ petition filed by Anshuman Singh Rathore that challenged the legality of the Board — said it was the duty of the State to provide education, which is secular in nature, more particularly for minors, i.e., children up to the age of 18.

'Highly divisive'

"It cannot discriminate and provide different types of education to children belonging to different religions. Any such action on the part of the State would be violative of secularism, which is part of the basic structure of the Constitution. Such an action... is not only unconstitutional but also highly divisive of the society on religious lines," the court noted.

It added that education under the Act is certainly not equivalent to the education being imparted to the students of other regular educational institutions recognised by the State primary, high school, and intermediate boards.

The court observed that while the students of all other religions are getting educated in modern subjects, denial of the same quality by the Madarsa Board amounts to violation of both Articles 21-A and 21 of the Constitution.

It added that the State cannot hide behind the lame excuse that it is fulfilling its duty by providing traditional education on nominal fee.

EXPRESS VIEW ON ATTACK ON FOREIGN STUDENTS IN GUJARAT: MOB ON CAMPUS

As the world is becoming increasingly interconnected," says the National Education Policy (2020), it is the responsibility of institutes of higher education to "become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies".

The attack on five foreign students on Saturday night at Gujarat University in Ahmedabad by a mob, reportedly for offering namaz during Ramzan, flies in the face of that commitment and promise. In videos of the incident, about 25 young men can be seen assaulting the students, two of whom were hospitalised.

The response from the authorities has been two-toned. First, dealing with the crime itself, the breach of law and order on campus. Two people have been arrested and the Ministry of External Affairs has issued a statement saying it is in touch with the Gujarat government on the matter. The second response, unfortunately, appears to lay blame on the victims.

In the immediate aftermath of the attack, Vice-Chancellor Neerja Gupta has assured the foreign students — from Sri Lanka, Turkmenistan, Afghanistan and African nations — that they will be moved to a different hostel. That this has become necessary for their safety is disturbing. But the VC's words also appear to rule out the possibility of an introspection on how and why the students were attacked: "They are foreign students and when they go to foreign countries there is a need to be culturally sensitive.

From this incident it has emerged that there is still a need for cultural orientation." The onus of being "culturally sensitive", especially in terms of religious and cultural practices, has been put on the foreign students. It would seem, in this framing, that the mob that attacked them has been let off far too lightly.

The best universities in the world are spaces that, first and foremost, foster freedom. The quality of education they offer depends crucially on the liberty of thought and freedom of debate that they play host to. The mob and its violence bring an end to the free exchange of ideas and, by extension, the idea of the university. Gujarat University would do well to heed the advice of NEP 2020: To ensure "scientific temper, liberty, responsibility, pluralism, equality, and justice", it is necessary

to nurture a campus that has "full equity and inclusion as the cornerstone of all educational decisions".

ZOMATO BRINGS 'PURE VEG' FLEET, DRAWS CRITICISM FROM PUBLIC

Food delivery platform Zomato on Tuesday launched a "pure veg" delivery fleet that would deliver orders from restaurants that do not serve meat, fish, or egg-based dishes. The fleet's personnel are shown in promotional images wearing green uniforms and with green boxes on their bikes. The company will not assign "pure veg" delivery partners to any orders from restaurants where food is not exclusively vegetarian.

While some vegetarian users welcomed the announcement on social media whole-heartedly, it immediately sparked backlash from app-based workers' unions, activists, and academics, who argued that the move will invariably translate into harassment of and violence against ground-level delivery partners, most of whom are from minority religious backgrounds or from oppressed caste backgrounds.

Sheikh Salauddin, president of Indian Federation of App-Based Transport Workers (IFAT), said: "The last time someone on Zomato requested for a delivery partner of a particular religion, [Zomato CEO Deepinder] Goyal said 'food has no religion'. Today, he seems to have gone back on this. I ask him directly, is he now going to categorise delivery partners on the lines of caste, community and religion?"

Karti P. Chidambaram, Congress MP from Sivaganga, too weighed in, calling the company "socially regressive and discriminatory".

On announcing the decision, Mr. Goyal said that the "pure veg" fleet "doesn't serve or alienate any religious, or political preference", further saying that the move was planned and rolled out in response to user feedback. "If this is the case, there have been so many cases of users requesting delivery partners of a particular caste and religion, will this be agreed to as well?" asked Mr. Salauddin, adding, "There have already been multiple instances of customers requesting delivery partners of a particular religion or community."

A Zomato spokesperson did not have an immediate response to queries from The Hindu on how exactly delivery partners will be selected for this particular fleet.

AFTER UPROAR, ZOMATO SCRAPS GREEN UNIFORMS FOR 'VEG FLEET'

Zomato CEO Deepinder Goyal said on X that the company would be going ahead with a separate delivery fleet for its upcoming "pure veg mode" but that both its regular and the "pure veg fleet" will be dressed in red. "This will ensure that our red uniform delivery partners are not incorrectly associated with non-veg food, and blocked by any RWAs [resident welfare associations] or societies during any special days… our riders' physical safety is of paramount importance to us. We now realise that even some of our customers could get into trouble with their landlords, and that would not be a nice thing if that happened because of us," Mr. Goyal said.

'Intent behind move'

He added that the intent behind separating the fleets was to prevent the smell of spilt food from a rider's previous order from carrying over to a subsequent vegetarian meal.

Shaik Salauddin, national general secretary of the Indian Federation of App-Based Transport Workers, said, "The question still remains how the selection of drivers for the separate 'pure veg fleet' will work on the ground and this has to be clarified."

ASSISTED REPRODUCTIVE TECHNOLOGIES (ART) ACT

After wishes poured in for the parents of late Punjabi singer Sidhu Moosewala for conceiving and having a baby with the help of in-vitro fertilisation (IVF), the Union Health Ministry took notice, raising concerns to the Punjab government about the couple's advanced age, which defied the age limits outlined in the assisted reproductive technologies (ART) Act.

The age restrictions stem from several crucial health factors concerning the mother. As women age, the quality of their eggs declines, impacting the effectiveness of IVF. Moreover, without donor eggs, there's a heightened risk of chromosomal abnormalities in embryos, posing risks to both mother and child. This underscores why many women choose to freeze their eggs when they're younger, for later use. Additionally, aging affects how the body responds to fertility drugs, complicating the IVF process.

WHY HAS KARNATAKA BANNED CERTAIN COLOURING AGENTS?

The story so far:

Karnataka became the third State in South India to ban the use of certain colouring agents in cotton candy and gobi manchurian that are found to be harmful. The decision follows similar steps taken in Tamil Nadu and Goa, and came after a survey by the Public Health Department that showed the presence of harmful chemicals present in the food samples, making them unsafe for consumption. The government has also clarified that there is no ban on making cotton candy as long as these colouring agents are not used.

What did the survey results show?

Samples in the State were collected from February 12 and submitted for laboratory tests, which then revealed the presence of harmful chemicals in many samples. Of the 25 cotton candy samples collected, 15 were termed as unsafe as they contained colours, while the rest were safe samples as they were made without added colours. Among the 171 samples of gobi manchurian collected, 107 samples were declared unsafe due to added colours, while 64 were declared safe as they did not contain added colours.

What were the harmful chemicals?

The unsafe samples with added colours showed traces of sunset yellow, tartrazine and rhodamine-b in cotton candy. Similarly, the unsafe samples of gobi manchurian had tartrazine, sunset yellow and carmoisine. A ban is already in place over the use of colouring agent rhodamine-b, a suspected carcinogenic substance. In the case of tartrazine, Health Minister Dinesh Gundu Rao said that although it is an approved artificial food colour, there are restrictions on its usage. There is a list of food items in which it can be used, with the amount to be used also prescribed. However, these conditions are only for packed food items; tartrazine cannot be used for food items which are freshly prepared, he said.

While notifying the ban of harmful chemicals, the Food Safety Commissioner said that the prolonged use of snacks that contain artificial colours can lead to deadly diseases such as cancer.

What are the penalties?

As per Rule 16 of the Food Safety and Standards Act, 2006 (Food Products Standards and Food Additives Regulation 2011), no artificial colours should be used in the preparation of gobi manchurian. The same rules allow certain food colours to be used within the approved limits, while non-permitted colours, including rhodamine-b, should not be used in the preparation of cotton candy.

The cancellation of licence for commercial activities, hefty fines and jail term have been threatened against the offenders. The Food Safety and Standards Act stipulate a fine of not less than ₹10 lakh and a jail term of a minimum of seven years, extending to life imprisonment, against those using banned chemical substances in food products.

What next?

Health safety officials assert that the ban on the use of harmful chemicals has come into effect immediately. While the Government plans to create awareness among manufacturers, it has also urged consumers to be aware of what they are consuming. The notification advised the public not to use, or use minimally, food items prepared with artificial colours. Random checks will be conducted to ascertain adherence to the legal provisions.

Besides gobi manchurian, other popular food products such as kebabs in which colouring agents are used is likely to come under the scanner.

NEW CAPABILITIES

On March 11, Prime Minister Narendra Modi used social media to announce India's entry into a small club of countries capable of delivering multiple nuclear warheads on a single missile. This was accomplished with the maiden flight test of Agni-V, India's longest range ballistic missile with a range of over 5,000 kilometres, with multiple independently targetable re-entry vehicle (MIRV) technology under 'Mission Divyastra' by the Defence Research and Development Organisation (DRDO). Since its first test in April 2012, Agni-V has undergone several tests and developments including canisterisation to improve its ease of handling and operation. The MIRV system's indigenous avionics systems and high accuracy sensor packages ensure that the re-entry vehicles reach the target points accurately. The DRDO said the mission accomplished the designed parameters. The test also comes five years after India's maiden anti-satellite (ASAT) test under Mission Shakti. On March 27, 2019, a live satellite in the low earth orbit of around 300 km was shot down using a modified interceptor of the Ballistic Missile Defence system.

This is a significant technological breakthrough that furthers India's nuclear weapons programme and strengthens second strike capability. This is particularly important given India's nuclear doctrine based on a no-first-use policy, credible minimum deterrence and massive retaliation in case of a first strike, which was espoused in 2003, after the nuclear tests of 1998. The choice of the MIRV on Agni-V, a three-stage solid fuelled engine, is significant as it is focused towards China given its range and multiple warheads give it the ability to defeat missile defences. India completed the nuclear triad when Mr. Modi declared in November 2018 that the country's first nuclear powered ballistic missile submarine INS Arihant had finished its first deterrence patrol. The MIRV is the next technological threshold in this direction and it is now only logical and a matter of time before the MIRV is deployed on submarine-launched ballistic missiles. China, which is fast expanding its nuclear arsenal, has already deployed MIRV technology — first deployed by

the U.S. in 1970. Pakistan claims to have tested it as well. In this regard, the other side of this development is the factor of escalation dynamics that is going to accelerate in the region with China and Pakistan. This spiral race of one-upmanship is only going to deepen, get more technology-intensive and turn out to be an expensive endeavour as well.

THE BIG PROMISE OF SMALL-SCALE LNG AS FUEL FOR INDIA, WITH FIRST SSLNG PLANT COMMISSIONED

Union Minister for Petroleum and Natural Gas Hardeep Singh Puri this month dedicated to the nation India's first small-scale liquefied natural gas (SSLNG) unit at GAIL (India) Ltd's Vijaipur complex in Madhya Pradesh.

Why small-scale LNG?

The government has been pushing for the adoption and use of natural gas across sectors, and aims to increase the share of natural gas in its primary energy mix to 15% by 2030 from a little more than 6% at present.

This is because natural gas is far less polluting than conventional hydrocarbons like coal and oil; it is also cheaper than oil, more than 85% of India's requirement for which is met through costly imports. Natural gas is seen as a key transition fuel in India's journey towards green energy and future fuels.

However, a major challenge in scaling up gas consumption lies in the transportation of gas to places that are not connected by the country's natural gas pipeline grid — a problem that also hinders the use of LNG directly as fuel for long-haul trucks and inter-city buses.

Large-scale pipeline projects that are in the works will take years to be completed; even so, last-mile delivery challenges may persist in many parts of the country. In this scenario, new-age solutions with fast turnaround times can help expand the reach, access, and consumption of natural gas.

SSLNG is one such promising solution. At the commissioning ceremony of the SSLNG unit at GAIL's Vijaipur complex, Minister Puri said many such plants were expected to come up in the coming years, which could potentially change the country's natural gas landscape.

GAIL also plans to invest Rs 650 crore to develop dispensing stations along the Golden Quadrilateral and other major highways to provide LNG as an automotive fuel.

What exactly is SSLNG?

There is no standard definition of this still globally nascent industry. But basically, SSLNG refers to the liquefaction of natural gas and its transportation using unconventional means in a significantly smaller-scale operation than the usual large-scale liquefaction, regasification, and transportation infrastructure and processes. Simply put, LNG — gas in its liquid or super-chilled form — is supplied in specialised trucks and small vessels to industrial and commercial consumers in regions that are not connected by pipelines.

In relatively traditional use cases such as supplying compressed natural gas (CNG) for vehicles and piped gas for households and manufacturing units, the buyer would regasify the LNG using small vapourisers, and then supply it to end-users. Where the fuel is to be used directly in its liquid form, it would be supplied to end-users without regasification.

The SSLNG chain can start from a large-scale LNG import terminal from where the LNG, instead of being regasified and supplied through pipelines, can be transported to consumers by cryogenic road tankers or small vessels.

The chain can also start at locations with ample natural gas supply or production, where small liquefaction plants can be set up. The SSLNG unit at Vijaipur, which is GAIL's largest gas processing facility, is an example of the latter kind of location.

How does the Vijaipur facility work?

The Rs 150 crore facility has SSLNG skids with a combined capacity of 36 tonnes per day, along with associated liquid handling systems. There are treatment skids — zeolite pretreatment skids (ZPTS) — and liquefaction skids, known as cryo boxes, for converting natural gas to LNG. The SSLNG unit is controlled by an automated, web-based Supervisory Control and Data Acquisition (SCADA) system, a mechanism that is typically used to monitor large industrial devices and processes.

Natural gas is processed in the ZPTS at a pressure of approximately 15 bar to remove non-desirable components such as nitrogen, water, sulphur, and carbon dioxide. It is then fed to the cryo box, where it is compressed in a four-stage compressor to a pressure of around 260 bar.

The gas is cooled by a propane-based external refrigeration system to minus 60-70 degree Celsius, and then subjected to expansion, such that the temperature falls below minus 140 degree Celsius, allowing it to liquefy. The LNG will then be dispatched by cryogenic tankers to nearby areas for use in city gas distribution networks as CNG and piped gas, and in the proposed LNG filling stations for medium and heavy vehicles.

What is the business case for SSLNG?

GAIL is the first off the blocks, but almost all major oil and gas companies in India have their eyes on this potentially high-growth segment.

The first strong push for SSLNG had come years ago from Petronet LNG Ltd, India's largest importer of LNG, which has been supplying LNG to some of its small industrial consumers from its large LNG import terminals at Dahej in Gujarat and Kochi in Kerala.

Petronet, which is jointly promoted by GAIL, Oil and Natural Gas Corporation Ltd (ONGC), Indian Oil Corporation Ltd (IOC) and Bharat Petroleum Corporation Ltd (BPCL), has also been pushing for greater adoption of LNG as automotive fuel, marine fuel, and in regulation use cases such as city gas distribution networks and industries that use natural gas as feedstock.

Petronet's push for SSLNG and the use of LNG as a direct fuel for road and marine transportation was aimed at raising both LNG consumption in the country and LNG volumes at its Kochi terminal, which was struggling due to the absence of pipeline connectivity to major consumers.

Why is the use of LNG in long-haul trucks and buses attractive?

As mentioned above, compared with diesel, which is the dominant fuel in these segments, LNG is significantly cleaner — with reduced carbon dioxide emissions and negligible amounts of particulate matter, nitrogen oxide, and sulphur dioxide emissions.

LNG offers a slightly longer range to vehicles than diesel with similar-sized fuel tanks, and is usually cheaper than crude oil, from which diesel is derived. Although India imports around half of its natural gas requirement, this dependency level is much lower than in the case of crude oil. Replacing a major chunk of India's diesel consumption by LNG could lead to substantial foreign exchange savings.

LNG has been used successfully and aggressively in medium and heavy commercial vehicles in many countries, most notably in China. The challenges in India include a lack of easy availability of LNG-powered vehicles, the higher initial cost of these vehicles compared with diesel and the absence of an LNG vehicle financing ecosystem, and the virtually non-existent LNG retail network.

Companies such as GAIL and Petronet are working to build a viable ecosystem for transporters to move from diesel vehicles to LNG.

Petronet has collaborated with commercial vehicle manufacturers and other public sector oil and gas companies for trials and pilot projects for LNG-fuelled trucks and buses, is in discussions with state roadways corporations and truck fleet operators, and has established a few LNG dispensing stations along highways. IOC, like GAIL, is looking to build LNG dispensing stations along major highways.

INDIA TO GENERATE 600 KILOTONNES OF SOLAR WASTE BY 2030: WHAT A NEW STUDY SAYS

India generated about 100 kilotonnes (kt) of solar waste in the financial year (FY) 2022-2023, according to a new study published on Wednesday (March 20). The amount of solar waste produced by the country is expected to reach 600 kt by 2030, the study said.

The analysis, 'Enabling a Circular Economy in India's Solar Industry – Assessing the Solar Waste Quantum', was done by the Ministry of New and Renewable Energy (MNRE) and Dr Akanksha Tyagi, Ajinkya Kale, and Neeraj Kuldeep from the Council on Energy, Environment and Water (CEEW), a climate think tank.

The current solar capacity of India stands at 66.7 GW as of March 2023 — it has increased by 23 times in the past 10 years — and is slated to jump to 292 GW of installed solar capacity by 2030. Therefore, the management of solar waste is crucial for environmental, economic, and social reasons.

Here is a look at the findings of the study and the suggestions on how to deal with solar waste.

But first, what is solar waste?

Solar waste refers to the waste generated during the manufacturing of solar modules and waste from the field (project lifetime), according to the study.

Manufacturing involves two streams of waste, including the scrap that's produced and the waste generated from PV modules failing quality tests. Meanwhile, waste from the field involves three streams of waste. One, waste generated during transporting and handling — the damaged modules are considered as waste. Two, waste produced due to the damage incurred by solar modules during their lifetime. Three, when the modules reach their end-of-life and are not usable anymore.

The study only focused on waste from the field (project lifetime) category and excluded waste generated during manufacturing.

What are the findings of the study?

By 2030, India's current installed solar capacity will generate about 340 kt — three times more than the present. Around 67 per cent of this waste is expected to be produced by five states, including Rajasthan, Gujarat, Karnataka, Tamil Nadu, and Andhra Pradesh. This is because these five states currently have more solar capacity than other states and therefore, will produce more solar waste.

The aforementioned states also plan to expand their solar capacity extensively in the following years. Speaking to The Indian Express, Neeraj Kuldeep, one of the authors of the study, said "If you look at India's 500 GW renewable energy target, the majority of the GWs will come from these five renewable energy-rich states. As a result, the rate of quantum (of producing solar waste) will be higher in these states".

The cumulative waste from existing and new capacity (deployed between FY24 and FY30) will reach about 600 kt by 2030, according to the report. By 2050, it will increase to about 19,000 kt and 77 per cent of which will be generated from new capacities.

As the discarded modules contain minerals such as silicon, copper, tellurium, and cadmium — which have been classified as critical minerals for the country's economic development and national security by the Indian government — the study focused on them also. The 340 kt waste expected to be produced by 2030 would consist of 10 kt of silicon, 12-18 tonnes of silver, and 16 tonnes of cadmium and tellurium.

How to deal with solar waste?

The report gave several recommendations for managing solar waste. It urged the policymakers to maintain a comprehensive database of the installed solar capacity, which would help in estimating solar waste in the following years. The report also said the policymakers should incentivise recyclers, and push stakeholders to effectively manage the growing solar waste.

Kuldeep said, "India needs to focus on creating a market for solar recycling. The general understanding is that solar waste occurs only when modules reach their end-of-life, which is around 25 years. However, our report points out that there are other ways also through which solar waste is generated. So, this is not the problem of the future. It is the problem of now and the future."

The report talked about two broad ways of recycling solar panels. First is conventional recycling or bulk material recycling, which involves mechanical processes like crushing, sieving, and shearing of the waste. While the majority of recycled materials consist of glass, aluminium, and copper, more valuable materials like silver and silicon cannot be recovered through this method.

The other way of recycling is known as high-value recycling. It involves the use of a combination of mechanical, chemical, and thermal processes to recycle the modules. Unlike conventional recycling, this method can recover silver and silicon also with the help of chemical processes.

EXPRESS VIEW ON IQAIR'S POLLUTION REPORT: DELHI TO BEGUSARAI

For more than a decade, studies and reports have shone unflattering light on the quality of air Indians are exposed to. The challenge has largely been framed in terms of a crisis of big city governance. Delhi's difficulties in bringing down particulate matter (PM) to manageable levels have, in particular, posed difficult questions to planners and civic agencies. The Swiss pollution monitoring body IQAir's latest report shows that the problem continues to be intractable in India's capital. Despite a slew of measures in the last two years, Delhi's PM 2.5 levels have worsened to 92.7 micrograms per cubic metre in 2023 from 89 micrograms per cubic metre in 2022. But the report also speaks of a larger emergency which, though acknowledged in policy circles, doesn't always get adequate attention. The Swiss agency's analysis shows that unhealthy air is a bane not only for people in Tier 2 cities such as Guwahati or Patna, it has assumed crisis proportions in relatively smaller urban centres such as Rohtak in Haryana, Meerut in Uttar Pradesh and Begusarai in Bihar — the last is the worst ranked according to IQAir.

Delhi's air quality derives from the city's geography, the transport-related choices of its residents, industrial and construction activities and pollution in the city's neighbourhood, especially crop stubble burning. A knowledge base on pollutants in some Tier 2 cities — Guwahati, for instance — is also building up steadily. But air quality data generation has not kept pace with urbanisation in the country. There is scarcely any information on the pollution sources in most of the 83 Indian cities that are on IQAir's list. Begusarai, for instance, reported a relatively less worrying PM 2.5 load of 20 micrograms per cubic metre in 2022. An immediate imperative, following the Swiss agency's report, would be to find out how the city's pollution burden shot up six times in less than a year.

Some mitigation measures should not be difficult to put in place. State pollution bodies, for instance, would do well to address their chronic staff shortage that hampers monitoring. The truism about India's air pollution — over half of India's PM 2.5 load is a cocktail of noxious gases — also offers cues. Pollutants from agriculture, industry, power plants, transport and households travel across cities and states. The National Clean Air Programme, therefore, rightly emphasises targeted interventions in airsheds — localities in cities or contiguous small urban and rural centres — whose geography or meteorology constrains them from dispersing pollutants. Such solutions require coordination between local, state and Central agencies. This, unfortunately, doesn't happen even in the national capital. The IQAir report is another reminder that such intransigence doesn't work.

9 TAKEAWAYS FROM WORLD INEQUALITY LAB WORKING PAPER

A new working paper, titled "Income and Wealth Inequality in India, 1922-2023: The Rise of the Billionaire Raj", by World Inequality Lab has estimated that "inequality declined post-independence till the early 1980s, after which it began rising and has skyrocketed since the early 2000s".

The paper, which has been co-authored by Nitin Kumar Bharti, Lucas Chancel, Thomas Piketty, and Anmol Somanchi, combines data from national income accounts, wealth aggregates, tax tabulations, rich lists, and surveys on income, consumption, and wealth to arrive at the results. The WIL is a Paris based global research centre focused on the study of inequality and public policies that promote social, economic and environmental justice.

Here are the main takeaways:

01 Growth in average incomes

According to WIL paper, between 1960 and 2022, India's average income grew at 2.6% per year in real terms (that is, after removing the effect of inflation). This period can be broadly divided into two halves: "Compared to a real growth rate of 1.6% per year between 1960 and 1990, average incomes grew by 3.6% per year between 1990 and 2022". It further states that the periods 2005-2010 and 2010-2015 saw the fastest growth at 4.3% and 4.9% per year respectively.

02 Emergence of very high net worth individuals

The period between 1990 to 2022 witnessed a rise in national wealth and the emergence of very high net worth individuals (those with net wealth exceeding $1 billion at market exchange rate; this number increased from 1 to 52 to 162 in 1991, 2011 and 2022 respectively.

03 Rise in the percentage of income tax payers

The paper finds that the share of adult population that filed an income tax return — which had remained under 1% till the 1990s — also grew significantly with the economic reforms of 1991. By 2011, the share had crossed 5% and the last decade too saw sustained growth with around 9% of adults filing a return in the years 2017-2020.

04 Extreme levels of inequality in India

The paper finds that in 2022-23, 22.6% of India's national income went to just the top 1%, the highest level recorded in the data series since 1922 — this is higher than even during the inter-war colonial period. The top 1% wealth share stood at 40.1% in 2022- 23 — also at its highest level since 1961 when the data series on wealth began. In other words, states the paper, "the 'Billionaire Raj' headed by India's modern bourgeoisie is now more unequal than the British Raj headed by the colonialist forces". It also notes: "It is unclear how long such inequality levels can sustain without major social and political upheaval."

05 Extreme wealth concentration at the very top

The paper notes that a "key feature of the wealth accumulation process in India is the extreme concentration at the very top". Between 1961 and 2023, the top 1% wealth share increased threefold, from 13% to 39%. Most of these gains came post-1991 after which point top 1% shares have been on a steep upward trend right until 2022-23. The wealth concentration within the top 1% as well is extreme. "Consider this: in 2022-23, the top 1% wealth share was 39.5%, 29 percentage points went just to the top 0.1%, 22 percentage points to just the top 0.01% and 16 percentage points to just the top 0.001%".

06 International comparison of income inequality

In the paper, the authors put India's income and wealth inequality levels (as of 2022) in global perspective by comparing India with Brazil, China, France, South Africa, United Kingdom, and the United States. If one looks at the income share of the top 10%, India stands second only second to South Africa (Figure 15a). If, however, one compares the income share of the top 1%, India ends up having the highest levels at 22.6%. "As it happens, India's top 1% income share appears to be among the very highest in the world based on World Inequality Database data, behind only perhaps Peru, Yemen and a couple of other small countries," notes the paper.

07 International comparison of wealth inequality

The picture is slightly less extreme when wealth inequality is considered. "In terms of top wealth shares, we see that both with top 10% and top 1%, India comes out in the middle of the pack, with Brazil and South Africa standing out with their extreme wealth concentration levels (85.6% and 79.7% top 10% shares respectively)," states the paper.

08 Poor data leading to likely underestimation of inequality

Notwithstanding such stark findings, the authors "emphasize that the quality of economic data in India is notably poor and has seen a decline recently. It is therefore likely that our results represent a lower bound to actual inequality levels."

09 Policy solution

"Implementing a super tax on Indian billionaires and multimillionaires, along with restructuring the tax schedule to include both income and wealth, so as to finance major investments in education, health and other public infrastructure, could be effective measures," to address the rising inequalities.

HOW WOMEN IN INDIA HAVE FARED

International Women's Day was celebrated on March 8, 2024. The United Nations Development Programme (UNDP), in its 'Gender Social Norms Index' quantifies biases against women, capturing people's attitude on women's roles along four dimensions: political, educational, economic and physical integrity. It is the last two dimensions that men leave for women. Of the eight billion people across the world, 45% are women. Men claim that a woman's job is to maintain homes, make food, make and care for babies, while men bring home the income. In many 'developing countries' across the world, women do not go to schools, but work as farm labourers and housemaids. The educational dimension is thus given a miss.

However, India, dubbed by the western media as a 'developing nation', has shown the way ahead with its inclusive policies. Since the last two decades, India has offered free education to all children — poor or rich, rural or urban — all the way to the high school certificate, in all the 28 States and Union Territories. And about 12 crores of these are girls. When we turn to higher education, at the graduate/postgraduate and doctoral degree level, most girls opt for arts and science, or nursing and medicine, while boys go for undergraduate and postgraduate degrees in computer science, biotechnology, and digital technology at the Ph. D level. But at most STEM (Science, technology, engineering and mathematics) Institutes across the country, only 20% are females. Also, among the faculty members in IITs, CSIR labs, AIIMS, IISERs and IIMs, only 20% are women. We thus need to improve this gender gap.

Happily enough, there are scores of women who have turned entrepreneurs across India today. While many of them are involved in the entertainment business, advertising, film industry and beauty products, quite a few women with science and technology degrees have established biotechnology and drug companies that make useful and profitable products. In addition, many women with MD degrees specialise in ophthalmology (vision care for the needy), neurology, pregnancy-related issues (a child born is a child saved for the future), and other medical disciplines.

Thus, with all the efforts of the government across India, the private and public-spirited women entrepreneurs, India has fast become not a 'developing country', but a developed one!

This is true even at the governmental and political level. Statistics tell us that nearly half the world's people believe that men make better political and business leaders than women. Gender biases are more pronounced in both low and high Human Development Index (HDI) countries. These biases hold across regions, income, level of development and cultures, thus making them a global issue.

Against this background, India (touted as a developing country) has done remarkably better. One example will suffice. The first President of the U.S. George Washington, was sworn in as President in 1789. The U.S. has had 46 Presidents so far. But none of them were women! Here, India has the trump card. Of the 15 Presidents so far, two have been women: Pratibha Patil (2007-2012) and Draupadi Murmu (current President). Even when we look at our immediate neighbours, we have had women heading important offices. Benazir Bhutto was the Prime Minister of Pakistan, Sheikh Hasina is the current Prime Minister of Bangladesh, Bidya Devi Bhandari was the second President of Nepal, and Dolma Gyari was the woman Prime Minister of Tibet between 1991-2011. And several 'developing countries' in Latin America have had women Presidents and Prime Ministers.

Let us thus have happy women's days and years.

HOW WATER INSECURITY AFFECTS WOMEN

While India has made remarkable progress in expanding household access to water, the National Sample Survey 78th round multiple indicator survey (2020-21) suggests that over 41% of rural households lack access to safely managed drinking water within their households, and geographical disparities in household access to safe water, though declining, continue to persist. The distance to the principal source of drinking water for these households falls in the range of 0.2 to 1.5 km or more. India makes up 18% of the world's population, with a share of water resources of less than 5%.

Evidence suggests that lack of access to water can cause considerable stress among households. In water-scarce areas or among households whose principal water source lies outside their household premises, water collection is typically perceived as a gendered activity, with the time burden of collecting water inevitably falling on women and girls of the household. Water insecurity affects women's everyday lives, household dynamics, and social relationships. It also affects the school attendance and academic performance of girls. Women also face gender-based violence during the commute for water collection, which has an adverse impact on their mental health.

Research suggests that lack of access to adequate water leads to the practice of open defecation. This, in turn, has a multitude of effects on women. Apart from the health impacts like diarrhoea, typhoid and cholera, and impacts on menstrual health, women who practise open defecation also face psychosocial stress as well as a greater risk of non-partner sexual violence.

The Jal Jeevan Mission (JJM) and the National Water Mission present an important shift in the policy for water management. The JJM enables access to drinking water through household tap connections. This reduces the drudgery of women and gives them more time for gainful activities. The programme seeks to measure this through increased participation of women in community engagement, including in gram panchayat and self-help group activities. To this end, the programme is designed to empower women by encouraging their involvement in Pani Samitis constituted for the purpose of planning, implementation, operations and maintenance, and monitoring of the programme at the village level. JJM guidelines also recommend that at least five

women from every village are trained in periodic water quality monitoring. This serves the dual objective of empowering these women as well as ensuring the delivery of quality water to all rural households under this programme.

In a recent study conducted across rural areas in three districts in Tamil Nadu, we sought to examine these intended outcomes. We found that household access to safe drinking water enabled under the JJM reduces the time spent on collecting water from off-premises, leading to time gains among women, which they spent on better management of household tasks, children's schooling, and childcare. Women who performed well on overall empowerment indicators also spent less time seeking water and showed a better mental health index. The study also showed positive correlations between water access and sanitation access.

Even as India continues its progress on access to water and sanitation, it is imperative that it continues to uphold a policy environment that mainstreams gender considerations in water access. Beyond reporting on progress in terms of water access or quality, it is also imperative that we measure progress against intended gender goals – be it in terms of reduction in the drop-out rates among school-going girls or reduction in drudgery among rural women and the extent to which this translates to improved socio-economic outcomes for these women.

WHAT HAS CAUSED THE WATER CRISIS IN BENGALURU, NEIGHBOURING AREAS

An acute drinking water crisis in Bengaluru has been creating international headlines for the past few days. On Monday (April 18), Karnataka Chief Minister Siddaramaiah said Bengaluru was facing a shortage of 500 million litres of water every day, which is about a fifth of the city's daily total demand. The CM said arrangements were being made for additional supplies for Bengaluru.

However, the shortage of water is not restricted to Bengaluru, and neither is it only a drinking water problem. The entire state of Karnataka, as also the adjoining areas of Telangana and Maharashtra, are facing water scarcity. Much of this has to do with the lower-than-normal rainfall in this area in the last one year and the nature of underground aquifers in this region.

Why the shortage

During last year's monsoon, Karnataka received rainfall that was 18 per cent below normal, the least since 2015. Even the post-monsoon period did not bring much rain to the state. Like most other parts of the country, Karnataka receives a bulk of its annual rainfall during the monsoon, and it is this water that fills up the reservoirs and recharges the aquifers. A rainfall deficit in the monsoon months almost inevitably results in water stress.

Karnataka was not the only state to receive below-normal rainfall last monsoon. Kerala, for example, finished the season with a 34 per cent deficit. Bihar, Jharkhand and eastern Uttar Pradesh had almost 25 per cent deficit each.

However, what makes the difference in the case of Karnataka, as pointed out by Vimal Mishra, a professor of Civil Engineering and Earth Sciences at IIT Gandhinagar, is the nature of the underground aquifers in the area.

"South India has a very different kind of aquifer system. It is very rocky. The aquifers don't hold a lot of water. They empty out quickly, and they also get recharged pretty quickly. What this means is that groundwater resources are not able to sustain for very long in the event of a prolonged dry spell. This is very different from the aquifers in north India, which have a much better capacity to

hold water. This is why Bihar and Uttar Pradesh, which got even less rainfall last year than Karnataka, have not seen similar water scarcity," Mishra, the Vikram Sarabhai Chair professor at IIT Gandhinagar, said.

"Aquifers in north India, once full, can hold enough water to sustain the demand for a couple of years," he said.

Falling reservoir levels

Another direct consequence of low rainfall has been the relatively low level of water in reservoirs. Latest data from the Central Water Commission shows that Karnataka reservoirs are currently holding water at only 26 per cent of their full capacity, which is at least ten percentage points lower than what is expected at this time of the year. Instead of the nearly 8.8 billion cubic meters of water that is expected in Karnataka's reservoirs at this time of the year, only 6.5 billion cubic meters is currently available. And this is depleting steadily. A month earlier, the state's reservoirs were holding 7.78 billion cubic meters of water, CWC data shows.

Again, it is not just Karnataka's reservoirs that have below-normal water levels. Other states in south India are facing the same problem, with Telangana being in a far worse situation. But the demands in Karnataka are different, and its reservoirs are depleting faster than those of the neighbouring states. Clearly, the state is being forced to draw more from the reserves even before the start of the summer season.

HEAT, ARIDITY, CLEAR SKIES: WHY FORESTS ARE ALREADY ABLAZE IN THE NILGIRIS

For almost a week, forest fires have been raging in the Coonoor forest range in the Nilgiris in Tamil Nadu. On Sunday, the Indian Air Force joined the ongoing firefighting efforts of the state forest department, deploying an Mi-17 V5 helicopter to conduct multiple "Bambi Bucket" operations that dumped some 16,000 litres of water on the fires.

The Bambi Bucket, also called a helicopter bucket or a helibucket, is a specialised container that is suspended by cable under a chopper, and which can be filled by lowering into a river or pond before being flown above a fire and discharged aerially by opening a valve at the bottom of the bucket.

The Bambi Bucket is especially helpful in fighting wildfires that are difficult or impossible to reach from the ground. Around the world, helicopters are frequently commissioned to fight forest fires.

How common are forest fires in India?

November to June is considered to be forest fire season in India, with hundreds of thousands of small and large fires burning every year, especially from February onward as summer approaches. April-May are usually the worst fire months across the country.

The biennial India State of Forest Report (ISFR) published by the Forest Survey of India (FSI) under the Ministry of Environment, Forest and Climate Change recorded in its 2019 report that more than 36% of India's forest cover was prone to frequent fires. About 4% of the forest cover was 'extremely prone' to fire, and another 6% was 'very highly' fire prone (ISFR 2019).

Globally, about 3% of the total forest area, or about 98 million hectares of forest, were affected by fires in the year 2015, mostly in the tropical regions.

Where do the most forest fires in India occur?

According to the FSI, severe fires break out in dry deciduous forests, while evergreen, semi-evergreen, and montane temperate forests are comparatively less prone to fires. The forests of Northeast India, Odisha, Maharashtra, Jharkhand, Chhattisgarh, and Uttarakhand are the most vulnerable to fires during the November to June period.

In March 2023, large bushfires raged in Goa, triggering an investigation into whether they were "man-made". In 2021, a series of forest fires broke out in Uttarakhand, Himachal Pradesh, Nagaland-Manipur border, Odisha, Madhya Pradesh, and Gujarat, including in wildlife sanctuaries.

How has the forest fire situation been this year?

Over the past one week, the highest number of forest fires have been reported from Mizoram (3,738), Manipur (1,702), Assam (1,652), Meghalaya (1,252), and Maharashtra (1,215), as per FSI data.

Satellite data of Monday, generated by Indian Space Research Organisation (ISRO) tools, showed that forest fires have been on an uptick since early March along the Konkan belt in Maharashtra, south-coastal Gujarat along Gir Somnath and Porbandar, southern Rajasthan and adjoining south-western districts of Madhya Pradesh, coastal and interior Odisha, and adjoining Jharkhand.

In South India, most forest covered areas of Andhra Pradesh, Karnataka and Tamil Nadu have seen fire incidents over the past week.

Are forest fires in South India unusual?

Some forest areas in Andhra Pradesh and Telangana are fire-prone. However, according to the FSI, forests in southern India are comparatively less vulnerable to fires, as the vegetation type is mainly evergreen or semi-evergreen. That said, Tamil Nadu has been reporting wildfires in its forests in recent years.

What is the reason for the fires this year?

Forest fires have man-made as well as natural causes. A majority of forest fires are a result of human carelessness like discarded cigarettes, camp fires, burning of debris, and similar other processes. Amongst natural causes, lightning is the most common originator.

Forest fires need a conducive atmosphere to spread. Hot and dry temperatures and high tree density are some of the factors that help the spread of forest fires.

This year, high aridity, above-normal day temperatures, clear sky conditions, and calm winds during the early phase of the summer season are some of the contributory factors for the spike in forest fire incidents in southern India.

Last month was exceptionally hot over Southern India in particular. This February was South India's hottest since 1901, and January was the fifth warmest in more than a century.

Over the past two months, the recorded maximum, minimum, and mean temperatures have remained above-normal over the southern states, which has helped build the heat load over the region well before the onset of the summer season. As a result, there has been an early availability of dry biomass in these forests since the winter season itself.

The IMD has warned of the prevalence of Excess Heat Factor (EHF), a value that predicts the chances of a heatwave over a region, to be significantly higher than normal over western Andhra Pradesh and neighbouring Karnataka. Maximum temperatures touched 40 degrees Celsius here last week, unusual for mid March.

In the absence of rain and prevailing high temperatures, the IMD has classified almost all districts of southern India under 'mild' aridity.

ANIMAL HUSBANDRY DEPT. PLANS TO REGISTER THENMALA KULLAN AS INDIGENOUS BREED

The Kerala Animal Husbandry department has decided to conserve dwarf cow, locally known as Thenmala Kullan, and launch studies to register it as a unique indigenous breed.

The cow comes with many distinctive features including a small hump. Reared by tribespeople in Arippa and Thenmala, they are less docile and basically thrive on forest-based fodder.

"We have identified some cows in the area and Kerala Veterinary and Animal Sciences University (KVASU) will be conducting the necessary studies. At present, we have native breeds such as Vechur and Kasaragod dwarf in Kerala and the project to conserve Thenmala Kullan is in the initial phase only," Minister for Animal Husbandry and Dairy Development J. Chinchurani told The Hindu.

According to department officials, tribespeople from various settlements have been rearing these cows for many decades and the animals have completely adapted to the local agro-ecological conditions. Though they produce nutrient-rich A2 milk, the quantity is very low and they are reared mainly for calves and manure.

The officials have identified 42 cows from Kocharippa and Edappana colonies. They say the animals have strong built-up and high immunity.

Meanwhile, scientific evaluation and verification of the breed-specific traits can take sometime. In the first phase, multiple factors including the approximate population, parent stock, breeding method and distinctive physical features will be considered. "There are many conditions for a group to be documented as indigenous breed by the National Bureau of Animal Genetic Resources. It involves both phenotypic and genotypic characterisation," says Dr. G. Radhika, Professor, Department of Animal Genetics and Breeding, KVASU.

After the preliminary survey and studies, the phenotypic traits along with the thermal tolerance and immunity will be analysed. "In the next phase DNA will be isolated for genetic studies. Breed status can be achieved only after meeting the criteria of the NBAGR," she adds.

FEROCIOUS FRIENDS

The relationship between dogs and their place in society opens up vexing dilemmas in India. On one hand there is the problem of street dogs. Citizens all over the country may complain about their residential colonies being under attack by roving canines but this has not yet spurred any significant political response to enforce existing municipal laws to contain their numbers. On the other hand, it seems that even pet dogs too have managed to raise an entirely different class of concerns meriting the attention of a central government ministry and two High Courts. Among the questions being deliberated upon is whether certain breeds of dogs are inherently more

"ferocious" than others. An expert committee constituted by the Department of Animal Welfare and Husbandry, Ministry of Agriculture, has recommended that certain breeds of "ferocious dogs" be prohibited from being kept as pets. Such a committee was constituted after citizen groups complained of attacks on people — sometimes fatal — by these dogs, which prompted a petition in the Delhi High Court requesting it to ban certain breeds.

These include mixed and crossbreeds such as Pit Bull Terrier, American Staffordshire Terrier, Fila Brasileiro, Dogo Argentino, American Bulldog, Boerboel, Kangal, Central Asian Shepherd Dog, among others. These rules are expected to be implemented by local authorities. Dogs that have already been kept as pets must be sterilised to ensure that further breeding does not happen. The Karnataka High Court recently stayed the government order after some petitioners objected that the government department move was unilateral and did not encompass a wide enough spectrum of expert bodies. The Kennel Club of India, a body that deals with registering purebreeds, could stand to be at a disadvantage by this decision. Years of observation and insight into the temperament of dogs have shown that ferocity and aggressiveness are a result of both environmental and behavioural factors. Thus, the age, sex, size, familiarity with other dogs, the way it is trained, and the circumstances that provoke aggression all contribute to ferocity. That said, several countries have banned certain breeds or have imposed stringent conditions to own or maintain certain dog breeds. None of these countries anyway permits street dogs in the way India does and so the regulations are premised on higher standards of public safety than in India. Thus, the existence or absence of certain breeds of dogs is less likely to make a difference to public safety than making dog owners more liable for harm caused. While individual choice in choosing and raising pets matters, it is by no means an unbridled right.

PANEL TO STUDY SCOPE OF ALTERING POWER LINES IN BUSTARD HABITAT

The Supreme Court on Thursday constituted an expert committee to balance the conservation and protection of the endangered Great Indian Bustard bird population with the country's international commitments to promote renewable sources of energy.

The large-winged birds are on the brink of extinction, and one of the causes is the frequent collision with high-powered power cables running adjacent to its core habitats in Gujarat and Rajasthan.

A three-judge Bench headed by Chief Justice of India D.Y. Chandrachud said a blanket direction given by the top court in April 2019 for moving high voltage and low voltage power cables underground required "re-calibration".

The court appointed the Director, Wildlife Institute of India; wildlife and forest conservation experts, including Hari Shankar Singh, Niranjan Kumar Vasu, B. Majumdar, and Devesh Ghadvi; and Joint Secretary with the Renewable Energy Ministry Lalit Bohra and his counterpart in the Environment Ministry.

The committee would also include Ashok Kumar Rajput, Member, Power Systems, Central Electrical Authority, and P.C. Garg, Chief Operating Officer, Central Transmission Utility of India Limited as special invitees.

The remit of the panel would be to determine the scope, extent and feasibility of underground and overhead electric lines in areas identified as priority spots for the birds in Rajasthan and Gujarat.

The committee would explore alternatives to balance sustainable development goals and conservation of the birds. It could recommend additional measures to identify additional priority areas. The panel has to file its report in the top court on or before July 31.

DARK SKY RESERVE

In October 2022, 24 ambassadors from Hanle, including 18 women, were handpicked as astronomy ambassadors and trained in basic astronomy to boost India's first-ever astronomy tourism promotion in Ladakh. Each of the ambassadors has been equipped with an 8-inch telescope. Astronomy tourism is a joint initiative by the Ladakh union territory administration and Bengaluru-based Indian Institute of Astrophysics (IIA).

A Dark Sky Reserve is public or private land with a distinguished nocturnal environment and starry nights that has been developed responsibly to prevent light pollution. According to the International Dark Sky Association (IDSA) website, these reserves "consist of a core area meeting minimum criteria for sky quality and natural darkness, and a peripheral area that supports dark sky preservation in the core."

These reserves, it said, are formed through a "partnership of multiple land managers who have recognized the value of the natural nighttime environment through regulations and long-term planning". Individuals or groups can nominate a site for certification to the International Dark Sky Association (IDSA). There are five designated categories, namely International Dark Sky parks, communities, reserves, sanctuaries and Urban Night Sky Places.

The certification process is similar to that of a site being awarded the UNESCO World Heritage Site tag or getting recognised as a Biosphere Reserve. Between 2001 and January 2022, there have been 195 sites recognised as International Dark Sky Places globally, the IDSA said. The IDSA considers a piece of land suitable for dark sky place only if it is either publicly or privately owned; is accessible to the public partially or entirely during the year; the land is legally protected for scientific, natural, educational, cultural, heritage and/or public enjoyment purposes; the core area of the land provides an exceptional dark sky resource relative to the communities and cities that surround it and the land offers prescribed night sky brightness either for a reserve, park or sanctuary.

The Ladakh Union Territory administration is leading the efforts in establishing the country's first Dark Sky Reserve. To be situated at a height of 4,500 metres above sea level, the Hanle Dark Sky Reserve (HDSR) will come up within the Changthang Wildlife Sanctuary. The Department of Science and Technology and experts from the Indian Institute of Astrophysics (IIA), Bengaluru, are providing scientific and technological support in developing this first-of-its-kind facility. The IIA already manages the Indian Astronomical Observatory (IAO) complex at Hanle, Ladakh.

Here, scientists have been carrying out astronomical observations using the existing gamma ray, an infrared and an optical telescope to study exoplanets, galaxies and stars through the pristine skies of Hanle. The formal decision to set up this Dark Sky Reserve was made through a Memorandum of Understanding (MoU) signed between officials from the IIA, Bengaluru, the Ladakh UT and the Ladakh Autonomous Hill Development Council in June this year.

Ladakh is a unique cold desert located about 3,000 metres above sea level with high mountainous terrains. Long and harsh winters with minimum temperatures dropping to minus 40 degrees Celcius make large parts of the UT highly inhabitable. This aridity, limited vegetation, high

elevation and large areas with sparse populations – all make it the perfect setting for long-term astronomical observatories and dark sky places.

But the primary objective of the proposed Dark Sky Reserve is to promote astronomy tourism in a sustainable and environment-friendly manner. Scientific methods will be used here to preserve the night sky from ever-increasing light pollution. With metros, cities and peripheral areas experiencing light pollution and remaining constantly lit up, there are diminishing areas that offer a view of clear skies on cloudless nights, experts have noted.

EXPLAINED: ON HOLI, A LOOK AT JAIPUR'S TRADITIONAL CELEBRATIONS WITH 'GULAAL GOTA'

With Holi set to be celebrated on Monday (March 25), balloons filled with coloured water will be hurled as part of the celebrations for many people across the country. However, in some parts of Rajasthan's Jaipur, an old tradition will play out where colours will be thrown through a unique medium called the "Gulaal Gota", dating back around 400 years.

What is a Gulaal Gota?

A Gulaal Gota is a small ball made of lac, filled with dry gulaal. Weighing around 20 grams when filled with gulaal, these balls are thrown at people on Holi, getting smashed to bits on impact.

Local artisans say that making Gulaal Gotas involves first boiling the lac in water to make it flexible. Lac is a resinous substance that is secreted by certain insects. It is also used to make bangles.

After shaping the lac, colour is added to it. At first red, yellow, and green are added as other colours can be obtained through their combinations. After the processing is done, artisans heat the lac. It is then blown into a spherical shape with the help of a blower called "phunkni".

Then, gulaal is filled in the balls before they are sealed with lac.

Where does the raw material for Gulaal Gota come from?

Lac is brought from Chhattisgarh and Jharkhand. As per the Chhattisgarh State Skill Development Authority's website, the female scale insect is one of the sources of lac. To produce 1 kg of lac resin, around 300,000 insects are killed. The lac insects also yield resin, lac dye and lac wax.

Gulaal is usually purchased from the market.

How did Gulaal Gotas become a tradition in Jaipur?

Gulaal Gotas are made by Muslim lac makers, called Manihaars, only in Jaipur.

According to Awaz Mohammad, a Gulaal Gota maker who has received an award from the President of India, manihaars' ancestors were shepherds and horse traders who arrived from Afghanistan. They settled in Bagru, a town located close to Jaipur, and learnt lac-making from Hindu lac makers or Lakhere.

The city of Jaipur was established in 1727. Its founder Sawai Jai Singh II, an admirer of art, dedicated a lane at the Tripoliya Bazaar to the Manihaar community, naming it "Manihaaron ka Raasta". This is where lac bangles, jewellery, and Gulaal Gota are mostly sold, to date.

Artisans say that in older times, kings would ride through the city on elephant backs on Holi and toss Gulaal Gotas to the public. The erstwhile royal family is also known to order Gulaal Gota at its palace for the festival.

What is the economics of this tradition?

One box of six Gulaal Gota balls is sold for Rs 150, which is much costlier than water balloons. Usually, the whole family of artisans is engaged in this work, including women. These are sent to be sold in different parts of the country, such as Vrindavan. Preparation to complete the orders begins three months before Holi.

For Manihaars, lac bangles are the main source of sustenance as making Gulaal Gota is a seasonal work. Artisans say that the bangles are eco-friendly as they are made without any chemicals.

However, Jaipur has of late become a hub of many factories where cheap, chemical-based bangles are made with minimum lac, even causing skin allergies in some cases. Original lac bangles are costlier than the manufactured ones. Hence, the demand for lac-only bangles has fallen.

What does the future look like for this work?

The government of India has given "artisan cards" to the lac bangle and Gulaal Gota makers, allowing them to avail benefits from government schemes.

Many artisans have gone to different parts of the world to showcase their art. Awaz Mohammad, for instance, was invited to put up a shop at the G20 summit in New Delhi last year, where Prime Minister Narendra Modi and other dignitaries appreciated him for his unique talent.

In a bid to save the tradition, some Gulaal Gota makers have demanded a Geographical Indication (GI) tag. A GI tag can help boost the awareness of a product and highlight its location-specific exclusivity. It also helps original creators safeguard their products against imitation.

Awaz says that a lack of unity among the manihaars has prevented further action on raising this demand. Many of the community's younger members are also more interested in taking up blue-collar jobs instead of artisan work.

PERIYAR

Three days after Chennai-based Music Academy awarded vocalist T M Krishna with the Sangita Kalanidhi, the highest recognition in the world of Carnatic classical music, an open war broke out in the Carnatic classical establishment with a number of musicians protesting against the move. It is because Mr TM Krishna's glorification of a figure like EVR (Periyar).

Born in 1879, Periyar is remembered for the Self Respect Movement to redeem the identity and self-respect of Tamils. He envisaged a Dravida homeland of Dravida Nadu, and launched a political party, Dravidar Kazhagam (DK)

Periyar started his political career as a Congress worker in his hometown Erode. He quarrelled with Gandhi over the question of separate dining for Brahmin and non-Brahmin students at Gurukkulam, a Congress-sponsored school owned by nationalist leader V V S Iyer in Cheranmahadevi near Tirunelveli.

At the request of parents, Iyer had provided separate dining for Brahmin students, which Periyar opposed. Gandhi proposed a compromise, arguing that while it may not be a sin for a person not to dine with another, he would rather respect their scruples. After failing to bend the Congress to his view, Periyar resigned from the party in 1925, and associated himself with the Justice Party and the Self Respect Movement, which opposed the dominance of Brahmins in social life, especially the bureaucracy. The Justice Party had a decade earlier advocated reservation for non-Brahmins in the bureaucracy and, after coming to power in the Madras Presidency, issued an order to implement it.

Periyar's fame spread beyond the Tamil region during the Vaikom Satyagraha of 1924, a mass movement to demand that lower caste persons be given the right to use a public path in front of the famous Vaikom temple. Periyar took part in the agitation with his wife, and was arrested twice. He would later be referred to as Vaikom Veerar (Hero of Vaikom).

During the 1920s and 30s, Periyar combined social and political reform, and challenged the conservatism of the Congress and the mainstream national movement in the Tamil region. He reconstructed the Tamil identity as an egalitarian ideal that was originally unpolluted by the caste system, and counterposed it against the Indian identity championed by the Congress. He argued that caste was imported to the Tamil region by Aryan Brahmins, who spoke Sanskrit and came from Northern India. In the 1930s, when the Congress ministry imposed Hindi, he drew a parallel with the Aryanisation process, and claimed it was an attack on Tamil identity and self-respect. Under him, the Dravidian Movement became a struggle against caste and an assertion of Tamil national identity.

In the 1940s, Periyar launched Dravidar Kazhagam, which espoused an independent Dravida Nadu comprising Tamil, Malayalam, Telugu, and Kannada speakers. The Dravidian linguistic family was the foundation on which he based his idea of a Dravida national identity. These ideas had a seminal influence on the shaping of the political identity and culture of the Tamil speaking areas of Madras Presidency, and continue to resonate in present-day Tamil Nadu. Periyar died in 1973 at the age of 94.

For the average Tamil, Periyar today is an ideology. He stands for a politics that foregrounded social equality, self-respect, and linguistic pride. As a social reformer, he focused on social, cultural and gender inequalities, and his reform agenda questioned matters of faith, gender and tradition. He asked people to be rational in their life choices. He argued that women needed to be independent, not mere child-bearers, and insisted that they be allowed a equal share in employment. The Self Respect Movement he led promoted weddings without rituals, and sanctioned property as well as divorce rights for women. He appealed to people to give up the caste suffix in their names, and to not mention caste. He instituted inter-dining with food cooked by Dalits in public conferences in the 1930s.

Over the years, Periyar has transcended the political divide as well as the faultlines of religion and caste, and come to be revered as Thanthai Periyar, the father figure of modern Tamil Nadu.

BUSINESS & ECONOMICS

INDIA 'SCREWED UP': HOW U.S. LOBBIED TO REVERSE LAPTOP RULES

In August, India imposed rules requiring firms like Apple, Dell and HP to obtain licences for all shipments of imported laptops, tablets, personal computers (PCs) and servers, raising fears that the process could slow down sales. But New Delhi rolled back the policy within weeks, saying it would only monitor the imports and decide on next steps a year later.

The U.S. government e-mails — obtained under a U.S. open records request — underline the level of alarm the Indian curbs caused in Washington, and how the U.S. scored a rare lobbying win by persuading Prime Minister Narendra Modi's government to reverse policy.

U.S. officials have often been concerned about India's sudden policy changes which they say create an uncertain business environment. India maintains it announces policies in the interest of all stakeholders and encourages foreign investments, even though it often promotes local players over foreign ones.

Some of the language in the documents was blunt, despite the bonhomie often displayed by both sides in public. U.S. officials were upset India's changes to laptop imports came "out of the blue", without notice or consultation, and were "incredibly problematic" for the business climate and $500 million worth of annual U.S. exports, the documents and e-mails showed.

Counterpoint estimates India's laptop, PC market is worth $8 billion annually.

U.S. Trade Representative Katherine Tai met Indian Commerce Minister Piyush Goyal in New Delhi on August 26, soon after the policy was announced. Although the USTR's public readout said Ms. Tai "raised concerns" about the policy and "noted" that stakeholders needed to be consulted, she privately told Mr. Goyal during the meeting that the U.S. wanted India to "rescind the requirement", a USTR briefing paper showed.

India's "surprise" announcement "prompts U.S. and other firms to think twice about doing business in India," stated the 'talking points' of her briefing paper. Around the same time, a U.S. diplomat for trade in New Delhi, Travis Coberly, told his USTR colleagues that Indian officials had conceded the sudden roll-out of the laptop licensing policy was a mistake.

ON FTAS WITH EUROPEAN COUNTRIES

The story so far:

The India-EFTA Trade and Economic Partnership Agreement (TEPA) is the latest in India's recent Free Trade Agreements (FTAs). As its name suggests, the thrust of the FTA is deeper economic engagement with the EFTA (European Free Trade Association)countries — Switzerland, Norway, Iceland and Liechtenstein. It heralds the westward tilt of India's FTAs, being the first with any European country and the western world.

What does this mean?

The successful conclusion of an FTA with developed countries including Switzerland and Norway is a significant positive signal to the world, showcasing India's firm commitment to trade liberalisation at a time of rising protectionism across both developed and developing countries.

For trading partners, an FTA with India is very attractive since it represents surpassing India's high tariff walls to access a large market. The TEPA negotiations started almost 15 years back; however, these were rapidly concluded in the last few months, close on the heels of the swift conclusion of FTAs with Australia and the UAE. The FTAs with the U.K. and the EU are also reportedly at an advanced stage.

What are the key features of TEPA?

Investment: TEPA sets out a target of a $100 billion investment into India from EFTA countries, and consequent one million jobs over a 15-year period. It also provides India the ability to withdraw its tariff concessions if such expected investment is not achieved. A closer look at the legal text reveals that for the promised investments and jobs to materialise, two conditions need to be met: India growing at a fast rate of 9.5%, and the return on EFTA investments in India exceeding 16% annually over the 15-year timeline. If not, both sides may lower their level of ambitions. If India is not satisfied, it can pull back its tariff concessions in a proportionate manner after 18 years. The investment chapter is not subject to dispute resolution and is overall, a statement of positive intent, and its benefits will be dependent on the private sector's responsiveness to the TEPA.

Trade in goods: the chief gain here is for EFTA's market, which can have more access to India due to tariff concessions. India is mandated to eliminate tariff on most products within seven to 10 years. This will benefit EFTA exports of seafood like tuna and salmon, fruits like olives and avocados, coffee capsules, oils like cod liver and olive oil, and a variety of sweets and processed foods including chocolate and biscuits. Also covered are smartphones, bicycle parts, medical equipment, clocks, and watches, many medicines, dyes, textiles, apparels, iron and steel products, and most machinery. Additionally, tariffs on cut and polished diamonds will be reduced from 5% to 2.5% in five years. For wines, India has extended tariff cuts as follows: wines priced between $5 and less than $15 will see a duty reduction from 150% to 100% in the first year, which will then decrease gradually to 50% over 10 years. For wines costing $15 or more, the initial duty cut is from 150% to 75%, eventually reducing to 25% after 10 years.

Gold, which accounts for 80% of the merchandise imports from EFTA countries, as well as dairy, soya, coal and some sensitive agricultural products have been excluded from India's tariff concession list.

With regard to India's exports to EFTA, there will be no material impact since most products face very low or zero tariff for nations which have the Most Favoured Nation (MFN) status in EFTA countries. For example, value wise, 98% of India's $1.3 billion merchandise exports to Switzerland are industrial products where tariff is already zero. The remaining 2% of India's exports are agricultural products, where gains would be negligible due to low trade values.

Trade in services: on services, both India and the EFTA members have committed to liberalisation across a wide range of sectors. Some key benefits for India include commitments by Norway for access to yoga instructors and practitioners of traditional medicine from India, subject to compliance with its legal framework. Both Norway and Switzerland have committed four and three years respectively for highly skilled Indian professionals moving as intra-corporate transferees, subject to obtaining work permits.

The nitty-gritties of actual service delivery are often impacted by regulatory requirements in each country. A separate annex in the TEPA lays the framework for easing the recognition of qualifications of service suppliers through streamlining the various requirements, including the

possibility of achieving equivalence by topping up academic or training requirements, rather than having to repeat the entire professional degree. Separate annexes on financial services and telecom services similarly lay down disciplines that aim to enable ease of providing such services.

In a departure from previous FTAs of India, benefits of the trade in services chapter would extend to any juridical person (i.e., corporate entity) by merely being incorporated in an EFTA member, while having its actual operations in any other WTO member, including those with which India does not have FTAs. This will allow free riders benefiting from the TEPA. The investment chapter stems that risk by requiring benefits to be confined only to entities having substantial business activities within the EFTA; however, services related to commercial presence will be governed by the services chapter.

Sustainable development: the TEPA's chapter on Trade and Sustainable Development (TSD), comprising commitments on environment and labour aspects, represents a first for India in any FTA. India has so far been sceptical of linking environmental and labour related issues within a FTA, given the concern that these may simply become proxies for protectionist measures. The TSD chapter refers to a range of multilateral environmental agreements and labour conventions, whose implementation is based on a balance of rights and obligations. For example, the UN Framework Convention on Climate Change and Paris Agreement recognises differential obligations for developed and developing countries. Labour conventions under the International Labour Organization (ILO) are based on a tripartite framework involving the government, as well as organisations representing employers and employees. Even though the TSD chapter is not subject to dispute resolution, India will need to be careful that any scrutiny of its implementation of environment and labour obligations, which is inevitable under the TSD chapter, is respectful of the balance inherent in multilateral environment and labour conventions.

Intellectual property rights: the EFTA countries are home to several pharmaceutical and high technology MNCs, whose ask has been commitments on protection of intellectual property rights that exceed the WTO's Trade-Related Aspects of Intellectual Property Rights(TRIPS) Agreement. The TEPA represents a nod to some of these. For example, India's Patents Act provides for pre-grant opposition of a patent application. The TEPA's IPR Annex requires swift rejection of "prima facie unfounded" oppositions. This potentially opens up India's internal regulatory process to external scrutiny on whether this standard was met. Similarly, a statutory requirement under Indian law is filing of an annual statement on working of a patent. The TEPA mandates that this periodicity be increased to three years, with annual statements to be required only in specified cases, which potentially raises the concern that the statutory requirement as it exists under Indian law, may need reconsideration to make it case specific. While amendments to India's patent rules have been notified on March 15, five days after the signing of the TEPA, FTA commitments should ideally have followed such amendments.

Overall, in a nutshell, the TEPA ventures into some uncharted territory. It's implementation over time will determine its impact.

EXPRESS VIEW ON INFLATION REPORT: MANAGING GROWTH

The GDP growth estimates released by the National Statistical Office at the end of February had shown that the Indian economy grew at 8.4 per cent in the third quarter, surpassing the most optimistic projections. They implied that the economy had grown at an average of 8.2 per cent in the first three quarters (April-December) of the year. For the full year, the NSO had projected the economy to grow at 7.6 per cent. However, excluding net taxes on products, growth in gross value

added by all sectors in the economy had slowed down from 8.2 per cent in the first quarter to 7.7 per cent in the second quarter and further to 6.5 per cent in the third quarter. This raised questions over the underlying momentum in the economy. Now, a study on the state of the economy prepared by economists at the Reserve Bank of India suggests that the growth momentum remains healthy. The study pegs growth for the fourth quarter (January-March) at 7.2 per cent. This is higher than the 5.9 per cent growth implied in the NSO's estimates. A higher growth would, in turn, mean that the economy is likely to grow at closer to 8 per cent in 2023-24, higher than the NSO's assessment. Further, the study projects growth for the next year (2024-25) at 7.4 per cent, higher than the RBI's forecast of 7 per cent presented in the last monetary policy committee's meeting. This is good news.

However, despite this healthy momentum, private consumption remains subdued, growing at just around 3 per cent. There are pointers to a continuing unevenness in demand across various consumption segments. For instance, there are indications of the FMCG sector witnessing moderate growth, even as premium consumer businesses remain robust. This, as the study also points out, implies that there are "significant per capita income shifts underway". On investment activity, while capital expenditure by governments, in both Centre and states, has been steady, and bank and corporate balance sheets are healthy, there are questions over a broad-based revival in private capex. More so, when the capacity utilisation rates in several segments have reached levels at which new investments are called for.

The study notes the divergence between food and core inflation. Food inflation had edged upwards to 8.66 per cent in February, while core inflation had moderated to 3.4 per cent as per estimates. Inflation remained elevated in cereals, eggs, vegetables and pulses, while it eased across various non-food and non-fuel segments. This poses a dilemma for monetary policy at a time when the global economy is losing steam. According to the report, the momentum in global growth slowed down in the first quarter of 2024, the global supply chain pressures index saw an uptick, and geopolitical risks remain heightened. This uncertain economic environment requires deft policy management.

TRADE PUZZLE

Towards the end of a tumultuous trading year, India's goods exports jumped 11.9% in February, marking the healthiest uptick in 20 months. The $41.4 billion tally is the highest in 11 months, and only the third occasion in two years that the $40 billion mark has been breached. It is remarkable that this spurt, significantly higher than the average export tally of $35.4 billion in the first ten months of this year, comes amid persistent concerns about disruptions in the Red Sea and the drought-hit Panama Canal that have throttled vital trading routes and spiked the time and cost of moving consignments. While the last two months' trade numbers suggest that India is yet to feel the full impact of the logistics challenges for servicing key markets in Europe and the Americas, it may be too simplistic a conclusion. It is plausible that some of February's numbers may reflect shipments that were probably despatched earlier and reached their destinations only last month using longer routes. Economists believe a combination of backlogged orders attaining fruition and demand improvements may be at work. However, with interest rates still high, global demand conditions are yet to demonstrate the rebound the World Trade Organization (WTO) had hoped for in 2024.

The WTO expects global trade to rise 3.3% this year after a 0.8% crawl in 2023. But by its own reckoning, using a gauge called the Goods Trade Barometer, things are yet to perk up. As of March 8, the barometer, where a reading of over 100 reflects above-trend exim volumes, had a reading

of just 100.6. The export orders parameter was marginally higher at 101.7 but container shipping slipped to 98.6. Some modest gains in the first quarter of 2024 may be seen owing to the base effects of a weak 2023, but any such gains could be easily derailed by regional conflicts and geopolitical tensions, the WTO has warned. Policymakers may have turned upbeat about surpassing last year's record overall exports (merchandise and services combined), but must not lose sight of the lingering risks and challenges, including the impact of freight hikes on margins. While electronics goods exports have been an outlier in 2023-24's weak exports narrative (-3.5% so far), the WTO's latest barometer reading for electronic components trade has plummeted to 95.6. This is visible in February's numbers as both electronics imports and exports grew just fractionally over 1%. For now, the trade deficit should not be a concern, despite imports jumping at a 17-month high pace last month, led by a spike in inflows of increasingly pricey gold. Finding better ways to support exporters, especially in adversely hit employment-intensive sectors such as textiles, and gems and jewellery, remains critical.

DreamIAS

LIFE & SCIENCE

EXPLAINED: TWO BLACK HOLES MERGED BILLIONS OF YEARS AGO, BUT IT IS PUZZLING SCIENTISTS NOW

Billions of years ago, a collision between two black holes sent gravitational waves rippling through the universe. In 2019, signals from these waves were detected at the gravitational wave observatory LIGO (United States) and the detector Virgo (Italy).

What has excited scientists, however, is the mass of one of the parent black holes, which defies traditional knowledge of how black holes are formed.

The discovery and the analysis are described in two research papers. One, in Physical Review Letters, details the discovery and proposes possible ways in which the unusual merger may have taken place. The other paper, in The Astrophysical Journal Letters, discusses the signal's physical properties.

What exactly was detected?

It was a signal from a gravitational wave, a relatively new field of discovery. Gravitational waves are invisible ripples that form when a star explodes in a supernova; when two big stars orbit each other; and when two black holes merge. Travelling at the speed of light, gravitational waves squeeze and stretch anything in their path.

Gravitational waves were proposed by Albert Einstein in his General Theory of Relativity over a century ago. It was only in 2015, however, that the first gravitational wave was actually detected — by LIGO. Since then, there have been a number of subsequent detections of gravitational waves.

The signal detected at LIGO and Virgo, as described by the LIGO Collaboration, resembled "about four short wiggles" and lasted less than one-tenth of a second.

Where did it come from?

Subsequent analysis suggested that GW190521 had most likely been generated by a merger of two black holes. The signal likely represented the instant that the two merged. It was calculated to have come from roughly 17 billion light years away, and from a time when the universe was about half its age.

But these findings led to further questions. One of the two merging black holes falls in an "intermediate mass" range — a misfit that cannot be explained by traditional knowledge of how black holes form.

Why is it unusual?

All the black holes observed so far belong to either of two categories. One category ranges between a few solar masses (one solar mass is the mass of our Sun) and tens of solar masses. These are thought to form when massive stars die.

The other category is of supermassive black holes. These range from hundreds of thousands, to billions of times that of our sun.

According to traditional knowledge, stars that could give birth to black holes between 65 and 120 solar masses do not do so — stars in this range blow themselves apart when they die, without collapsing into a black hole.

But in the merger leading to the GW190521 signal, the larger black hole was of 85 solar masses —well within this unexpected range, known as the pair instability mass gap. It is the first "intermediate mass" black hole ever observed. (In fact, the smaller black hole too is borderline, at 66 solar masses.)

The two merged to create a new black hole of about 142 solar masses. Energy equivalent to eight solar masses was released in the form of gravitational waves, leading to the strongest ever wave detected by scientists so far.

How could the black hole of unusual mass have formed?

The researchers suggest that the 85-solar-mass black hole was not the product of a collapsing star, but was itself the result of a previous merger. Formed by a collision between two black holes, it is likely that the new black hole then merged with the 66-solar-mass black hole — leading to gravitational waves and the signal received by LIGO and Virgo.

NASA CRAFT THAT DIVERTED SPACE ROCK ALSO DENTED IT

When NASA sent its DART spacecraft to slam into the asteroid Dimorphos in 2022, the U.S. space agency demonstrated it was possible to change a celestial object's trajectory, if needed, to protect the earth. It turns out this collision changed not only the asteroid's path but its shape as well.

The asteroid, which before the DART encounter looked like a ball that was a bit plump in the waist, now appears to be shaped more like a watermelon — or, technically, a triaxial ellipsoid, scientists have said.

Dimorphos is a moonlet of Didymos, which is defined as a near-earth asteroid. The DART (Double Asteroid Redirection Test) mission was a proof-of-principle mission using a spacecraft to apply kinetic force to nudge a celestial object that otherwise might be on a collision course with the earth. Dimorphos and Didymos do not pose an actual threat to the earth.

The spacecraft collided on September 26, 2022, at about 22,530 kph into Dimorphos, which was about 170 metres wide, roughly 11 million km from the earth. Didymos has a diameter of about 780 metres.

DART's collision, which sent rocky debris from the asteroid flying into space, also changed the orbital path that Dimorphos takes around Didymos – making it elliptical instead of circular – and its orbital period, the time it takes to complete a single orbit, the scientists said. It now takes Dimorphos 15 seconds less than before the impact to complete an orbit, they found.

Scientists had previously disclosed that the asteroid's orbit had changed, with the new study offering the most precise readings yet.

Dr. Chesley said the asteroid's orbital period continued to decay slowly in the weeks after the impact.

"We believe this is due to the fact that loose debris in the system continues to leak out and carries angular momentum with it, thus necessarily contracting the orbit," he added. Angular momentum

refers to how much a rotating object's mass is distributed around its axis and how quickly it is spinning.

ICECUBE: THE BIG, CHILL NEUTRINO-SPOTTER

WHAT IS IT?

Most of the energy of a collapsing supernova is radiated in the form of neutrinos, produced when protons and electrons in the nucleus combine to form neutrons.

The IceCube neutrino observatory is a device at the earth's South Pole that detects subatomic particles called neutrinos. It was built and is maintained by the IceCube Collaboration, which consists of many universities worldwide led by the University of Wisconsin, Madison.

IceCube consists of thousands of sensors buried more than 1.4 km beneath the ice plus multiple detectors above the surface.

Neutrinos are light particles that very rarely interact with matter. This is why they're called "ghost particles". By some estimates, a human-sized neutrino detector will have to wait for a century for a single neutrino to interact with a sensor. The larger the detector's collecting area, the higher the chances of spotting neutrinos. IceCube is the world's biggest 'neutrino telescope'; its sensors are distributed throughout a cubic kilometre of ice.

When a neutrino interacts with the ice surrounding the sensors, it may produce some charged particles and some radiation. The sensors detect the radiation to infer the detection of a neutrino and use the radiation's properties to understand more about the particle. Neutrinos come in different types. IceCube can identify some of them in real-time. For others, IceCube collects data for many years and scientists then comb through them to find neutrino interaction events.

In such an instance, scientists reported last week they had found instances in IceCube's data from 2011 to 2020 that matched the signature of tau neutrinos, with more than 99.999999% confidence.

GEOLOGISTS CAN'T AGREE WHEN THE ANTHROPOCENE BEGAN, BUT IT DID

Scientists recently proposed formalising an 'Anthropocene Epoch' on the geologic time scale, triggering several debates.

The earth's geological history is divided into multiple epochs depending on their natural character. We are officially currently in the Holocene Epoch, which started around 11,700 years ago. But many scientists believe the Holocene Epoch has ended and the Anthropocene Epoch has started – a period of time characterised by humankind's large-scale effects on the earth, including climate change and pollution.

The proposal – to make the Anthropocene Epoch official – came from the Anthropocene Working Group of the Sub-commission of Quaternary Stratigraphy (SQS-AWG). In the proposal, the group has said the start date of the Epoch can be linked to the formation of a particular layer of the ground. As the earth's surface evolves, new layers of rock, soil, and other materials are deposited on old ones. Each layer, or stratum, is thus a marker of a previous era.

The SQS-AWG is a commission responsible for recognising time units within our most recent period of geologic time. Its members have been looking into the question of formalising the Anthropocene Epoch as the youngest epoch, superposing the Holocene. On March 4, 2024, the commission, which consists of topical experts, rejected the proposal with a majority voting against it. They believed that adding a new Anthropocene Epoch and ending the Holocene Epoch was not supported by the scientific standards geologists follow to define geological time intervals. But the rejection did not settle the issue.

How long has the Epoch been under study?

The Dutch atmospheric chemist Paul Crutzen coined the term 'Anthropocene'. Dr. Crutzen had won a Nobel Prize in 1995 for his discovery of the ozone hole in the earth's atmosphere and its cause. Five years later, at a meeting during the 15th Scientific Committee meeting of the International Geosphere–Biosphere Programme (IGBP) in Cuernavaca, Mexico, he co-authored an article with marine biologist Eugene Stoermer in a newsletter. Here, he defined a putative geological epoch to mark the start of human's transformation of the planet. Later, thanks to an article in Nature in 2002, Dr. Crutzen was able to garner wider acceptance for his neologism. He also suggested the onset of the Anthropocene Epoch coincide with the Industrial Revolution from the late 18th century.

There are conceptual antecedents of the term 'Anthropocene' in older literature. In Man and Nature (1864), the American polymath George Pekins Marsh presented perhaps the first major, and prescient, discussion of the anthropogenic changes wrought by human activities. The Italian geologist and priest Antonio Stoppani, in a book published between 1865 and 1870, referred to an "Anthropozoic" era in stratigraphic terms.

At the close of the nineteenth century, Svante Arrhenius and Thomas Chamberlain were exploring the relationship between carbon dioxide concentration in the atmosphere and global warming. In an article published posthumously by the journal American Scientist in January 1945, Vladimir I. Vernadsky, the Russian-Ukrainian geoscientist defined the "Anthropogenic Era'" in rather optimistic terms. In those heady days of Soviet communism, man/woman was expected to always be able to triumph over nature.

When was the Epoch to commence?

The rejected proposal, which has been in discussion for many years, suggested commencing the Anthropocene Epoch in 1952, when the first layer containing radioactive fallout from Cold-War hydrogen bomb tests formed. Those opposed to the proposal have argued that large-scale, anthropogenic changes have been in the making for millennia and can't be ascribed to singular events.

The proposal also risked sowing confusion about the deep history of how humans are transforming the planet. The human impact was evident when the sabre-toothed cats began to disappear from North America and the woolly mammoths from Siberia about 10,000 years ago. Human activities also became more visible in the 'fertile crescent' of West Asia midway through the Holocene Epoch, about 6,000 years ago, with the rise of agriculture and deforestation to make way for farmland.

Since then, humans have developed many technologies capable of manipulating the environment, including mechanisation, irrigation, groundwater extraction, damming, and the industrial production of nitrogen-rich fertilisers. Even around 1850, the concentrations of two major

greenhouse gases, carbon dioxide and methane, were rising at an accelerated rate. These compounds can modify the environment such that it becomes unfriendly to many forms of life.

Significance of post-Industrial era?

However, a closer examination of the archaeological and historical antecedents of human impacts reveals that while humans left an indelible mark on the natural environment over the ages, they reached a state of heightened activity only since the beginning of the Industrial Revolution. For example, consider four important markers of the Anthropocene Epoch.

The first is temperature – specifically, the predicted increase in the global average surface temperature, at least by 1.1 degrees but possibly by as much as 6.4 degrees C by the end of this century (which would be an all-time high since the last thermal maximum 40 million years ago). Second, the quickening extinction of various species at a scale similar in magnitude to a major extinction event that occurred 80 million years ago.

Third, a dramatic increase in the erosion and the denudation of continents, at a pace an order of magnitude greater than what one would expect from purely natural processes. Finally, both accelerating urbanisation, land-use changes, and pro-urban migration have been accompanied by perennial water depletion and shortage. Over the last century or so, many major rivers that have been dammed and diverted have lost their water-carrying capacity.

While the SQS-AWG rejected the proposal to use the stratigraphic marker corresponding to the radioactive fallout, it need not reject the possibility of an Anthropocene Epoch or a representative stratigraphic period altogether. The Epoch may well have begun with the Industrial Revolution, around 1760. The resulting evidence of human impact is now preserved in geological material in the form of fallout from nuclear bomb tests as well as microplastics, pesticides, the bodies of invasive species, and more.

In fact, the argument that the rejection of the Anthropocene Epoch proposal is because of the fairly recent date of commencement and its shallow depth misses the larger picture. When Dr. Crutzen proposed the term 'Anthropocene', it was an accepted fact that humans had been altering the functioning and geological record of the earth, but it wasn't until the 18th century that the whole earth system began to rapidly destabilise, posing an existential threat to all biological entities in less than a century.

The information drilled from glaciers and ice-sheets adds to this picture: the atmospheric concentrations of greenhouse gases and global temperature surged sharply and unprecedentedly for the first time in the post-Industrial era as well as in 30,000 years. Even if the human-induced increase began millennia ago, it entered a new phase in this century – a phase that has also brought to bear consequences that are unique to this century.

EXPRESS VIEW ON EU'S AI LAW: STRIVE FOR AN INTELLIGENT BALANCE

Last week, lawmakers in the European Parliament voted overwhelmingly in favour of the Artificial Intelligence Act, putting the landmark legislation on track to take effect by the end of the year. While governments across the world are moving to put up guardrails, including Japan, Brazil and the US, where on October 30, President Joe Biden signed an executive order on AI safety — the European Union's new law is the first comprehensive framework for governing a technology that has seen explosive growth in recent years, dominating headlines and stoking both excitement and fear about the future.

Taking a horizontal, risk-based approach that will apply across sectors of AI development, the EU AI Act classifies the technology into four categories: Prohibited, high-risk, limited-risk and minimal-risk. Systems that violate or threaten human rights through, for example, social scoring — creating "risk" profiles of people based on "desirable" or "undesirable" behaviour — or mass surveillance are banned outright.

High-risk systems, which have a significant impact on people's lives and rights, such as those used for biometric identification or in education, health and law enforcement, will have to meet strict requirements, including human oversight and security and conformity assessment, before they can be put on the market. Systems involving user interaction, like chatbots and image-generation programmes, are classified as limited-risk and are required to inform users that they are interacting with AI and allow them to opt out.

The most widely used systems, which pose no or negligible risk, such as spam filters and smart appliances, are categorised as minimal-risk. They will be exempt from regulation, but will need to comply with existing laws.

Like the 2016 General Data Protection Regulation (GDPR) law, which influenced data privacy regulation around the world, the impact of the EU's AI Act is expected to be felt globally. However, the history of EU technology legislation, including GDPR, which has been criticised for being regulation-heavy and stifling innovation, urges caution.

For India, where the Ministry of Electronics and Information Technology has been working on a framework for responsible AI, the challenge would be to acknowledge and address the risks posed by the emerging technology, such as the proliferation of deep fakes, without hobbling its potential for improving lives or enhancing the promise of India's start-up ecosystem.

In this regard, the ministry's replacement last week of its March 1 advisory, which required generative AI companies to seek government permission for deploying "untested" systems, with a new one that drops this condition, is welcome. Going forward, the task for the government would be to safeguard citizens' rights, while continuing to make room for the transformative possibilities of AI.

WHAT IS SIMA, GOOGLE DEEPMIND'S NEW AI THAT CAN PLAY VIDEO GAMES WITH YOU

Google DeepMind on Wednesday (March 13) revealed its latest AI gaming agent called SIMA or Scalable Instructable Multiworld Agent, which can follow natural language instructions to perform tasks across video game environments. Simply, Google's new AI is all set to play video games with you.

SIMA points to a future of gaming where AI agents could play a key role. It also takes us a step closer to AI which can intelligently collaborate with humans not only in games but also in doing tasks in real-world environments.

With an AI robot to help seniors beat loneliness and a fully autonomous AI software engineer released recently.

What is SIMA?

AI research lab Google Deepmind describes SIMA as an AI Agent, which is different from AI models such as OpenAI's ChatGPT or Google Gemini. AI models are trained on a vast data set and are

limited when it comes to working on their own. On the other hand, an AI Agent can process data and take action themselves.

SIMA can be called a generalist AI Agent that is capable of doing different kinds of tasks. It is like a virtual buddy who can understand and follow instructions in all sorts of virtual environments – from exploring mysterious dungeons to building lavish castles. It can accomplish tasks or solve challenges assigned to it.

It is essentially a super-smart computer programme that can be thought of as a digital explorer, having the ability to understand what you want and help create it in the virtual world.

How does SIMA work?

SIMA "understands" your commands as it has been trained to process human language. So when you ask it to build a castle or find the treasure chest, it understands exactly what these commands mean.

One distinct feature of this AI Agent is that it is capable of learning and adapting. SIMA does this through the interactions it has with the user. The more you interact with SIMA, the smarter it gets by learning from its experiences and improves over time. This makes it better at understanding and fulfilling user requests.

Based on the current stage of AI development, it is a big feat for an AI system to be able to play even one game. However, SIMA goes beyond that and can follow instructions in a variety of game settings. This could potentially introduce more helpful AI agents for other environments.

The latest research from Google DeepMind shows that it is possible to translate the capabilities of advanced AI models into "useful, real-world actions through a language interface." With this, Google is hoping that SIMA and other AI agents will be able to use video games as sandboxes to understand how AI systems can be more helpful.

How was SIMA trained?

On the company's official blog, its description states: "We partnered with game developers to train SIMA on a variety of video games. This research marks the first time an agent has demonstrated it can understand a broad range of gaming worlds and follow natural-language instructions to carry out tasks within them, as a human might."

To expose the AI agent to different environments, Google Deepmind collaborated with eight game studios to test SIMA on nine different video games, including Teardown by Tuxedo Labs and No Man's Sky by Hello Games.

With every game, SIMA's portfolio opened a new interactive world along with a range of skills for it to learn, such as simple navigation, menu use, mining resources, flying spaceships, etc.

WHY THE B200 BLACKWELL CHIP WILL CONSOLIDATE NVIDIA'S STRANGLEHOLD OVER THE AI MARKET

Nvidia has unveiled the B200 'Blackwell', its latest artificial intelligence (AI) chip that can do some computational tasks 30 times faster than its current blockbuster, the H100 'Hopper' — the chip that has helped the company gain a 80% market share.

The new chip, with even more computational power and optimised power consumption, will surely extend Nvidia's dominance of this niche space.

Nvidia's new Blackwell chip

The Blackwell graphic processing unit (GPU) has 208 billion transistors, compared with the 80 billion in the H100 that was launched last year, markedly increasing compute power. The new chip was "twice as powerful" when it came to training AI models, and had "five times their capability" in "inference" — the pace with which AI models such as Gemini or ChatGPT can generate responses — Nvidia chief executive Jensen Huang said at the chip's launch at the company's annual developer conference in San Jose, California, on Monday (March 18).

So, while training a version of the GPT model that powered ChatGPT (a 1.8 trillion-parameter model) would have previously taken 8,000 Hopper GPUs and 15 megawatts (MW) of electricity, the job can now be done by 2,000 new Blackwells while consuming just 4 MW of power, Huang said.

The company has said that its major customers including Google, Amazon, Microsoft, and OpenAI are expected to use the new chip in their cloud-computing services, as well as for their own AI products, the Financial Times reported.

"Blackwell offers massive performance leaps, and will accelerate our ability to deliver leading-edge models," Sam Altman, CEO of OpenAI, said in a statement.

Leader of the GPU wave

Even before the latest announcement, Nvidia was already the third most valuable company in the US, behind only Microsoft and Apple. Shares of the Santa Clara-based company have surged nearly 250% over the past year, propelling it to the title of the world's most valuable chipmaker, eclipsing storied competitors such as Intel and AMD.

Nvidia has a stranglehold over these highly prized chips, which crunch data for AI models, and is likely to continue to dominate the global market for GPUs well into the foreseeable future.

Traditionally, the central processing unit (CPU) has been the most important component in a computer or server, and Intel and AMD dominated the market. GPUs are relatively new additions to the computer hardware market, and were initially sold as cards that plugged into a personal computer's motherboard to add computing power to an AMD or Intel CPU.

Nvidia's main pitch over the years has been that graphics chips can handle the computation workload surge of the kind that is needed in high-end graphics for gaming or animation applications far better than standard processors. AI applications too require tremendous computing power and have been progressively getting GPU-heavy in their backend hardware.

Most advanced systems used for training generative AI tools now deploy as many as half a dozen GPUs to every one CPU used, completely changing the equation in which GPUs were seen as add-ons to CPUs.

In its just published 2024 AI outlook, Moody's Investors Service has said that "growing AI spending, model improvement and edge computing" will speed up AI adoption, and that AI investment will rise as firms move "from exploration to deployment".

"A shortage of high-performance graphical processing units, essential for most AI computing, will persist in 2024, but supply will improve gradually", Moody's said.

Nvidia's virtual monopoly over GPUs — which have the computing power and operational efficiency to run the calculations that allow AI companies working on LLMs (or large language models), such as ChatGPT or Gemini, to chomp down on massive volumes of data — has meant that the chipmaker is now swamped with orders that it is struggling to deliver.

The new B200's promise of increased compute power could potentially mean a faster pathway to end these shortages.

SCIENTISTS BUILD A CAMERA TO 'SHOW' HOW ANIMALS SEE MOVING THINGS

Animal-vision video could help people navigate wild landscapes without hurting camouflaged animals; help farmers spot fruit pests invisible to the human eye but readily visible to animals that have evolved to eat those fruits; and even transform the way wildlife documentary films are made

To most people, leaves are green and oranges are orange. But if our pets could speak, they'd disagree.

We know there are many different ways to 'see' the world because that's the diversity we have found in animals. Organisms with the ability to see have two or more eyes that capture light reflected by different surfaces in their surroundings and turn it into visual cues. But while all eyes have this common purpose, the specialised cells that respond to the light, called photoreceptors, are unique to each animal.

For instance, human eyes can only detect wavelengths of light between 380 and 700 nanometres (nm); this is the visible range. Honey bees and many birds on the other hand can also 'see' ultraviolet light (10-400 nm).

While the human visual range is relatively limited, it hasn't abated humans' curiosity about how animals see the world.

Thankfully we don't have to imagine too much. Researchers at the University of Sussex and the George Mason University (GMU) in the U.S. have put together a new camera with the ability to view the world like animals do. In a paper published in PLoS Biology, the team has written their device can even reveal what colours different animals see in motion, which hasn't been possible so far.

Making the invisible visible

Animals use colours to intimidate their predators, entice mates or conceal themselves. Detecting variations in colours is thus essential to an animal's survival. Animals have evolved to develop highly sensitive photoreceptors that can detect light of ultraviolet and infrared wavelengths; many even notice polarised light as part of their Umwelt – the biological systems that make a specific system of meaning-making and communication possible.

Neither human eyes nor most commercial cameras have been able to tap into this unchartered territory of animal vision. In the new study, exponents of biology, computer vision, and programming came together to create a tool that could record and track the complexity of animal visual signalling.

The tool combined existing multispectral photography techniques with a new camera setup and a beam-splitter (to separate ultraviolet and visible light), all encased in a custom 3D-printed unit. The system recorded videos simultaneously in visible and ultraviolet channels in natural lighting. They fed the camera output through some code (written in Python) that could convert the visual data to the physical signals produced by photoreceptor cells.

Finally, the researchers modified these signals based on what they already knew about how an animal's photoreceptors work, and produced videos true to what that animal might see. These used false colours in these videos so that, for example, a particular colour could stand in to show ultraviolet imagery.

In sum, the camera system translated what animals see in visible and non-visible light into colours compatible with the human eye.

The time challenge

You may have already seen false-colour images – like when you saw the Hubble space telescope's iconic snap of the 'Pillars of Creation'. The stars and nebulae don't actually look that resplendent to human eyes. They are coloured that way to show what the telescope saw in, say, infrared or radio wavelengths. Scientists have also used false-colour images to understand how flowers reflect ultraviolet light to influence the behaviour of insects nearby.

But false colours can only stand in for so much. According to the researchers, existing techniques to visualise the colours animals see require object-reflected light to predict how an animal's photoreceptor would respond or require a series of photographs in wavelengths beyond human vision (with the help of bandpass optical filters). Both scenarios require the subject to be motionless. The new system can visualise free-living organisms in their natural settings, however.

ELON MUSK'S NEURALINK SHARES VIDEO OF PATIENT WITH IMPLANT PLAYING CHESS

Elon Musk-led startup Neuralink on Wednesday streamed a video on the platform X, formerly Twitter, showing a patient seemingly using a brain implant from the company to move a mouse and play chess on a computer.

Neuralink is working on developing a brain-computer interface that is designed to help patients with paralysis or other conditions control computers and other electronic devices using neural signals. 29-year-old Noland Arbaugh is the first human patient to get implanted with the Neuralink device that reads signals from the brain, according to CNBC.

Arbaugh in the video said he was in a freak diving accident where he injured his spine, causing him to be a quadriplegic, paralysed below the shoulders. In the video, he was playing chess on a laptop and was also able to pause music that was playing in the background, all seemingly using his brain and the Neuralink brain-computer interface.

Musk, in the meanwhile, took to X to announce that Neuralink's first product will be called "Telepathy."

Arbaugh in the video did mention that the technology is "not perfect" and that there is still a lot of work that needs to be done. But he also added that the technology has helped change his life. According to him, the surgery was "super-easy" and that he was released from the hospital after just one day.

The US Food and Drug Administration gave Neuralink clearance to conduct its first trial to test its implant on humans last year. Musk in January this year announced that the first implant was successful and that the patient was able to "move a cursor" using the interface.

The study used a robot to surgically place a brain-computer interface in a region of the brain that controls the intention to move.

While Arbaugh's experience and in some ways, success with the implant is encouraging, the journey till here was not a walk in the park for the company. Monkeys that were given the device as implants during animal trials faced a series of difficulties, including complications like bloody diarrhoea, partial paralysis, and cerebral edema, according to a Wired report in 2023.

At the time, Musk had made remarks that the monkeys that died after receiving the implants were "close to death already," but this was refuted by the report that cited employees who referred to the billionaire's claims as "ridiculous" or "straight fabrication."

HOW COOLING A CAR IS A DRAG ON MILEAGE

Q: How does using the AC affect a car's mileage while driving?

A: An air-conditioner (AC) works by moving heat from an 'inside' space to 'outside'. It achieves this using a refrigerant, a substance that absorbs heat when exposed to the 'inside' and releases it when exposed to the 'outside'. The refrigerant needs to be pressurised before it can absorb heat, which is achieved using a compressor.

In a traditional (non-electric) car, the energy to run the compressor comes from the engine. That is, the AC is another load on the engine aside from running the car itself. As a result, the engine consumes more fuel, but not all the fuel contributes to moving the car: some goes to running the AC. And as a result, the number of kilometres to which a single litre of petrol contributes – a.k.a. the mileage – drops.

The effect of an operating AC on the mileage also varies by the driving conditions. For example, driving within a city forces the engine to stop and start multiple times during a trip whereas on a highway the engine operates more continuously. In this scenario an AC's effect on the engine, and the mileage, will be more pronounced in the former and less so in the latter. Drivers can also reduce the load on the engine by parking cars in shaded spots and pre-cooling the passenger area through other means before turning the AC on.

TOY-INSPIRED ENGINE CREATES POWER FROM EVAPORATED WATER

Inspired by the classic drinking bird toy, scientists in Hong Kong and Guangzhou, China have developed an engine that converts energy from water evaporation into electricity to power small electronics. The device produces energy outputs exceeding 100 volts and can operate for several days using only 100 millilitres of water as fuel, according to a study published March 14 in the journal Device.

"The drinking bird triboelectric hydrovoltaic generator offers a unique means to power small electronics in ambient conditions, utilizing water as a readily available fuel source," Hao Wu, a professor at South China University of Technology and the first author of the study says in a release.

The drinking bird toy, also called a "dippy bird," has been a fixture of science classrooms for decades. The toy consists of two glass bulbs connected by a glass tube with a highly volatile liquid, methylene chloride, stored within. The top bulb, which includes the bird's beak and a decorative top hat, is covered in a felt-like material, and the bird's body is suspended on two plastic legs. After the bird's head is dipped in a glass of water, the water begins to evaporate. This results in a pressure difference that causes the fluid in the bottom bulb to rise through the tube until it fills the head, causing the bird to dip forward into the water to "take a drink" before the process starts again. Puzzling over how to create a greater voltage output from an evaporation energy generator, Wu remembered the drinking bird toy and was struck by the idea that it could be used as more than a tool to demonstrate a physics concept.

To construct the generator, Wu and colleagues placed two triboelectric nanogenerator modules — which collect mechanical energy — on both sides of a drinking bird engine that they reconstructed from a commercial drinking bird toy. The researchers tested the prototype with a variety of small electronics, using it to power 20 liquid crystal displays (LCDs), temperature sensors, and calculators.

Overcoming friction that slowed down the generator was a major challenge. The researchers affixed patterned fibres as the charge transfer materials in the triboelectric nanogenerator modules, a strategy that helped to reduce friction and allowed the device to operate more smoothly.

In the next phase, the team plans to design a new drinking bird instead of using a commercially available toy, with the goal of converting water evaporation to electrical energy more efficiently.

NUCLEAR ENERGY: FIXING THE FINANCE

The story so far:

On March 21, Brussels hosted the first-ever Nuclear Energy Summit, co-chaired by the Prime Minister of Belgium Alexander De Croo and the Director General of the International Atomic Energy Agency (IAEA) Rafael Mariano Grossi. Several world leaders joined the summit to highlight the role of nuclear energy in addressing climate change.

How did this come about?

The UN Climate Change Conference (COP28) in Dubai (UAE) in December 2023 stated the indispensable role of nuclear energy to meet climate goals. The declaration signed by 22 world leaders mentioned the need to triple nuclear energy capacity by 2050. The Nuclear Energy Summit, an initiative in collaboration with the IAEA's 'Atoms4Netzero' programme, is part of the multilateral approach to decarbonisation. Nuclear power emits four times less carbon than solar farms or other renewable sources such as wind, hydropower, and geothermal. Most importantly, nuclear power has the capacity to supply uninterrupted energy irrespective of geographical constraints making it a crucial component of the wider renewable energy mix. Nuclear power plants (NPP) also have low operating costs, smaller land imprint and a longer life cycle compared to all the other renewable energy sources.

How can nuclear energy be financed?

Two key motives for the large-scale adoption of nuclear power as the base load energy source are technology and finance. Recent developments in nuclear technology including Small Modular

Reactors (SMR), radiation proofing in existing plants, and extended fuel cycles, have the potential to substantially mitigate nuclear-related risks. Signifying the destigmatisation of nuclear energy is the entry of technology startups in an the otherwise government-run industry. The role of technical advancements in reducing carbon emissions is highlighted by an IAEA study, which predicts that while existing technologies will play a significant role, by 2050, half of carbon reductions will come from technologies currently in the prototype stage.

However, in spite of technical advancements, Multilateral Development Banks (MDBs) and private investors have not made any significant contribution to the industry. The World Bank has not provided financing for a nuclear project since its $40 million loan to Italy in 1959. There is a pressing need to reassess nuclear financing policies of MDBS to accommodate private capital or blended finance models.

Has the cooperative model worked?

There are successful financial practices that can be replicated, for instance the cooperative funding models of France, South Korea, Russia, and the U.K. where a group of investors raise credit from the market and take full responsibility for project delivery. In Finland, large power plants have been funded by multiple private companies since the 1970s using a cooperative finance model called 'Mankala'. Under this model, companies jointly own energy producers and share the costs of building and operating plants. They don't pay dividends but can buy the energy at a cost based on their ownership share, with investors being wholesalers, retailers, or large industrial firms. Financial creativity and market support with low interest rates can unravel the potential of nuclear energy at scale.

There are 440 nuclear reactors in the world, accounting for a quarter of the world's low-carbon energy. The number of nuclear reactors is increasing, with 60 reactors under construction and 110 in the planning stage, most being in Asia, particularly China, which is soon to overtake the U.S. and the nuclear giant France. China has set a target to produce 10% of its electricity from nuclear energy by 2035 and 18% by 2060. However, the state of nuclear infrastructure development and finance mobilisation is not proportional. NuScale Power, previously expected to be the first U.S. company licensed to build a 462MW SMR in Utah, terminated its planned project due to rising costs. Nuclear powerhouses Westinghouse and Areva also filed bankruptcy due to project overruns.

What about India?

India's first commercial NPP in Pahalgarh, Tarapur offers reliable energy at 2/kWh lower than solar power tariffs. At Kudankulam, Tamil Nadu, a newer power plant offers electricity in the range of 4-6/kWh comparable to coal-fired thermal power plants. Despite its versatile nature, nuclear power contributes only 1.6% of the total renewable energy mix in India. Stigma, weaponisation risk, radiation leak, regulation, high upfront cost, and long project overruns are the reasons for low adoption rate of nuclear energy.

Recently, the nuclear industry has been undergoing novel liberalisation, with ambitious plans for growth in India and abroad. Beginning with the invitation of $26 billion in private investments, a phase-wise tripling of nuclear capacity from 7,480 MW to 22,480 MW by 2031-2032, and Prime Minister Modi's attendance at the core loading of the Prototype Fast Breeder Reactor (PFBR) all mark a positive future for the industry. The PFBR's ability to generate fuel and power at the same time represents a significant advancement in India's mostly self-reliant nuclear industry.

THE PROBLEM OF EQUITY IN IPCC REPORTS

The story so far:

In a study published on March 4, researchers analysed more than 500 future emissions scenarios the UN Intergovernmental Panel on Climate Change (IPCC) assessed in its latest reports. These scenarios relate to mitigation actions like reducing carbon dioxide emissions from burning fossil fuels and increasing carbon sequestration through forestry. It found that across all 556 scenarios, income, energy-use, and emissions disparities between developed and developing countries are projected to continue up to 2050.

What are IPCC assessment reports?

Typically, IPCC reports comprise three Working Group reports: one on physical science, one on climate adaptation, and one on mitigation action. One synthesis report consolidates findings from the three Working Group reports. Then there are thematic special reports. Each report assesses climate-related scientific literature to capture the state of scientific, technical, and socio-economic knowledge on climate change. The IPCC is currently in its Seventh Assessment cycle (AR7).

How does it assess future scenarios?

The IPCC uses 'modelled pathways' to estimate what it will take to limit the warming of the earth's surface. These pathways are drawn using Integrated Assessment Models (IAMs) that describe human and earth systems. IAMs are complex models that examine possible futures of the energy and climate system and economies. Its macroeconomic models can point to future growth levels in terms of GDP; its energy models can project future consumption; vegetation models can examine land-use changes; and earth-system models use the laws of physics to understand how climate evolves. With such integration across disciplines, IAMs are meant to provide policy-relevant guidelines on climate action. However, these models also have shortcomings. They prioritise least-cost assessments — for example, the absolute cost of setting up a solar plant or undertaking afforestation in India is lower than in the U.S. However, experts have said they could exercise the option of enabling countries to equitably share the burden of action, where the richest undertake more drastic mitigation action more immediately.

What did the new study find?

The study was conducted by Tejal Kanitkar and Akhil Mythri from the National Institute of Advanced Studies, Bengaluru, and T. Jayaraman from M.S. Swaminathan Research Foundation, Chennai. They assessed 556 scenarios in IPCC's AR6 report and found they project that per-capita GDP across Sub-Saharan Africa, South Asia, West Asia and the rest of Asia, which together constitute 60% of the world's population, will be below the global average even in 2050. They spotted similar inequities between the Global North and the Global South vis-à-vis the consumption of goods and services and both energy and fossil fuel consumption.

The scenarios were also found to project higher carbon sequestration from land-based carbon sinks (like forests) and higher deployment of carbon capture and storage (CCS) technologies in developing countries compared to developed ones. Thus, poorer countries, they concluded, would bear the burden of both mitigation action and carbon dioxide removal and CCS. "Our analysis of the regional trends underlying the global modelled scenarios in the IPCC's [AR6] indicates that the scenarios disregard the notion of historical responsibility of the Global North," the authors wrote

in their paper, adding the scenarios also "disregard" the future energy needs of the Global South to meet development goals.

Why does equity matter?

The principles of equity and common but differentiated responsibilities are enshrined in the UN Framework Convention on Climate Change (UNFCCC). Article 3 of the Convention states countries "should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof."

These principles recognise that while tackling climate change requires global action, richer countries are better placed to shoulder bigger climate action responsibilities than poorer ones. By viewing climate action solely through the lens of global-level technical and economic feasibility, mitigation pathways modelled using IAMs often run counter to equity principles, researchers say. "Equity in this sense would imply that developed regions need to accelerate towards net negative emissions and make the remaining carbon budget available to other less developed regions. However, the scenarios project precisely the opposite," they wrote in their paper.

In the study, the authors conclude that construction of IPCC scenarios will need to be both equitable and environmentally sound. "This is currently a major gap in the emissions modelling domain and we need to move towards model and scenario building techniques where questions of equity and climate justice come to the foreground," they wrote.

WARMING UP TO CLIMATE CHANGE: WHY DO GLOBAL SEA SURFACE TEMPERATURES MATTER?

The average global sea surface temperature (SST) — the temperature of the water at the ocean surface — for February 2024 stood at 21.06 degree Celsius, the highest ever in a dataset that goes back to 1979, the Copernicus Climate Change Service (C3S) said on March 5. The previous record of 20.98 degree Celsius was set in August 2023.

Why are the oceans getting warmer?

Since the Industrial Revolution kicked off in the 19th Century, human activities such as burning fossil fuels have released high levels of greenhouse gases (GHGs) in the atmosphere. Carbon dioxide, methane, ozone, and nitrous oxide are some of the notable GHGs, which essentially trap heat in the atmosphere and contribute to global warming. As a result, the average global temperature has risen at least 1.2 degree Celsius above pre-industrial times.

Notably, almost 90 per cent of the extra heat trapped by GHGs has been absorbed by the oceans, making them steadily warmer over the decades. Speaking to the Wired magazine, biological oceanographer Francisco Chavez of the Monterey Bay Aquarium Research Institute in California, said: "The oceans are our saviours, in a way…Things might be a lot worse in terms of climate impacts, because a lot of that heat is not only kept at the surface, it's taken to depths."

Apart from global warming, there are other factors which have led to a spike in ocean temperatures. For instance, El Niño — a weather pattern that refers to an abnormal warming of surface waters in the equatorial Pacific Ocean — has contributed to both ocean warming and

rising global surface temperatures. However, the global daily average SST began to soar well before El Niño fully developed and remains unusually high as the weather pattern is now waning.

There is also less dust blowing off the Sahara Desert recently due to weaker-than-average winds. Typically, the dust forms a "giant umbrella that shades" the Atlantic water and reduces ocean temperatures, according to the Wired magazine report. But now, the umbrella has partially folded and more of the Sun is beating down on the ocean, the report added.

Why are rising sea surface temperatures a cause of worry?

Higher ocean temperatures can have irreversible consequences for marine ecosystems. For instance, warmer oceans lead to an increase in ocean stratification — the natural separation of an ocean's water into horizontal layers by density, with warmer, lighter, less salty, and nutrient-poor water layering on top of heavier, colder, saltier, nutrient-rich water. Usually, ocean ecosystems, currents, wind, and tides mix these layers.

The rise in temperatures, however, has made it harder for water layers to mix with each other. Due to this, oceans are able to absorb less carbon dioxide from the atmosphere and the oxygen absorbed isn't able to mix properly with cooler ocean waters below, threatening the survival of marine life.

Nutrients are also not able to travel up to the surface of the oceans from below. This could threaten the population of phytoplankton — single-celled plants that thrive on the ocean surface and are the base of several marine food webs. Phytoplankton are eaten by zooplankton, which are consumed by other marine animals such as crabs, fish, and sea stars. Therefore, if the phytoplankton population plummets, there could be a collapse of marine ecosystems.

Warmer oceans cause marine heat waves (MHWs), which occur when the surface temperature of a particular region of the sea rises to 3 or 4 degree Celsius above the average temperature for at least five days. Between 1982 and 2016, such heatwaves have doubled in frequency and have become longer and more intense, according to a 2021 study by the UN's Intergovernmental Panel on Climate Change (IPCC).

MHWs are devastating for marine ecosystems as they contribute to coral bleaching, which reduces the reproductivity of corals and makes them more vulnerable to life-threatening diseases. They also impact the migration pattern of aquatic animals.

According to several studies, higher ocean temperatures may also result in more frequent and more intense storms like hurricanes and cyclones. Warmer temperatures lead to a higher rate of evaporation as well as the transfer of heat from the oceans to the air. That's why, when storms travel across hot oceans, they gather more water vapour and heat. This results in more powerful winds, heavier rainfall, and more flooding when storms reach the land — meaning heightened devastation for humans.

The only way to avoid or blunt the aforementioned consequences is to reduce GHG emissions. The world, however, is nowhere close to doing that. In 2023, the concentration of GHG reached the highest levels ever recorded in the atmosphere, according to C3S.

PLASTIC CHEMICALS MORE THAN ESTIMATED: REPORT

While the United Nations Environment Programme (UNEP) had previously identified around 13,000 plastic chemicals, the report by a team of European scientists found more than 16,000 chemicals in plastics — a quarter of which are thought to be hazardous to human health and the environment.

The report, funded by the Norwegian Research Council, comes as government negotiators grapple with devising the world's first treaty to tackle mounting plastic pollution, as some 400 million tonnes of plastic waste are produced every year.

"To robustly solve plastic pollution, you actually have to look at the full life cycle of plastics and you have to address the chemicals issue," said report co-author Jane Muncke, managing director of the Swiss non-profit Food Packaging Forum.

That's because plastic chemicals can leach into water and food.

"We're finding hundreds, if not thousands, of plastic chemicals in people now and some of them have been linked to adverse health outcomes," Muncke said.

Such impacts include fertility issues and cardiovascular disease.

While the plastics industry has said any global treaty should promote recycling and re-use of plastic, only addressing plastic waste doesn't go far enough to protect people, the report's authors said.

Scientists flagged the need for greater transparency on what chemicals — including additives, processing aids, and impurities — are going into plastics - including recycled products.

A quarter of the identified chemicals lack basic information on their basic chemical identity, the report said.

"Often producers don't really know which kind of chemicals they have in their products and that comes from very complex value chains." Only 6% of the chemicals found in plastics are regulated internationally. Without regulatory pressure, "there is no motivation to disclose what's in the plastics," he said.

That's something a plastics treaty could help to address. Negotiations continue next month in Ottawa, Canada, with the aim of finalising a treaty come December in the South Korean city of Busan.

RUNNING SPEED

Why do medium-sized land animals like cheetahs tend to be the fastest?

While many key traits such as strength, limb length, lifespan and brain size tend to increase with animals' size, maximum running speeds tend to be greatest in medium-sized animals. Empirical data show that maximum running speed increases up to a critical body mass and then decreases — the fastest runners are of intermediate size. The findings suggest that there is not one limit to maximum running speed, as previously thought, but two: how fast versus by how far, muscles contract. The maximum speed an animal can reach is determined by whichever limit is reached first — and that limit is dictated by an animal's size. The maximum running speed is constrained

both by how fast muscles contract, as well as by how much they can shorten during a contraction. Animals about the size of a cheetah exist in a physical sweet spot at around 50kg, where these two limits coincide. These animals are consequently the fastest.

RIGHT WHALES MAY NEVER BREED AFTER RUN-INS WITH FISHING GEAR

It sounds like a crime show episode at sea: In late January 2024, federal regulators learned that a dead female North Atlantic right whale had been sighted near Martha's Vineyard, Massachusetts. The whale was towed to shore, where more than 20 U.S. and Canadian scientists converged to perform a necropsy, or animal autopsy.

On February 14, the U.S. National Oceanic and Atmospheric Administration announced that the whale was #5120 in a catalogue that tracks individual right whales. Further, the agency said, a rope that had been deeply embedded in the whale's tail had likely come from lobster fishing gear in Maine.

Entanglement in fishing gear is a deadly threat to these critically endangered animals. Scientists estimate that before commercial whaling scaled up in the 18th and 19th centuries, there may have been as many as 10,000 North Atlantic right whales. Today, fewer than 360 individuals remain. Almost 90% of them have been entangled at least once.

When whales become entangled in fishing gear, they use extra energy dragging it as they swim. If the rope is caught around their mouths, they may struggle to feed and slowly starve. Ropes wrapped around whales' bodies, flippers or tails can cut into the animals' skin and become deeply embedded in their flesh, as happened to whale #5120. This can cause infections, chronic emaciation and damage to whales' blubber, muscle, bone and baleen — the bristly structures in their mouths that they use to filter prey from the water.

North Atlantic right whales are legally protected, both internationally and in U.S. waters, including policies that seek to reduce deaths or serious injuries resulting from entanglements. However, even when entanglement does not kill a whale, it can affect individuals' ability to reproduce, which is critically important for a species with such low numbers.

In a newly published study, we show that even entanglements scientists classify as "minor" have devastating impacts on female right whales and that, surprisingly, potential mothers who suffer "minor" entanglements have the lowest chance of starting to breed. As researchers with expertise in marine biology, ecology and statistics, we believe our findings underline the urgent need for ropeless fishing gear that can reduce threats to the survival of this species.

WHAT IS THE HBA1C TEST AND WHY IS IT USED TO CHECK FOR DIABETES?

India is estimated to have 10.13 crore people with diabetes, and another 13.6 crore people who are pre-diabetic, according to a nationwide study published in 2023. This apart, over 35% of Indians suffer from hypertension and nearly 40% from abdominal obesity, both of which are risk factors for diabetes. India accounts for 17% of all diabetes patients in the world.

Prevention and early detection are key to helping combat this non-communicable disease burden, experts say. One of the most commonly-used tests to diagnose pre-diabetes and diabetes (both type 1 and type 2) and to help manage diabetes, is the haemoglobin A1C (HbA1C) test, also known as the glycated haemoglobin or glycosylated haemoglobin test.

How does the test work?

Sugar enters your bloodstream from the food you eat. The sugar, or glucose, attaches to the haemoglobin in your red blood cells. Haemoglobin is a protein that transports oxygen to all the cells of your body. Everybody has some sugar attached to their haemoglobin. Those with pre-diabetes and diabetes, however, have more. The HbA1C test measures the percentage of your red blood cells that have sugar-coated haemoglobin.

Why is the test used to check for diabetes?

A paper was published in the Cleveland Clinic Journal of Medicine in 2016 entitled 'The role of haemoglobin A1c in the assessment of diabetes and cardiovascular risk'. It stated: "HbA1c was first discovered in 1955, but elevated HbA1c levels in diabetes patients were not noted until 1968. Another eight years passed before HbA1c was correlated with blood glucose values in hospitalised patients with diabetes and was proposed for monitoring glycemia."

During the first few years of clinical use, the paper said, HbA1c measures were inconsistent. But as the importance of precise HbA1c measurements became apparent through studies that revealed better patient outcomes and mortality associated with lower average HbA1c, the need to reduce error margins in measurement became apparent. Following programmes to regulate HBA1c measurements and calibrate them to reference standards, standardisation and accuracy greatly improved from 1993 to 2012, the paper noted.

The American Diabetes Association approved HbA1c as a diagnostic tool in 2009. In 2011, after an expert consultation with the World Health Organization (WHO), it said HbA1c could be used as a diagnostic test for diabetes "provided … stringent quality assurance tests are in place and assays are standardised to criteria aligned to the international reference values, and there are no conditions present which preclude its accurate measurement."

What do HbA1C test results look like?

The HbA1C levels are provided as either a percentage or in mmol/mol (which stands for millimoles per mole). A mole is a unit of measurement often used for chemical substances. The higher the percentage, the higher your blood glucose levels are. An Hb1A1C below 5.7% is considered normal; between 5.7% and 6.4% may indicate you are pre-diabetic; and 6.5% or higher can indicate diabetes. In mmol/mol: below 42 corresponds to below 6.0%; 42-47 mmol/mol to 6.0 to 6.4%; and 48 mmol/mol to 6.5% or over.

However, the test's results may change under certain conditions, including if a patient has kidney or liver failure, severe anaemia or a blood disorder such as thalassaemia; if they have a less common type of haemoglobin found in some populations; or are under certain medications including steroids, opiates or dapsone (a drug used to treat leprosy). They may even change if a person is in early or late pregnancy.

Generally, for those whose results indicate pre-diabetes or diabetes, doctors specify a goal to achieve specific HbA1C levels. But these vary from person to person and also depend on their age, health conditions, medications being taken, and other factors.

Who needs to take the test and when?

According to the Indian Council of Medical Research's Guidelines for Management of Type 2 Diabetes (2018), all individuals older than 30 years should be screened for diabetes. Those with

one or more risk factors including, among others, obesity, an increased waist circumference, a history of or being treated for hypertension, a history of heart disease, and a history of polycystic ovarian syndrome should be screened earlier. Retests should be conducted after three years in case of normal glucose tolerance. If a person is pre-diabetic, retests should be annual. Your doctor may also ask you to be tested more frequently if, for instance, you're planning to have a baby.

If you have diabetes, your doctor may ask you to take it every three to six months, to keep an eye on your blood sugar levels and to check if your treatment plan is working.

How does the test differ from others?

While fasting and post-prandial (after a meal) or post-meal blood sugar tests give you blood sugar levels within a specific time frame, the HbA1C test reflects your average blood glucose levels over the last two to three months.

Also, while the traditional blood sugar tests may fluctuate depending on items in the person's latest meal and when they last consumed it, the HbA1C test is independent of these variables, making it more reliable. It can be taken irrespective of when the latest meal was consumed.

What are the test's limitations?

It is important to note the HbA1C test does not replace other tests and may be carried out alongside others, such as the traditional blood sugar tests to test for diabetes and pre-diabetes. It also does not replace regular blood-sugar testing at home, which a doctor may have recommended, as the blood sugar levels may spike and dip through the day or night, and the HbA1C test may not capture this.

This apart, while the HbA1C test remains one of the best to assess long-term control of diabetes in people known to have diabetes, it is not uniformly accepted as a diagnostic test by all global medical bodies because of its relatively low sensitivity arising from difficulties in assay standardisation. In other words, a doctor may recommend a glucose test alongside an HbA1C test to obtain a clearer picture when diagnosing a person. The test may also have limitations particular in India. A 2013 paper published in the journal Diabetes Technology and Therapeutics noted that in some clinical situations, accurate measurements are harder to make. These include having conditions like thalassaemia, structural haemoglobin variants in the population, iron-deficiency anaemia (which is relatively high in India), and the use of certain drugs.

"Because of the relatively frequent occurrence of some of these conditions in some parts of India, it is important that they are looked for when evaluating an inappropriately high or low HbA1c level. Alternative indices may have to be used for assessing glycemic control in these cases," the paper noted.

IDF RECOMMENDS MORE SENSITIVE TEST TO INDICATE RISK OF DEVELOPING DIABETES

The International Diabetes Federation (IDF), in a position statement, has recommended the adoption of a test measuring blood sugar one hour (1-h PG) after the load of Oral Glucose Tolerance Test (OGTT) has been administered to check for diabetes risk. They have also recommended revising glycaemic thresholds to measure and predict the risk of developing diabetes.

The measure of blood sugar one hour after a 75 gm sugar solution is consumed will be a far more sensitive and practical method to screen for intermediate hyperglycaemia (IH), earlier known as pre-diabetes, and type 2 diabetes (T2D) in people at risk. It recommends the use of the cut-off points of 155 mg/dL for measuring IH, and 209 mg/dL for T2D, meaning any figure higher than specified would indicate a higher chance of diabetes, even if the individual's fasting and two-hour values were normal.

The oral glucose test is the best for detecting the onset of diabetes at a future date, and if it is not employed, many remain undiagnosed and untreated. A "wealth of epidemiological data" guided the confirmation of the superior purpose in using the 1-h PG (plasma glucose) over even fasting PG (FPG), HbA1c and 2-hour PG across ethnicity, sex and age categories.

The statement was prepared by an international panel of 22 experts from 15 countries and presented recently at the 17th International Conference on Advanced Technologies, Treatments for Diabetes in Florence, Italy and published online in Diabetes Research and Clinical Practice.

CHANGING CANCER NOMENCLATURE CAN IMPROVE TREATMENT OUTCOMES: DOCTORS

The way we classify metastatic cancers may need to be revamped, scientists have said, proposing in its place a classification system that places the molecular characteristics of the cancer over the tissue of origin.

Traditional approaches to treating cancer — including surgery and radiation — target the organs in which the tumour is present. This practice formed the basis of classifying cancers after the organ in which they originate. But most deaths due to cancer are the result of the disease metastasising beyond the organ of origin; individuals with metastatic cancer are almost always treated systemically with drugs that enter the blood.

What motivates the need for change?

With technological improvements, doctors are also able to find which genetic mutations are responsible for a tumour in many cases, and target them with drugs. All cancers from the same organ don't always share the same mutations, and these mutations aren't limited to cancers of a single organ.

This development in precision oncology requires cancers to be classified based on their molecular and genetic characteristics rather than the organ in which they originate, a team of researchers from France has written in a paper. This way, according to them, cancer patients can also access life-saving drugs sooner.

Fabrice André, a medical oncologist at Gustave Roussy in France and lead author of the commentary, told this author that oncologists spend a lot of time testing new drugs in clinical trials in a sequential manner, leading to "delay in treatment access".

Has sequential testing caused delays?

There is evidence to support this view. A 2012 clinical trial in the U.S. investigating the drug nivolumab included people with different types of cancers, including melanoma and kidney cancer. Nivolumab targets the receptor of a protein found in some tumours. It ameliorated symptoms in individuals with tumours with that particular protein.

The next logical step would have been to test nivolumab with people with tumours that expressed the protein irrespective of where the cancer originated. But since cancers are classified based on their organ of origin — breast, kidney, lung, etc.— researchers had to conduct trials one after the other for each type of cancer.

As a result, for many years, people with tumours expressing that particular protein couldn't access nivolumab because the drug hadn't been trialled for their specific type of cancer.

Most drugs tested in clinical trials in the past decade have a similar story.

How else can the new scheme help?

A trial for a drug targeting a particular genetic mutation will cover all cancer types with those mutations.

The revamped classification system could also help patients understand the rationale behind their treatment. For example, two people may have the same cancer but not the same therapy because the biological mechanisms underlying their tumours are different. This can confuse patients, he said. "Naming cancers with biological mechanisms would decrease such heterogeneity, and will also help the patient to better understand the rationale for his/her therapy."

Are there hurdles to implementing?

Finally, this proposed change for classifying cancers can't happen unless patients can access tests that reveal molecular alterations in their tumour.

This is particularly relevant in the Indian context, where we must take the proposed change with a pinch of salt, Dr. Jobanputra said, since most patients can't afford genetic testing. These tests currently cost ₹7,000-40,000 in Indian labs and up to ₹3 lakh abroad. The availability and accessibility of genetic tests should be wider. "Only then can we jump to this diagnostic nomenclature."

FOCUS ON PREVENTION TO PRESERVE AND PROTECT YOUR KIDNEY FUNCTION

As India faces innumerable challenges in providing healthcare to its 1.44 billion people, kidney disease is emerging as an illness to reckon with. The diversity of India especially with regard to socio economic status, literacy, food habits, cultural beliefs, and access to healthcare are all important and complex issues facing the State and central governments. A total of 2,200 kidney specialists, skewed in distribution with a majority in the four (advanced) southern States and metropolitan cities leaves a critical gap in providing timely care to kidney disease patients.

In 2019, chronic kidney disease (CKD) was responsible for over 3.1 million deaths, ranking it as the 7th leading cause of death worldwide. The global mortality attributed to all kidney diseases is estimated to range between 5 and 11 million annually, particularly impacting low and middle-income countries (LMICs). These countries are disproportionately affected by acute kidney injury and face challenges related to insufficient access to kidney replacement therapy, including transplantation and dialysis.

Compliance with treatment

The burning issues are that people with high blood pressure, diabetes and heart disease do not comply with treatment and follow up after the diagnosis is made, which more often than not, lead

to complications. Therefore it is important at this juncture to spread the message of prevention; besides addressing and evaluating the disease state periodically for the success of management strategies. Chronic Kidney Disease of unknown origin (CKDu) predominantly affecting the farming and fishing community in different geographic locations and salt pan workers calls for more research. The genetic predisposition to kidney disease is not apparent in the majority of people in India as it is different from Caucasian, Africans, Chinese and Japanese ethnic groups. A separate forum for this should be constituted and diagnosis with management strategies should be implemented.

Surveys have shown that less than 5% of the populations knows where the kidneys are located in the body. This ignorance spills over into a reluctance to seek treatment on time, eventually leading to a preventable death.

Management strategies for Non Communicable Diseases such as diabetes, and hypertension include counselling, nutrition, medical therapy and drugs. The newer drugs for slowing down the progression of diabetic kidney disease are available in India and marketed by many pharmaceutical companies. These drugs are called as SGLT2 inhibitors such as dapagliflozin, canagliflozin, enpagliflozin which also protect the heart. The RAAS blockade is an effective treatment modality with telmisartan, losartan and olmesartan. The introduction of a new drug, Finerenone, which is a mineralocorticoid receptors antagonist is useful in slowing the progression of kidney and heart diseases.

Effective blood pressure control with different group of medications to <130/80MMHg is a very useful measure to slow down kidney disease progression and heart failure and stroke. Also exercise and appropriate food intake to reduce weight (measured as body mass index >22.9kg/m2). The use of alternate medications and continuous consumption of Non Steroid Anti Inflammatory drugs as painkillers and proton pump inhibitors such as pantoprazole for over 3 months are not advisable unless absolutely necessary. There is a trend of buying over the counter, the aforementioned drugs, which should be discouraged. Individuals who are working under direct heat in the open should reduce exposure to the sun in summer and consume salt and fluids to prevent dehydration and hence, kidney injury.

Handheld devices

Small handheld devices estimate serum creatinine using a drop of blood in 40 seconds. By deploying these tools in the community, visits to hospitals and franchised laboratories can be avoided. Using this tool in the 30,000 odd primary health care centres in India will boost detection of kidney disease and its management through simple protocols. Though drugs are provided free of cost in government facilities, cost and supply continue to be deterrents for poorer people.

CAN INTERMITTENT FASTING WORSEN HEART HEALTH? WHAT A NEW STUDY SAYS

While intermittent fasting has grown in popularity, especially with its promise of improved insulin sensitivity among diabetics, a recent study has made an alarming claim — it increases the risk of death due to cardiovascular death by 91%.

Findings from the study were presented recently at an international conference.

Experts said while the study's data are not conclusive, they do flag the risks of intermittent fasting, and such diets should not be followed without consulting a doctor.

What did the study look at?

Intermittent fasting is essentially a time-restricted diet, where the day's calorie requirements are consumed over a period of eight to twelve hours, with participants fasting for the rest of the day.

Studies that tracked participants on such diets for short periods — three months to a year — have shown benefits such as weight-loss, increased insulin sensitivity, and better control of diabetes. The data presented recently tried to look at the long-term impact of intermittent fasting, following 20,000 adults from a US database for eight to 17 years.

It found that people who ate all of their food in less than 8 hours per day had a 91% higher risk of death due to cardiovascular disease. Among people already living with heart diseases, intermittent fasting increased the risk of death due to heart disease and stroke by 66%.

Why can intermittent fasting be harmful?

One, people might gorge on calorie-dense foods during their eating window.

"One of the main reasons the diet is popular is because people believe they can eat whatever they like during the eight-hour window. Consuming pizzas and burgers for only eight hours a day is no healthier than eating it throughout the day. Also, we have seen that diets that restrict calories in every meal lead to just as much weight loss," said Dr Misra.

According to a review of intermittent fasting by Harvard, 12 clinical trials that compared the fasting group with the continuous calorie restriction group found no significant difference in weight loss outcomes.

Two, Dr Misra said intermittent fasting in the long run might lead to a see-saw effect not ideal for a healthy heart. "Every time you consume a meal, there is a spike in sugar levels. People with a flatter line for insulin release have better cardiovascular outcomes than those with a variable line," he said.

WHEN WILL POPULAR WEIGHT LOSS DRUGS TAKING WORLD BY STORM REACH INDIA? HERE'S EVERYTHING YOU NEED TO KNOW

For a long time, this Surat-based family had learnt to live with obesity and diabetes, reconciling with their bad genes. Till they were introduced to Semaglutide, the blockbuster weight loss drug that's taken the world by storm, reshaping waistlines and controlling blood sugar levels. The 60-year-old patriarch is no longer insulin-dependent. His wife, sons and daughter-in-law lost between 15 and 20 kg in just six months. While the older couple managed their weight with Rybelsus, the oral form of Semaglutide (an antidiabetic and weight-loss medication) that's available here, both their sons and daughter-in-law chose the faster-acting injectable, Tirzepatide, procuring them directly from the US.

With studies proving that injectables can reduce your weight by up to 20 per cent, comparable to life-saving bariatric surgeries, these are now expected to be available in India in the next couple of years. Regulatory data analysed by The Indian Express shows that advanced-stage trials for at least seven new drugs in this category have been listed with India's clinical trial registry. Currently, there are 31 trials in place. Two of these medications are already approved for use among diabetics and those struggling with obesity in the US. Danish company Novo Nordisk sells the injectables under the name of Ozempic, a low-dose injectable for diabetes, and Wegovy, a high-

dose injectable for weight loss. Similarly, Eli Lilly has rolled out Moujaro for diabetes and Zepbound for weight-loss.

Six of the seven therapies currently under trial are developed by Novo Nordisk and Eli Lilly. These drugs can be marketed here once the trials show positive results among a wider arc of our population.

How do these drugs work?

Semaglutide essentially mimics a hormone, called glucagon-like peptide 1 (GLP1), which stimulates the pancreas to produce more insulin, in turn lowering blood sugar, reducing craving and slowing digestion. All these mechanisms keep you satiated and prevent you from overeating, ultimately leading to weight loss. "While Wegovy is about to enter India and has shown about 10 per cent weight loss in participants, India is also participating in trials of more potent compounds. Tirzepatide, which acts on two targets — GLP-1 along with GIP — is more powerful and leads to about 15 per cent weight loss. The upcoming drug Retatrutide goes a step further and acts on three targets GLP-1, GIP, and glucagon, tackling obesity more effectively at 24 per cent," says Dr V Mohan, chairman, Dr Mohan's Diabetes Specialities Centre, Chennai.

With three companies working on dual-target drugs and another four companies on triple target drugs globally, Dr Mohan foresees fierce competition in the coming years.

WHY THE DRUGS COULD BE A GAME CHANGER FOR INDIA

With most Indians reporting an onset of diabetes and heart disease at least a decade earlier than other populations, the drugs could change the map of non-communicable diseases in India. Especially after the latest Lancet study has flagged how India is rapidly moving up on the obesity curve. The new study reveals that 44 million women and 26 million men aged above 20 in India were found to be obese, this figure being 2.4 million women and 1.1 million men in 1990.

IS YOUR WEIGHT LOSS PERMANENT?

While these drugs have offered hope to the obese, they are not the magic bullet and cannot work on their own without lifestyle interventions. As Dr Mohan says, "These drugs may get you off the weight cliff but lifestyle interventions of diet, exercise and adequate sleep have to continue. The drugs do not work the same way for all – about 25 per cent of people experience significant weight-loss and reduction in HbA1c levels (three month average of blood glucose levels), 25 per cent experience only weight reduction or drop in HbA1c levels and the other 25 per cent do not experience either."

Dr Misra quotes recent research that shows the fat comes back once the drugs are discontinued and only a longer term usage can sustain weight loss. "We don't even know whether they will keep working long term. With other diabetes drugs, we have seen how they have to be scaled up or the patient has to be moved to other drugs after a few years. We also do not know the long-term consequences of these drugs as they have been on the market for only a few years," says Dr Mohan.

CAN EVERYBODY AFFORD THESE DRUGS?

Cost remains a big challenge, making these drugs more an elite privilege than a health benefit. The older drugs that are already available in the market can cost patients up to Rs 10,000 to Rs 15,000 a month. Long-term use would be a drain on the resources. This could spiral further with the new

drugs. “For at least 30 per cent of the patients, the price of these drugs is a major deterrent,” says Dr Misra.

This is likely to change as more and more generics enter the market. “There will be an explosion in the use of these drugs after 2026 when the patent for one of the formulations of Semaglutide expires. The patent for the oral version of the drug will end in 2031,” says Sheetal Sapale, president, marketing, AIOCD, AWACS, a pharmaceutical research company.

There is already an existing market which will be capitalised by these drugs. “Obesity is now affecting the young and children – these are the people who wouldn’t mind spending to remain healthier. This, combined with companies reaching out to people through social media testimonials, has built an expectation and a demand,” she adds. Question is can these drugs become a tool for public health management in the long run?

DreamIAS