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INTERNATIONAL

US AIRMAN SETS HIMSELF ON FIRE: HISTORY OF SELF-IMMOLATION AS A TOOL OF PROTEST, POLITICS

An active duty United States Air Force (USAF) airman set himself on fire in front of the Israeli embassy in Washington DC on Sunday (February 25), in an act of protest against Israeli actions in Palestine.

Self-immolation has long been a tool of protest and an extreme political act. We trace a brief history.

Vietnam's burning monk

Legends of people setting themselves on fire, often as acts of defiance or sacrifice, can be found across cultures, throughout history. As a modern tool of protest, however, the origin of the practice can be traced to Vietnam, and a Buddhist monk named Thich Quang Duc.

In 1963, during the Vietnam War, the US-backed Ngo Dinh Diem regime of South Vietnam faced a crisis. Catholic Diem's regime was responsible for persecuting and discriminating against South Vietnam's majority Buddhist population, who grew increasingly resentful. On June 11, 1963, when 65-year-old Quang Duc set himself on fire at a busy crossing in Saigon, in protest of Diem's policies.

Malcom Browne's photo of the burning monk would go on to win the Pulitzer Prize in 1964.

Subsequently, four more monks and a nun self-immolated, before Diem's regime finally fell in November, 1963. But self-immolations had taken the form of a powerful, anti-war political act — dozens more would set themselves ablaze by the time the war in Vietnam ended, including Norman Morrison, an American Quaker, who self-immolated right outside the Pentagon.

In Czechoslovakia, an act to inspire

Perhaps inspired by the global impact of self-immolations in Vietnam, on January 16, 1969, 20-year-old Czech student Jan Palach set himself on fire in Prague's Wenceslas Square. Unlike the self-immolations in Vietnam, however, Palach's act was a call to action.

"His self-immolation was not a form of protest at all," Polish historian Lukasz Kaminski told DW in 2019. Instead, Palach's "gruesome death was intended to encourage the Czech and Slovak people to resist the [Soviet] occupation," he said.

In 1968, the Soviet Union invaded Czechoslovakia to put down the Prague Spring — a period of political liberalisation and mass protest in the erstwhile Czechoslovak Socialist Republic.

"Palach took issue with people's indifference, and that they had adapted to the new reality," Martin Milan Simecka, a Slovak journalist and writer, told DW.

And it worked — following Palach's self-immolation, thousands of Czechs and Slovaks took to the streets, many going on hunger strikes. While the communist regime in Czechoslovakia would not fall until the Velvet Revolution of 1989, the "martyrdom" of Palach would continue to act as a symbol of Czechoslovakian resolve.



Rajeev Goswami and the Mandal protests

On August 7, 1990, then Prime Minister V P Singh announced the implementation of the Mandal Commission report, which had recommended extending 27 per cent reservation for Other Backward Classes in government jobs.

India was immediately gripped by massive anti-reservations protests. On September 19, Rajeev Goswami, a 19-year-old student of Delhi's Deshbandhu College, set himself on fire at the All India Institute of Medical Sciences (AIIMS) intersection, as a mark of protest. He survived with 50% burns but never quite recovered from the injuries he sustained, and died at the age of 32 in 2004.

Goswami's act further triggered a spate of self-immolations across the country. Following the anti-Mandal protests, the Bharatiya Janata Party (BJP) pulled support for the V P Singh government, and fresh elections were held next year.

In Tibet, 'violently peaceful' self-immolations

In recent years, Tibet, under Chinese occupation since the 1950s, has been the global centre of political self-immolations, with roughly 200 recorded cases since 1998.

The practice picked up between 2009 and 2013, following the Chinese government crackdown on the widespread protests of 2008, and peaked in 2012, when 80 Tibetans set themselves ablaze. Protests also spread to New Delhi, when 27-year-old Tibetan exile Jamphel Yeshe set himself on fire to protest the visit to India of Chinese President Hu Jintao in 2012.

The Chinese government's response to such protests has been iron-fisted. Those who have survived have most often been detained with their whereabouts unknown, and families of protestors have often faced retribution from authorities. It has described self-immolations as "violent behaviour whose aim is to create an atmosphere of terror".

This is quite unlike how most Tibetans themselves view these acts. Theologian John Soboslai wrote that "most Tibetan perspectives ... assume their nonviolent character". Soboslai, however, rejects the violent-nonviolent binary altogether.

"They are violent in that they result in pain, nonviolent in that they do not transgress prohibitions against the infliction of harm, and peaceful in that they resonate with spiritual practices unconnected to political conflict," he wrote. The Dalai Lama, who is often blamed by the Chinese for the self-immolations, has expressed his "sadness" over the incidents, and has urged Chinese authorities to address their "root cause".

Sparking the Arab Spring

It was a self-immolation that provided the spark for the Arab Spring of 2011. On December 17, 2010, Mohamed Bouazizi, a Tunisian street vendor, set himself on fire after the police confiscated his scales because he was working as a street vendor without a permit, and the local governor refused to see him. Mohamed's brother Ali posted his video on Facebook, and soon it went viral.

For the Tunisian public, fed up with the corruption and repression of the ruling dispensation, Bouazizi's story touched a nerve, triggering massive protests. The Ben Ali regime fell on January 14, less than a month after Mohamed's self-immolation. But the flames that killed Mohamed Bouazizi soon spread beyond Tunisia, across the Arab world, triggering what we know as the Arab Spring.



Egyptian dictator Hosni Mubarak was deposed in 2011, as was Libyan ruler Muammar Gaddafi. Ali Abdul Saleh's regime in Yemen fell in 2012. Syria, Bahrain, Morocco, Algeria, Iraq, Lebanon, Kuwait, Oman, Sudan, and many other Arab countries too saw sustained, widespread protests.

WHAT IS THE LATEST ROW BETWEEN TRUMP AND NATO?

The story so far:

Former U.S. President Donald Trump threatened to withdraw support to NATO citing the failure of European NATO allies to step up their defence expenditure. He went on to state that he would encourage Russia to do whatever it wanted. NATO Secretary General Jens Stoltenberg countered saying: "Any suggestion that allies will not defend each other undermines all of our security, including that of the U.S." Mr. Trump's statement comes amid challenges that President Biden is facing to get the U.S. Congress to pass the Ukraine aid bill.

What is the problem?

It is not the first time Mr. Trump has warned NATO's trans-Atlantic members to increase their defence expenditure. During his presidential term (2017-2021), he emphasised on reducing or withdrawing aid to NATO. His national security advisors, Keith Kellogg and Robert O'Brien, proposed the possibility of a 'tiered alliance' — which aims to alter the nature of Article 3, which insists that NATO members make necessary efforts to boost defence capabilities and Article 5, which considers an attack against one NATO member as an attack against all. The modification would mean that only those who meet the set defence contribution threshold can avail of the protection under Article 5.

While direct funding of €3.8 billion as required by the 2024 budget has been fulfilled by the members to continue NATO operations and military commands, equal contribution to indirect funding is a long-standing problem. The U.S. remains one of the major contributors to indirect funding, with €800 billion (68%) out of the total €1,173 billion.

What has been NATO's response?

Quoting the July 2023 defence expenditure report of NATO, comparing Russia and NATO's arsenal capacity, Mr. Stoltenberg claimed NATO to be stronger than Russia at the Munich Security Conference 2024. This can be evidenced from the overpowering military personnel, collective military capabilities and naval power of NATO. However, Russia outnumbers NATO in ground combat vehicle capacity and nuclear warheads.

Since the formation of NATO in 1949, the U.S. has been its largest contributor. While, in 2006, a target of 2% of GDP was introduced, it was not until Russia's first invasion into Ukraine territory in 2014 that NATO countries began to actually increase their expenditures. From 2006-2014, except Norway, Poland, Estonia and Albania which closely maintained their GDP share, all other member countries showed a declining trend in their shares. While European allies and Canada have contributed an additional \$600 billion to the alliance since 2014, they are yet to meet the set threshold.

Now, European members of NATO have pledged \$380 billion this year and to also spend 2% of their GDP on defence. Germany, and Finland have assured that they will boost their military expenditure.



Currently, the larger stand from Europe is to fortify Europe's defence capabilities from within and to cut-down reliance on the U.S.

What happens if Mr. Trump withdraws support from NATO?

There will be severe consequences if Mr. Trump gets elected and attempts to operationalise his threat. If the target GDP is not met, NATO risks losing military support from the U.S. and a united alliance which has till now stood strong against Russia will crumble.

It would take decades to replace the U.S.'s military contribution. The U.S. has been a major shareholder of NATO's defence. Although its GDP spending ranged between high and low tendencies, losing its support entirely would take decades for NATO to revive its military arsenal. And then comes questions of leadership for a Europe-led security bloc. NATO which has doubled its geopolitical presence to 30+ members needs to be able to hold a united front. Ambiguity persists over who can lead NATO post the U.S. or which group of countries will stride high to establish a safe security landscape for Europe.

IS NATO MEMBERSHIP IN THE CARDS FOR UKRAINE?

The story so far:

Western powers joined Ukraine last weekend to mark two years of Russian aggression on its territory, as concerns grow that the conflict could spread into Europe. On the other hand, Jens Stoltenberg, secretary-general of the North Atlantic Treaty Organization (NATO), sounded emphatic on the inevitability of Kyiv joining the military bloc. However, that question appears unlikely to elicit consensus among member states any time soon.

What was the reason for the Russian invasion?

In 2008, NATO leaders declared their intention to admit Georgia and Ukraine to the bloc, although no timelines were indicated. The step must have been provocation enough for Russian President Vladimir Putin, who has been steadfast in his opposition to NATO expansion, especially into the heart of the former United Soviet Socialist Republic (USSR). Within months, President Putin sent tanks rolling into Tbilisi. In 2014, Moscow annexed Ukraine's Crimean peninsula and in February 2022 launched a full-scale war on the nation. If Kyiv is admitted now it would automatically kickstart NATO's Article 5 mutual defence provision, which stipulates that an attack on one member would be construed as an attack against all. Indeed, nothing less would reassure Kyiv, which gave up its nuclear arsenal in exchange for security guarantees by the U.S. and the U.K.

What is the status of the war now?

The most immediate concern is the severe depletion in Ukraine's artillery ammunition on the battlefield, which poses a challenge to hold back Russian troops along a 1,500 km frontline. According to the country's defence minister Rustem Umerov, the current shortfall, which has already increased Ukrainian casualties, allows Kyiv to fire barely a third of the absolute minimum of some 6,000 rounds of artillery shells it needs daily. On the other hand, according to western intelligence, Russian land forces have sustained an estimated 2,00,000 deaths and injuries since the onset of the conflict. Moscow achieved a breakthrough when Ukraine withdrew from the strategic city of Avdiivka, ascribed by the country's President Volodymyr Zelenskyy to acute shortages in Kyiv's artillery firepower. The latter's withdrawal from Avdiivka is reportedly the first major victory for Russian forces since the capture of Bakhmut city.



What has been the U.S.'s role so far?

While the U.S. has been the largest arms contributor to the war effort, a \$60 billion aid bill to Ukraine has been stalled in Congress. The Republican-dominated House of Representatives have refused to approve the financial package, caving into former President Donald Trump's pressure tactics. Hardline Republican voices have grown louder in arguing that it is about time that Europe took full responsibility for its own security and worked as an equal partner with the U.S.

What about the EU?

The 27-nation bloc recently overcame Hungarian hurdles to finance a €5 billion deal over four years to the Ukrainian economy. But governments are now squabbling over ways to top-up the €12 billion European Peace Facility (EPF) they had established to support Ukraine's war effort, funded by national contributions outside the bloc's common budget. Germany insists that the value of the weapons it supplies bilaterally should be factored into contributions to the common pool, while others feel that this would shrink the fund's volume. Moreover, some countries want that expenditure from the EPF to support the bloc's defence industry.

What is the road ahead?

It appears to be a pretty long one. Ukraine's full NATO membership is not on the table yet. For the time being, NATO has sought to assuage Ukraine's concerns by formalising current mechanisms of cooperation, which would empower Kyiv to call emergency meetings and ensure greater participation. President Putin's likely victory in a sham election in March and Mr. Trump's possible return to power later this year presents a predicament hard to contemplate for Ukraine.

IS THE UKRAINE WAR CHANGING WORLD ORDER?

The story so far:

Russia's war in Ukraine has entered its third year. What many thought on February 24, 2022 would be a swift Russian military operation against its smaller neighbour has turned out to be the largest land war in Europe since the end of the Second World War. The war has pushed Russia to turn towards Asia and the Global South in general, while the West continues to support Ukraine in its bid to push back and weaken Russia. A vast majority of countries, including India, remain neutral as the violence continues.

Did Vladimir Putin err?

There's now a consensus among defence experts — as well as reports from leaked western intelligence assessments — that President Vladimir Putin made a grave strategic miscalculation when he ordered the invasion of Europe's second largest country (after Russia), also a close ally of NATO, with less than 2,00,000 troops. Mr. Putin probably expected a quick victory, like he did in Georgia in 2008 and Crimea in 2014. But as the Russian war machine got stuck in Ukraine, the West moved in with military assistance, training and international mercenaries. After his troops were forced to pull back from Kharkiv in 2022, Mr. Putin immediately ordered a partial mobilisation. Since then, the focus of Russia's military campaign shifted from all out offence to strengthening the lines of defence with limited offensive battles. When Ukraine was preparing for a major counteroffensive, Russia kept thousands of Ukrainian troops engaged at Bakhmut in Donetsk, while at the same time building defence fortifications along the 1,000-km long frontline. Last May, the Russians took Bakhmut.



Where does the war stand now?

Eight months after Ukraine's counteroffensive began, it's now evident that the campaign failed, as admitted by Gen. Valerii Zaluzhnyi, the commander of Ukrainian forces, who was fired by President Volodymyr Zelenskyy earlier this month. Gen. Zaluzhnyi had called for a mass mobilisation, suggesting that Ukraine was facing acute shortage of fighters on the frontline. They lost many of their West-supplied weapons in the counteroffensive and are waiting for fresh supplies, but aid from the U.S. is stuck in Congress amid Republican opposition. On the other side, the Russians are on the offensive. In December, Russia claimed its first victory since the fall of Bakhmut when it captured Maryinka, in Donetsk. Earlier this month, Ukraine was forced to abandon Avdiivka, a strategically important town in Donetsk, after months-long fighting and suffering huge losses. The Russians are now advancing westward in Donetsk and piling up pressure on Ukrainian forces in Krynky, Kherson, in the south.

What is the West's strategy?

The West had taken a two-fold approach towards Ukraine. One was to provide economic and military assistance to Kyiv to keep the fight against Russia going on; and the second leg was to weaken Russia's economy and war machine through sanctions. With Ukraine's failed counteroffensive and a changing political climate in Washington with the prospect of a second Trump presidency looming, the first pillar of this policy faces uncertainty, if not absolute peril. The second pillar, sanctions, has hurt Russia badly. Western officials believe that sanctions have deprived Russia of over \$430 billion in revenue it would otherwise have gained since the war began.

How have the sanctions affected Russia?

Russia has found several ways to work around sanctions and keep its economy going. When Europe cut energy sales, Russia offered discounted crude oil to big growing economies such as China, India and Brazil. It amassed a ghost fleet of ships to keep sending oil to its new markets without relying on western shipping companies and insurers. It set up shell companies and private corporations operating in its neighbourhood (say Armenia or Turkey) to import dual use technologies which were re-exported to Russia to be used in defence production. China, the world's second largest economy, ramped up its financial and trade ties with Russia, including the export of dual use technologies. Russia moved away from the dollar to other currencies, mainly the Chinese yuan, for trade, and boosted defence and public spending at home (its defence budget was raised by nearly 70% this year). It also strengthened ties with Iran and North Korea, which were also reeling under American sanctions, and imported weapons from them, ranging from drones to cruise missiles and ammunition.

Two years after the war started, despite sanctions, both Russia's energy industry and its military industrial complex remain vibrant. Russia earned \$15.6 billion from its oil exports alone in January, up from \$11.8 billion last summer, according to the International Energy Agency. The Russian Defence Ministry claims that it manufactured 1,530 tanks and 2,518 armoured vehicles in 2023.

How is the war transforming Russia?

It doesn't mean that everything is going well for Mr. Putin and his compatriots. Since the war began, two countries in its neighbourhood, Sweden and Finland, have joined NATO, expanding the alliance's border with Russia. Mr. Putin spent years, after coming to power, to build strong



economic ties with Europe, which are now in tatters. Russia's hold on its immediate neighbourhood is also loosening, which was evident in tensions with Armenia and the latter's decision to freeze participation in the Moscow-led Collective Security Treaty Organization (CSTO). Russia is also becoming dependent on China, even though the Kremlin is careful not to upset the sensitivity of New Delhi.

Internally, the Russian state is tightening its control over society and is clamping down on any criticism of the war. The Prigozhin rebellion of last year exposed chinks in the armour of the state Mr. Putin has built. The death of Alexei Navalny, the most vocal critic of President Putin in Russia, in a remote Arctic prison on February 16 endorses criticism of the way Russia handles dissent. If post-Soviet Russia appeared to be a "managed democracy", post-war Russia is sliding into a tightly held authoritarian state.

What does it mean for the world?

The Western strategy of empowering Ukraine through aid and weakening Russia through sanctions doesn't seem to have worked. The war has also exposed the limits of Western power in a changing world — for sanctions to be effective, the trans-Atlantic alliance now needs the support of other major economies such as China and India. While Russia has constantly found ways to work around sanctions, it has also suffered huge casualties and will have to fight the long term effects of the sanctions. If there is one great power that stays relatively unscathed by this chaos, it is China. When Beijing looks at the conflict, it sees both the West and Russia stuck in Ukraine, forcing the latter to pivot to Asia, redrawing the global balance of power.

RUSSIA'S ECONOMY AFTER TWO YEARS OF WAR

Two years after its full-scale invasion of Ukraine, Russia is still facing an unprecedented number of economic sanctions.

It has been excluded from major global financial services, and around €260 billion (£222 billion) of its central bank assets have been frozen. Russian airspace is closed to most western planes, and western ports are closed to Russian vessels. A formal cap has been imposed on buying or processing Russian oil sold for more than \$60 per barrel (world prices currently fluctuate between \$80 and \$100). And in theory, it is illegal to sell Russia anything that could be used by the military. Sanctions have had some effects. According to the IMF, Russia's GDP is around 7% lower than the pre-war forecast.

Impact of Sanctions: Russia has been subject to extensive economic sanctions, leading to exclusion from global financial services, frozen central bank assets, closed airspace, and restrictions on buying or processing Russian oil. The International Monetary Fund (IMF) estimates that Russia's GDP is around 7% lower than the pre-war forecast.

Economic Resilience: Despite sanctions, Russia's economy has not collapsed, and the IMF expects it to experience GDP growth of 2.6% in the current year, outpacing the growth in the U.K. and the EU. The budget deficit remains below 1% of GDP, attributed to the strong and independent central bank implementing massive interest rate hikes to control inflation.

Sidestepping Sanctions: Russian firms have learned to circumvent sanctions, with examples like the oil cap being bypassed through uninsured vessels and accounting loopholes. Some countries, including Turkey, China, Serbia, Bulgaria, and India, reportedly continue to sell goods to Russia, often including dual-use goods used by the Russian military.



Reliance on War Economy: The article expresses concern about Russia's economic resilience being tied to the ongoing war in Ukraine. Russia's economy heavily relies on the export of natural resources, and the war has led to high energy prices, contributing to unprecedented public spending with around 40% of the government budget allocated to the war. Military spending is expected to exceed 10% of GDP in 2023.

Economic Realities: Winning the war would pose economic challenges for Russia due to the high costs of rebuilding and maintaining security in a conquered Ukraine. Meanwhile, a protracted stalemate may be the only solution for Russia to avoid total economic collapse, given the transformed focus on the war effort and labor shortages worsened by war casualties and brain drain.

Long-Term Consequences: The article notes that Russia, despite its resource richness, has become economically poorer than its former Soviet neighbours pursuing European integration. The Russian regime, lacking incentives to end the war, finds itself in a difficult position, unable to afford victory or defeat while its economy remains geared towards a prolonged conflict.

THE GLOBAL SOUTH'S STAND ON ISRAEL'S WAR IN GAZA

The story so far:

Israel's war in Gaza in retaliation for the October 7 terror attacks by Hamas took centre-stage at the International Court of Justice (ICJ) this week again, as the UN General Assembly raised the question of illegal Israeli settlements in the court, with public hearings that will end on Monday. The hearings sparked a further divide between Western countries, many of whom sought to defend Israel's bombardment of Gaza as the "right to self-defence", and were ranged against Global South countries, most of whom had supported South Africa's bid to have the ICJ try Israel for "war-crimes" for its actions. The latest hearings opened in the backdrop of a major rift between Brazil and Israel.

What are the ICJ hearings about?

The current hearings of the ICJ at the Peace Palace in The Hague (The Netherlands) are not a consequence of the Israel-Hamas conflict of the past few months, but pre-date them. In December 2022, the UN General Assembly had asked the court for an "advisory opinion" on two specific questions pertaining to Israeli actions in the past: first, what are the "legal consequences" for Israel over its policy of "occupations, settlement and annexation" of Palestinian territories since the 1967 war, and attempts to change the demographic status of Jerusalem, and second, what legal consequences arise for all other states and the United Nations over Israel's "discriminatory" policies towards Palestinians. As many as 52 states and three international organisations gave written and oral comments during the hearings scheduled from February 19-26, led by Palestine, and followed by South Africa.

Who were the key speakers and what have they said so far?

While a majority of the speakers at the hearings are from the Global South led by Brazil and South Africa, all P-5 members of the UN Security Council submitted comments, although Israel chose not to participate. India was not among the speakers, but its neighbours, Pakistan and Bangladesh were strongly critical of Israel's actions. Palestinian Foreign Minister Riyad al-Maliki gave a three-hour high-powered submission in which he said Israeli governments had left only three choices for Palestinians: "displacement, subjugation or death", calling their actions: "ethnic cleansing,



apartheid or genocide.” The U.S., U.K. and allies began submissions with condemnations of the October 7 attack in which more than 1,100 were killed in Israel. Ireland, however, has diverged quite dramatically from the West and the European Union in its criticism of Israel’s actions, countering arguments on the “right to self-defence” by saying that international law “limits the use of force in self-defence to no more than what is necessary and proportionate”. More than 29,000 people have been killed in Gaza since Israel’s bombardment began. While the ICJ case pertains to events pre-2022, it was clear that the destruction of nearly half of all structures in Gaza in four months are precipitating concerns that Israel plans to occupy and resettle that territory as well. Brazil’s ambassador in particular called for the ICJ to pronounce Israel’s actions of confiscating land, demolishing Palestinian homes, establishing Israeli settlements, and constructing the West Bank barrier wall as illegal.

Why have Brazil and Israel drawn daggers?

While Brazil and Israel have had close relations in the past, Brazil’s President Lula da Silva has been openly critical of “Zionism” in the past. For instance, he refused to visit the grave of Theodor Herzl during a visit to Jerusalem in 2010. Last week, Israel declared Mr. Lula a “persona non grata” who won’t be allowed to enter the country after he compared Israel’s bombardment of Palestinians to the Holocaust in Nazi Germany in which six million Jewish people were killed. Brazil has since recalled its ambassador to Israel.

What is India’s stand?

Despite its abstention in one vote calling for a ceasefire in October 2023, India has consistently voted in favour of UN resolutions that are critical of Israel’s occupation and annexation of Palestinian territory. Unlike the rest of the Global South, however, the Modi government has chosen to keep public comments on the issue to a minimum, and the decision not to speak at the ICJ is in line with that. Several factors complicate clarity on the Indian position. On the one hand, there is an expectation from the Arab world, particularly from close partners such as the UAE and Saudi Arabia, for India to stand with Palestine. Qatar, for instance, may have expectations after the Prime Minister’s visit this month to thank the Emir for releasing eight Indian naval officers. This may explain why New Delhi has spoken strongly about zero tolerance for the October 7 terror attacks, but has not designated Hamas as a terror group so far.

On the other hand, there is India’s close defence and surveillance equipment cooperation with Israel. While India has been buying defence equipment from Israel, recently, it shipped drones made by Adani-Elbit Advanced Systems in Hyderabad to help Israeli operations. In addition, the government has green-lighted the recruitment of tens of thousands of Indian workers by Israeli companies dealing with labour shortages due to the expulsion of Palestinians from jobs post October 7 attacks. However, the area of greatest concern for Indian diplomacy will come if it is seen as an outlier to the Global South that India seeks leadership of, which has been clearly critical of Israel’s actions, and is increasingly speaking in one voice for international judicial accountability for them.

BRAZIL’S LULA ACCUSES ISRAEL OF GENOCIDE IN GAZA, DOUBLING DOWN AFTER EARLIER UPROAR

Brazil’s President Luiz Inácio Lula da Silva alleged that Israel is committing genocide against Palestinians, doubling down on harsh rhetoric after stirring controversy a week earlier by comparing Israel’s military offensive in Gaza to the Nazi Holocaust.



Israel has vehemently pushed back against genocide claims, saying its war is targeting the militant group Hamas, not the Palestinian people. It has held Hamas responsible for civilian deaths, arguing that the group operates from civilian areas. The Health Ministry in Gaza said on Saturday that the bodies of 92 Palestinians killed in Israeli bombardments were brought to hospitals over the past 24 hours, raising the overall toll in nearly five months of war to 29,606. The total number of wounded rose to nearly 70,000.

The Ministry's death toll does not distinguish between civilians and combatants, but it has said two-thirds of those killed were children and women. Israel says its troops have killed more than 10,000 Hamas fighters.

Israel declared war after the deadly Oct. 7 Hamas attack on southern Israel in which militants killed about 1,200 people and took some 250 hostages. More than 100 hostages remain in captivity in Gaza.

Lula wrote on X that he would not give up his "dignity for falsehood," an apparent reference to calls for him to retract comments comparing Israel's conduct in Gaza to the Nazi Holocaust, in which 6 million Jews perished during the Second World War. "What the Israeli government is doing is not war, it is genocide," he wrote on Saturday. "Children and women are being murdered."

In response to Mr. Lula's initial comments, Israel declared him a persona non grata, summoned Brazil's Ambassador and demanded an apology. In retaliation, Mr. Lula recalled Brazil's Ambassador to Israel for consultations.

CAN THE IMEC ADDRESS THE RED SEA CRISIS?

The story so far:

As the Red Sea crisis enters its fourth month, global supply chains are increasingly grappling with inflated freights, delayed vessel schedules, and product shortages. It has once again brought to the fore the vulnerabilities of global supply chains, highlighting the need to revisit alternate routes for global trade.

Why is the Red Sea route important?

The Red Sea owes its strategic importance for global trade to the Bab el-Mandab Strait which lies between Yemen and Djibouti. It is one of the world's busiest cargo and oil transit points with almost 12% of international merchandise trade passing through it. An immediate consequence of the Red Sea conflict has been that major container and oil carriers have been forced to re-route shipments via the Cape of Good Hope. The re-routing has led to rising ocean freight, inflated insurance costs, and longer voyage times leading to delays and shortage of products. It has also driven up transportation costs. The higher shipping costs will be passed onto consumers in the form of increased commodity prices.

How has it affected India?

India's trade with European and North African countries flows entirely through the Red Sea route which is almost 24% of its exports and 14% of its imports. In the year 2022-23, India's bilateral trade with Europe and North Africa stood at \$189 billion and \$15 billion respectively. The rising fears among traders have already seen a drop in Indian shipments. As per the Federation of Indian



Export Organisations (FIEO), rising threats have prompted Indian exporters to hold back around 25% of their cargo ships transitioning through the Red Sea.

As global supply chains are battling delayed shipments and rising costs, China is actively projecting China-Europe freight trains, which are part of the Belt and Road Initiative (BRI), as an alternate route.

What about the IMEC?

The India-Middle East-Europe Economic Corridor (IMEC), which was announced during the G-20 summit in 2023, is another alternative which is not receiving much attention. Part of the problem is that apart from the MoUs, there have not been any investments or operations regarding the corridor. Furthermore, the Israel-Palestine conflict has put a pause on the normalisation of Arab-Israel relations which is a key element of the multi-nation initiative. Another major challenge is the vulnerability of the Strait of Hormuz. The entire trade of the IMEC architecture flows through the Strait of Hormuz and with Iran's proximity and control over the strait, the risk of disruptions remain very high. Some experts argue that the Strait of Hormuz problem can be avoided by including Oman in the IMEC architecture and keeping the supply chain away from Iran's reach. However, that would mean further delays, as new ports and railway links will have to be developed across Oman connecting it to Saudi Arabia.

How can the IMEC be made viable?

Despite such challenges, the economic logic of the corridor holds, which should encourage stakeholders to keep working towards it. First, an empirical study on the economic benefits of the corridor needs to be conducted. The corridor is estimated to cut the journey time from India to Europe by 40% and slash transit costs by 30%. However, there are speculations that multiple handling of cargo and multi-nation transit would increase carriage and compliance costs. Therefore, it is critical to quantify the economic advantages of the corridor to attract more stakeholders. Secondly, a robust financial framework needs to be in place. Since there are no binding financial commitments on any of the signatories of the corridor, investments will have to be attracted from governments, international organisations, and private sector entities.

Lastly, a comprehensive multi-nation operational framework is needed. As the corridor involves facilitating trade across different legal systems, a multi-national framework is necessary. A forum for the corridor needs to be constituted to undertake the aforementioned activities.

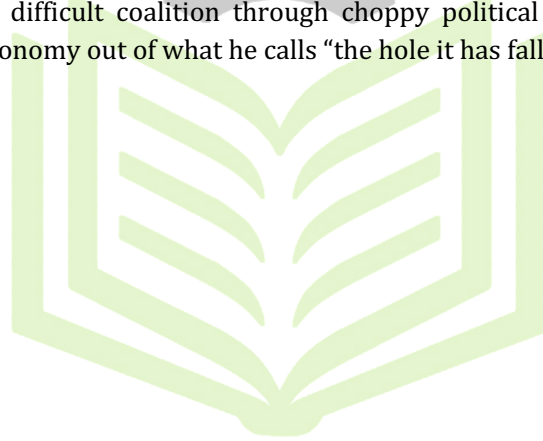
OLD BEGINNING

There was no level playing field in Pakistan's general elections on February 8, in which the Pakistan Tehreek-e-Insaf (PTI), the party of jailed former Prime Minister Imran Khan, barred from fielding candidates on its popular cricket bat symbol, was pitted against the military-backed Pakistan Muslim League-Nawaz (PML-N). Still, voters backed the PTI, whose independents emerged as the largest bloc in the National Assembly with 93 seats, while the PML-N ended up second with 75 seats. While the results sprung a surprise for many, the post-election manoeuvres have hardly been surprising. The PML-N has joined hands with the Pakistan People's Party (PPP) and several smaller parties to form a coalition government, which leaves out the PTI. Shehbaz Sharif, who became Prime Minister as part of an anti-Imran Khan coalition after the cricketer-turned politician's government was toppled in a no-confidence vote in April 2022, will return to the post. Maryam Nawaz, daughter of Nawaz Sharif, leader of the PML-N (Mr. Sharif is the elder



brother of Mr. Shehbaz), has become the Chief Minister of Punjab, while Asif Ali Zardari, the former President and leader of the PPP, is likely to replace Pakistan President Arif Alvi (of the PTI). The coalition has the full support of Pakistan's generals, while the PTI, which had accused the military of rigging in dozens of seats, says it will stay in opposition and mount legal challenges to the contested results.

In many ways, the new alliance is a replica of the previous coalition government. Mr. Shehbaz was widely unpopular as Prime Minister under whose watch Pakistan's economic woes have multiplied — inflation stands at a punishing 30%, while the economy is run on a \$3 billion lifeline the IMF provided last year. Foreign exchange reserves, despite improving, still stand at a low of \$8.2 billion. The new government will have to restart talks with the IMF for a bailout package. Even if a deal is reached quickly, it is not going to be a magic bullet for Pakistan's debt-laden economy, which is facing repayments worth \$70 billion over the next three years. Moreover, the country is also facing growing security challenges in its border region with Afghanistan. That Mr. Shehbaz, instead of Mr. Nawaz who had a history of confrontation with the military, was chosen to lead the coalition suggests that the member parties and the power behind the scene prefer status quo. But the voters did not want the status quo. Also, if the military hoped that Mr. Khan and the PTI would be sidelined after the election, that is not going to happen. Mr. Shehbaz's challenge is to lead a difficult coalition through choppy political waters while taking tough decisions to pull the economy out of what he calls "the hole it has fallen into". A tall ask indeed.



DreamIAS



NATION

EXPERT EXPLAINS: HOW THE DEVELOPMENT OF AGALÉGA FIGURES IN INDIA'S VISION FOR ITS MARITIME NEIGHBOURHOOD

On THURSDAY, Prime Ministers Narendra Modi and Pravind Jugnauth jointly inaugurated an airstrip and the St James Jetty on North Agaléga Island in the Indian Ocean.

Agaléga — a group of two islands with a total area of 26 sq km and a native population of about 300 people — lies approximately 650 nautical miles (1,050 km) north of Mauritius, and belongs to the island nation.

The development of the Agaléga Islands is in the socio-economic and national security interest of Mauritius, and also aligns with India's maritime vision.

The islands, a dependency of Mauritius, were not developed for many years. Situated two days' steaming distance away, the sustainability and well-being of the islands' inhabitants presented a challenge, as even the most basic needs required referral to Mauritius. The near absence of an official government or security presence was a serious vulnerability.

This vulnerability could be converted to strength by developing the islands and creating facilities that could operate ships and aircraft. Building a jetty and an airstrip was therefore considered imperative by the government of Mauritius. They chose India as their preferred development partner.

Why did Mauritians choose India?

Ties between India and Mauritius go back to 1948, 20 years before the country's independence from Britain. Seventy per cent of the inhabitants of Mauritius are of Indian origin, and the two countries share deep historical, social, and cultural bonds.

The consistent feature in the history of bilateral relations has been friendship and trust at all levels — the political leadership, the diplomatic and military communities, as well as between the peoples of the two countries. The development of these strategically located islands required trust more than anything else. India was the obvious choice.

Deliberations took place from the end of the first decade of this century onward. Considering the sensitivities in Mauritius over issues of sovereignty and security, both sides progressed with utmost caution, and every concern was appropriately addressed before the project got off the ground.

How will the development of Agaléga help Mauritius?

The benefits are so obvious and substantial that it appears odd that it took so long to begin the process of developing Agaléga.

For the people of the islands, the two-day passage (if a ship was available) will be cut to less than an hour's flight. The development of associated infrastructure will create employment for the local population and improve their overall well-being. The government of Mauritius may improve and expand these facilities in the future. The tourism potential of the islands could be tapped as well.



The new jetty and airstrip will enable a larger and more credible government presence on the islands, and the stationing or forward deployment of ships of the Mauritius Coast Guard. It will be possible to better monitor and police the vast Exclusive Economic Zone (EEZ) that extends 200 nautical miles outward from these islands.

What is in it for India?

The goodwill and trust between the two countries will be further enhanced. India will welcome opportunities to further develop these islands in collaboration with Mauritius as the latter deems appropriate.

The joint development of Agaléga underscores India's commitment to the vision of Security And Growth for All in the Region (SAGAR), and its willingness to assist smaller maritime nations in building capacity and developing capability.

It will indicate to other maritime neighbours that India is a benign and friendly country that respects the sovereignty of independent nations. India would like to emerge as the preferred development and security partner in the Indian Ocean Region.

LIVES AND LIVELIHOODS

In its first such confirmation, the government has conceded that Indians have been recruited by the Russian Army and positioned inside the Ukrainian border in land now under Russian control. The Ministry of External Affairs (MEA) says a "few" Indian nationals had signed up for support jobs, as military helpers and loaders, something the government actively discourages. It said that the Indian Embassy had pressed Russia for their "early discharge", and denied accusations by the families that Indian officials had not been responsive. Despite evidence that dozens of Indians have joined the war, lured by online advertisements and middlemen promising lucrative jobs, the government failed to make any statement, but spoke only after a series of reports in The Hindu, that included news of the death of a man from Surat who was hit by a Ukrainian drone-operated missile. An early acceptance of the problem, and more awareness drives against those duping Indians may have deterred others from signing up and facing harm. The government must also investigate the networks of unscrupulous recruiters who charge high fees from Indians seeking jobs abroad without fully explaining the nature of work. The truth is that even after awareness of their menial roles in a war zone, they have few options. Having spent their family's savings or availed of loans, the men cannot return without earning some of it back.

The government must review its procedures for countries in conflict, updating the list of 18 "Emigration Check Required" countries, so that the contracts of Indians travelling abroad for such work are vetted more thoroughly, they are advised better and also provided protection. Given that Nepal, Pakistan and Bangladesh face similar issues, it may help to seek more regional cooperation in thwarting the networks that market unsafe employment opportunities. The MEA's pleas to "stay away from conflict" are clearly insufficient. It is equally disturbing that the government has green-lighted recruitment drives to other conflict zones, including, more recently, Israel, for Indian construction and elder-care workers to replace Palestinians who have been denied entry to the country since October 7. More broadly, the numerous cases of Indians travelling to dangerous zones internationally, or even undertaking arduous journeys as illegal immigrants, reflect the deep economic distress and job shortages in India. While there are few quick fixes to such entrenched economic issues, the government must evince more empathy for the situation



many find themselves in, putting more comprehensive protocols in place for emigrants, and support structures for those in peril.

RAISINA DIALOGUE BEGINS: EVERYTHING YOU NEED TO KNOW ABOUT THE CONFERENCE

The ninth edition of the Raisina Dialogue will be held from Wednesday (February 21) to Friday in New Delhi. The conference will be inaugurated by Prime Minister Narendra Modi. Greece's Prime Minister Kyriakos Mitsotakis will join the inauguration session as the chief guest.

Here is everything you need to know about the Raisina Dialogue.

What is Raisina Dialogue?

The Raisina Dialogue is an annual conference on geopolitics and geoeconomics, which aims to address the most challenging issues faced by the world. The conference takes place in New Delhi and is attended by people from political, business, media, and civil society backgrounds.

"The Dialogue is structured as a multi-stakeholder, cross-sectoral discussion, involving heads of state, cabinet ministers and local government officials, who are joined by thought leaders from the private sector, media and academia," according to the website of Raisina Dialogue.

Delhi-based think tank Observer Research Foundation, in partnership with the Ministry of External Affairs, hosts the conference.

What is the theme of this year's edition?

The theme of the 2024 edition is "Chaturanga: Conflict, Contest, Cooperate, Create," according to a press release by the Ministry of External Affairs.

During the three-day conference, the participants will engage with each other over six "thematic pillars". These include: "(i) Tech Frontiers: Regulations & Realities; (ii) Peace with the Planet: Invest & Innovate; (iii) War & Peace: Armouries & Asymmetries; (iv) Decolonising Multilateralism: Institutions & Inclusion; (v) The Post 2030 Agenda: People & Progress; and (vi) Defending Democracy: Society & Sovereignty," the press release added.

Who will attend the 2024 edition of the Raisina Dialogue?

More than 2,500 participants from around 115 countries will be joining the conference in person. The Dialogue is expected to be viewed by millions across the world on various digital platforms.

The participants include ministers, former prime ministers and presidents, military commanders, technology leaders, academics, journalists, scholars on strategic affairs, and experts from leading think tanks.



WHAT IS THE SC'S INTERIM ORDER ON THE FOREST ACT?

The story so far:

On Monday, the Supreme Court ordered the government to continue following the all-encompassing “dictionary meaning” of forest as upheld in a 1996 Supreme Court decision in the T.N. Godavarman Thirumulpad case till a final verdict is handed out on a petition challenging the amended Forest Conservation Act of 2023. The court has also asked the government to make public, by April, a consolidated record of land deemed as forest by States and Union Territories.

What is the Forest Conservation Act?

The Forest Conservation Act, which came into force in 1980, was conceived to stop the razing of forests. An estimated four million hectares of forest land had been diverted from 1951-75 and once the Act came into force, the average annual rate of diversion dropped to about 22,000 hectares — or about a tenth — going by figures cited by the Centre to a parliamentary panel to demonstrate the effectiveness of the legislation.

However, the provisions of this legislation predominantly applied to tracts of forest land recognised as such by the Indian Forest Act, or by States in their records since 1980. Illegal timber-felling at Gudalur in Tamil Nadu led the Supreme Court to deliver the landmark Godavarman Thirumulpad judgment in 1996. It decreed that forests had to be protected irrespective of how they were classified and who owned them. This brought in the concept of ‘deemed forests,’ or forest-like tracts that weren’t officially classified as such in government or revenue records but looked like them. In the 28 years that have passed since the judgment, States — based on surveys and reports by expert committees — have interpreted ‘forests’ differently. This is natural, given the wide variety of forests and constituent plants in India. Chhattisgarh and Madhya Pradesh, for instance, define a forest as a tract that spans a minimum of 10 hectares, is covered with naturally growing timber, fuel wood and yielding trees and, has a density of 200 trees or more per hectare. Goa defines a forest as a patch of land having at least 75% covered with forest species. Some States have no parameters at all. Because of varying definitions of deemed forest, estimates of their territorial spread in India range from 1% - 28% of India’s official forest area of 80 million ha.

The Centre’s recent attempt to amend the Forest Conservation Act was ostensibly to bring “clarity” as there were large tracts of recorded-forest land that had already been legally put to non-forestry uses, but conformed to a State’s criteria of a ‘deemed forest.’ This posed challenges to the use and ownership of such land. Such ambiguity also bred a reluctance among private citizens to cultivate private plantations and orchards, despite their significant ecological benefits, for fear that they would be classified as ‘forest’ (and thus render their ownership void). India’s ambitions to create a carbon sink of 2.5-3 billion tonnes, to meet its net-zero goals required forest laws to be “dynamic”, and the rules sought to remove ‘deemed forest,’ not already recorded as such, from the ambit of protection.

What did the amendments deal with?

The amendments also put beyond the pale of protection forest land situated alongside a rail line or a road, necessary to provide access to a habitation, up to a maximum size of 0.10 hectare. Forest land situated within a distance of 100 kilometres along international borders or the Line of Control or Line of Actual Control, and which needed to be cleared to construct strategic linear projects of national importance would also be exempt from the Act. Any ten hectares in a forest,



regarded necessary for use in constructing security related infrastructure or five hectares in forest land affected by 'left wing extremism' too would be bereft of protection. The government rationale is that these exemptions are necessary to facilitate basic infrastructure in tribal areas. Moreover, the proper protection and conservation of forests by local communities, the Centre argued, requires creating livelihood opportunities through the promotion of ecotourism, zoos and safaris. But critics have pointed out that such enabling provisions already exist in another Act, the Forest Rights Act, 2006.

What is the import of the SC order?

The Supreme Court's interim order implies that forests will continue to be governed as if the recent amendments of the Centre didn't exist. Most importantly, it said that States should provide and the Centre publish, reports by State-constituted expert committees on the extent of deemed forests within their territories. It also struck down schemes to constitute zoos and safari parks on forest land.

SC CONSTITUTION BENCH OVERTURNS 2018 RULING, STRIKES DOWN 'AUTOMATIC VACATION OF STAY AFTER EXPIRY OF 6 MONTHS'

A Constitution bench of the Supreme Court on Thursday overturned a 2018 ruling wherein a three-judge bench of the Court held that a stay granted in civil or criminal cases will automatically lapse upon expiry of six months unless extended by a court.

The bench presided by Chief Justice of India D Y Chandrachud said that "there can't be automatic vacation of stay". The bench also comprised Justices Abhay S Oka, J B Pardiwala, Pankaj Mithal, and Manoj Misra.

Reading out the operative part, Justice Oka said, "We have held that we don't agree with the view" propounded by the three-judge bench in the case Asian Resurfacing of Road Agency Pvt Ltd & Anr vs. Central Bureau of Investigation."

The ruling emphasizes that constitutional and ordinary courts should refrain from fixing a time-bound schedule for the disposal of cases pending before any other courts, and directions for time-bound disposal should only be issued in exceptional circumstances. The decision also highlights the importance of leaving the prioritization of case disposal to the concerned courts where the cases are pending.

DON'T SEGREGATE PRISONERS ON BASIS OF CASTE, RELIGION: GOVT.

The Union government has taken a serious view of some States discriminating against prisoners on the basis of their caste and religion and assigning them work accordingly. Saying that it was unconstitutional, the Union Home Ministry wrote to the Chief Secretaries of all States and Union Territories urging them to ensure that their Jail Manuals did not contain any discriminatory provisions.

The Constitution of India prohibited any kind of discrimination on the grounds of religion, race, caste, and place of birth.

The Model Prison Manual, 2016, prepared by the Ministry and circulated to all States and Union Territories in May 2016, explicitly prohibited caste- and religion-based discrimination of prisoners in the management of the kitchen or cooking of food on a caste or religious basis.

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



“The manual also provides that any special treatment to a group of prisoners belonging to a particular caste or religion is strictly prohibited. It further provides that no classification of prisoners shall be allowed on grounds of socio-economic status, caste or class... In case any such provision exists, immediate steps must be taken to amend/remove the discriminatory provision from the Manual/Act. It is reiterated that there should be no caste-based assignment of duties or work in the prisons,” the Ministry said.

GYANVAPI CASE: WHY ALLAHABAD HC CALLED GOVT ORDER RESTRAINING PUJA IN VYASJI KA TEHKHANA ‘ILLEGAL’

The Allahabad High Court on Monday (February 26) allowed Hindus to continue offering worship in the southern cellar of the Gyanvapi mosque, dismissing an appeal by the Anjuman Intezamia Masjid Committee against the Varanasi district court order that first allowed this.

The cellar is called ‘Vyasji ka tehkhana’, after the Vyas family who claim to own the property. In 1993, the Uttar Pradesh government under Mulayam Singh Yadav had orally ordered the Vyas family to stop conducting pujas in the cellar.

The Allahabad HC said the state order “restraining Vyas family from performing religious worship and rituals and also by the devotees was a continuous wrong being perpetuated.”

How the case ended up in Allahabad HC

In connection with the ongoing dispute over the religious character of the Gyanvapi mosque, the Vyas family filed a suit in September 2023. The Vyas family claims that the Vyasji ka tehkhana (the mosque cellar) has been in the possession of the family since 1551 and prayers were being offered here routinely until the 1993 UP government order. On January 31 this year, the District Court in Varanasi allowed worship to take place in the cellar.

What the mosque committee argued

The management committee of the mosque challenged this order at the Allahabad HC. They argued that the civil court in *Din Mohammed v. The Secretary of State for India (1937)* had already declared that the mosque was Hanafi Muslim Waqf property and Muslims were entitled to the land. This, they claimed, included the land underneath the mosque, such as the cellar.

The management committee also relied on Section 4 of the Places of Worship (Special Provisions) Act, 1991 (POW Act). This provision essentially locks the religious character of a place of worship to what it was on August 15, 1947. This, they argued, would mean that the court’s findings in *Din Mohammed* are final and the religious character of the mosque cannot be converted by allowing the Vyas family to conduct prayers in the cellar.

What respondents relied on

The Vyas family argued that the *Din Mohammed* ruling, in fact, worked in their favor. They relied on a map submitted by the Secretary of State for India, which, they stated, clearly demarcated the Vyasji ka tehkhana. As this map was not a source of contention and the Vyas family was never made a party in the *Din Mohammed* case, the cellar remains in the “possession” of the Vyas family, they argued.

They further claimed that as the mosque never had possession over the Vyasji ka tehkhana, the state government could not have restrained the family from conducting prayers. Here, the

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



respondents also relied on the PoW Act, claiming that the state order restraining worship changed the religious character of the tekhana, where prayers had been routinely conducted.

Implications of order

The Allahabad HC passed an interim order in favor of the respondents based on a prima facie (first impression) analysis of the facts. It stated, “The existence of Vyas tekhana (cellar) owned by Vyas family in the year 1937 is a prima facie proof of the continuous possession claimed by the plaintiff till the year 1993.”

The court also stated, “Prima facie I find that act of the State Government since year 1993 restraining Vyas family from performing religious worship and rituals and also by the devotees was a continuous wrong being perpetuated.”

Following the Varanasi District Court’s order permitting worship in the tekhana on January 31, the lead petitioner in the main Gyanvapi Dispute, Rakhi Singh, had filed an application for a further ASI survey into all the remaining cellars in Gyanvapi to determine their religious character. The Allahabad HC order provides a possible path to investigate the religious character of these cellars as well, on the basis of possession and continuous worship.

PUBLIC HEALTH UTMOST CONCERN: SC JUNKS VEDANTA PLEA TO REOPEN TN COPPER PLANT

The Supreme Court Thursday dismissed Vedanta Ltd’s plea to reopen the Sterlite Copper smelting plant in Tamil Nadu’s Thoothukudi, which has been shut since May 2018 over pollution concerns, making it clear that the residents’ health was paramount.

The copper plant had been at the centre of widespread protests in Thoothukudi. In May 2018, police opened fire on protesters, killing 13 people.

Vedanta had moved the top court against an August 2020 Madras High Court order which upheld the plant’s closure on an order by Tamil Nadu’s pollution watchdog.

A Bench of Chief Justice of India D Y Chandrachud and Justices J B Pardiwala and Manoj Misra Thursday acknowledged that the closure was “undoubtedly not a matter of first choice”. But it also flagged the plant’s repeated and severe violations while backing the High Court order. “...the repeated nature of these breaches coupled with the severity of the violations would in this analysis have left neither the statutory authorities nor the High Court to take any other view unless they were to be oblivious of their plain duty,” the court said.

Referring to its 2013 ruling that allowed the plant to operate after remedying alleged violations of environmental norms, the top court observed that the unit has been “contributing to the productive assets of the nation and providing employment and revenue in the area”.

But it added: “Equally, while these aspects have undoubted relevance, the court has to be mindful of other well settled principles, including the principles of sustainable development, the polluter pays principles and the public trust doctrine.”

“The health and welfare of the residents of the area is again a matter of utmost concern. And in the ultimate analysis, the state government is responsible for preserving and protecting their concerns,” it said.



The top court said that after having heard the matter for several days “and after a careful evaluation of the factual and legal material, we have come to the conclusion the Special Leave Petition by the industrial unit does not warrant interference under Article 136 of the Constitution”.

A CHILLING EFFECT ON THE FREEDOM TO LOVE

On February 7, 2024, the Uttarakhand Assembly passed the Uniform Civil Code of Uttarakhand Bill, 2024, which purportedly consolidates a common law on marriage and property inheritance. The Bill only awaits the President’s assent to become enforceable law. A problematic feature of the Bill is the mandatory requirement of registration of a live-in relationship and its criminalisation, if certain conditions are not complied with. With this mandate, the proposed law will become the foremost weapon of the state to penalise consensual relations and violate individual autonomy.

Its ambit

The Bill, requires live-in partners to submit a ‘statement’ to the Registrar concerned. The Registrar has the powers to examine the statement and conduct an inquiry into the relationship. From a reading of the Bill, it appears that anyone can inform the Registrar of a live-in relation, which she can then act upon. She is empowered to examine the consent of parties, marital status, and the age of partners. Moreover, partners can be required to make a personal appearance and the Registrar can also refuse to register the relationship. Termination of a relationship also requires notice to be submitted. Another dangerous feature of the Bill, however, is the criminal penalty — of imprisonment or fine (or both) — if this statement is not filed. The couple will be penalised for the submission of false information. The Registrar will inform the details of the live-in relations to the police station whose jurisdiction governs the couple.

The Bill misses (or deliberately ignores) the foundational reason for a live-in relationship, which is that it lacks the formal structure and obligations of a marriage. Those who are living together, therefore, enjoy autonomy in their consensual partnerships, which a regulated marriage does not. Erasing this much-needed distinction between these institutions is irrational.

In a society that thrives on moral policing of young couples, the Bill, unsurprisingly, imposes a chilling effect on live-in partners and implicitly discourages such relationships. The involvement of the police accelerates this concern. Couples will be wary of entering into genuine relationships since a lack of compliance not only invites civil consequences, as regulatory laws routinely require, but also criminal ones.

The one-month limit (whoever is in a live-in relationship for more than a month from the date of entering into such a relationship without submitting a statement will be punished) also restraints intimacy in the most direct of ways. It infringes on free decision making and an expression of feelings, protected under Article 21, which lays stress on the right to a dignified life. Individuals are constrained by the provisions of the Bill while entering into live-in relationships, which impedes the ability to make the deepest personal choices.

Unprincipled criminalisation

A democratic liberal state must have a clear policy on what it chooses to criminalise and what it does not. This policy must be in consonance with what the Constitution protects. The fact that



social practices are undesired by a conservative majority is an insufficient reason for criminalisation.

As the philosopher Joel Feinberg recognises, “Indeed, everything about a person that the criminal law should be concerned with is included in his morals. But not everything in a person’s morals should be the concern of the law.” Translating moral prejudices into criminal legislation leads to what is called ‘unprincipled criminalization’.

A major illustration of such penalisation was the law on adultery which was contained in Section 497 of the erstwhile Indian Penal Code. The law, as it stood, discriminated on the basis of sex by punishing only men. But another crucial feature of the law was that it criminalised consensual sexual relations. By doing so, it actively worked to prevent intimate association and an expression of sexual autonomy.

While striking down the law, in *Joseph Shine vs Union of India* (2018), the judiciary emphatically held: “Treating adultery [as] an offence, we are disposed to think, would tantamount to the State entering into a real private realm...” Moreover, it said that it is not the lookout of the state to interfere in the lives of individuals “which were within the sphere of his or her constitutionally protected rights of privacy and self-determination.” Further, in *Justice K.S. Puttaswamy and Anr. vs Union of India and Ors.* (2017), the Supreme Court of India also clarified that “The destruction by the State of a sanctified personal space whether of the body or of the mind is violative of the guarantee against arbitrary State action. Privacy of the body entitles an individual to the integrity of the physical aspects of personhood.”

The danger of greater discrimination

Inter-caste and inter-religious couples face the prospect of severe harassment by the authorities and social stigma in our country. These couples often experience violence, which includes honour killings, as data show. A proposed law with a high regulatory content on live-in relations is most likely to affect vulnerable couples first. They will be indirectly discriminated against and targeted for the reason that they belong to the ‘wrong’ ‘religion or ‘caste.’

With the Bill incorporating provisions against live-in relations, the state has just demonstrated that there is no limit to how intrusive it can be. With no hesitation, it has chosen to violate the constitutional rights granting autonomy, privacy and equality.

It has also chosen to dishonour the primary political principle of a working democracy of treating consenting adults as partners who are capable of making decisions. Most regrettably, the state has successfully managed to usurp the most basic of human freedoms: the freedom to love.

ROW OVER KARNATAKA TEMPLE BILL: WHAT CHANGES IT PROPOSED, HOW OTHER STATES MANAGE TEMPLE REVENUES

The Karnataka Hindu Religious Institutions and Charitable Endowments (Amendment) Bill, 2024 was introduced in the Legislative Assembly on February 19 and passed on February 22. However, it was rejected two days later in the Legislative Council.

What changes were proposed for the taxation of Karnataka’s temples?

The Bill was meant to amend multiple provisions in the Karnataka Hindu Religious Institutions and Charitable Endowments Act, 1997.



The first and the most contentious was that it intended to divert “10% of the gross income of institutions whose gross annual income exceeds Rs 1 crore” to a common pool for the maintenance of temples, instead of the existing “10% of the net income of institutions whose gross annual income exceeds Rs 10 lakh”.

Net income is calculated based on the profits of the temple after accounting for its expenses, whereas gross income simply refers to the total amount of money the temple makes.

In addition, the Bill dedicated 5% of the income of institutions earning between Rs 10 lakh and Rs 1 crore to the common pool, changing the previous income bracket from Rs 5 lakh to Rs 10 lakh.

The common fund pool was created by the BJP government in 2011, by amending the 1997 Act.

If the recent amendments had been passed, they would have generated an extra Rs 60 crore, from 87 temples with incomes of over Rs 1 crore and 311 temples with income over Rs 10 lakh.

Section 19 of the Act lists the purposes for which the common fund may be utilised, including religious studies and propagation, temple maintenance, and other charitable causes.

The Congress government had said the enhanced funds would be used to grant aid to lower income temples, provide terminal benefits to ailing priests, and provide scholarships to children from families of priests.

What were the criticisms against the amendments?

BJP leaders accused the Siddaramaiah government of attempting to “rob” temples and questioned why only Hindu temples were being targeted.

BJP state president BY Vijayendra said “The question from crores of devotees is why is the government eyeing the incomes of Hindu temples when it is not interested in the revenue of other religions?”

Siddaramaiah, however, maintained that there “has always been a mandate to create a common pool since the enactment of the Act in 1997 ... The common pool is administered solely for religious purposes connected with the Hindu religion... and it will continue to be used for the same purposes.”

Did the Bill propose any other changes?

Under Section 25 of the Act, temples and religious institutions are required to form a “committee of management” consisting of nine people, including a priest, at least one member of a Scheduled Caste or Scheduled Tribe, two women, and one member of the locality of the institution. The Bill proposed to include, among the remaining four members, one person “skilled in Vishwakarma hindu temple architecture and sculpture.”

The Bill also gave the Rajya Dharmika Parishat the power to appoint the chairman of these committees. The Rajya Dharmika Parishat is a body appointed by the state government that is empowered to make decisions on a variety of subjects related to religion. This includes religious disputes over practices and customs, whether a temple is a “composite institution” by allowing religious worship besides Hinduism, whether a temple is private, public or denominational, and whether a person is a hereditary trustee of a religious institution by virtue of succession.



Finally, the Bill also required the state government to create district-level and state high-level committees to oversee infrastructural projects that can facilitate pilgrimage to temples making more than Rs 25 lakh annually.

How is temple revenue handled in other states?

Telangana's approach shares similarities with the Karnataka model. Under Section 70 of the Telangana Charitable and Hindu Religious Institutions and Endowments Act, 1987, the Commissioner in charge of administration of religious institutions can create a "Common Good Fund".

Religious institutions making more than Rs 50,000 annually are required to pay 1.5% of their annual income to the state government. After the government is repaid for expenses it has incurred under the Telangana Act, the commissioner can direct the remaining funds to the Common Good Fund. These funds are utilised for the maintenance and renovations of temples, veda-pathshalas (religious schools) and for the establishment of new temples.

Kerala employs an entirely different system, where temples are often managed by state-run Devaswom (temple) Boards.

The state has five autonomous Devaswom Boards that manage over 3,000 temples. These boards are run by nominees appointed by the ruling government, who are often politicians.

Each Devaswom Board has a budget allocated by the state government and is not required to share revenue figures. The state has also enacted separate laws for each Devaswom board (besides Travancore and Cochin which are governed by the same Act), which deal with the administration and management of temples under their aegis.

KERALA HIGH COURT UPHOLDS CASTE CRITERION QUALIFYING ONLY MALAYALA BRAHMINS FOR SABARIMALA CHIEF PRIEST POST

The Kerala High Court on Tuesday dismissed a batch of petitions challenging notifications issued by the Travancore Devaswom Board (TDB) seeking only Malayala Brahmin applicants for the post of 'melshanthi' (chief priest) at the Sabarimala temple.

A division bench of Justices Anil K Narendran and P G Ajithkumar gave the verdict on the pleas that contended that restricting the selection of the chief priest post in such a way constituted untouchability and was violative of rights guaranteed by the Constitution of India.

The TDB notifications in question called for applications to the post of chief priests in Sabarimala for Sannidhanam (the temple for the main deity, Lord Ayyappa) and Malikappuram (the goddess enshrined in a small temple nearby) with the caste criterion. The court dismissed the writ petitions, saying that they lacked proper pleadings.

"The right protected under Article 25(2)(b) of the Constitution is the right to enter a temple and worship. This right is not absolute and unlimited in character. No member of Hindu public could claim as part of the rights protected under Article 25(2)(b) that a temple must be kept open for worship at all hours of the day and night or that they could perform the services which the archakas alone could perform," the court said.

"Therefore, we find absolutely no merit in the contention of the learned counsel for the petitioners that the conditions stipulated in the notification issued by the Devaswom Commissioner that the



applicant for appointment as melshanthis at Sabarimala Devaswom and Malikappuram Devaswom shall be a Malayalee Brahmin would amount to untouchability abolished under Article 17 of the Constitution,” the court added.

A July 2021 plea before the high court, filed through advocate B G Harindranath, challenged the TDB notification, saying that it totally disregards Supreme Court judgments and Articles 14, 15, 16, 17, and 21 of the Constitution of India.

The plea said the chief priest appointment at Sabarimala had been held to be secular and should not have been confined to one particular community, especially in an institution administered by the TDB, fully controlled by the Kerala government.

Representing some of the other petitioners, advocate Dr Mohan Gopal contended that Sabarimala is for all Hindus and that the right to be a priest without a caste barrier is intrinsically linked to the right to enter and worship the temple without any discrimination based on caste.

The court said that in the absence of proper pleadings on Articles 25 and 26, there was no need to keep these writ petitions open for the larger bench of the Supreme Court to decide on the issue. “However, we make it clear that the contentions of both sides in this respect are kept open to be raised in an appropriate proceeding at an appropriate time,” the court said.

One of the petitioners, Sijith T L, told The Indian Express that he would challenge the verdict in the Supreme Court and had already started paperwork for it.

WHY HAS THE ASSAM GOVERNMENT DECIDED TO REPEAL THE STATE’S MUSLIM MARRIAGE ACT?

Following a meeting on Friday (February 23) evening, it was announced that the state Cabinet has decided to repeal the Assam Muslim Marriage and Divorce Registration Act of 1935. In the meeting, the Cabinet approved the ‘Assam Repealing Ordinance 2024’ which will repeal the 89-year-old Act.

Here’s why the state government took this step, and the political climate in which it was taken.

But first, what is the Act meant for?

Enacted in 1935, the Act lays down the process for registration of Muslim marriages and divorces. A 2010 amendment replaced the word ‘voluntary’ in the original Act with ‘compulsory’, making registration of Muslim marriages and divorces compulsory in the state of Assam.

The Act authorises the state to grant licences to “any person, being a Muslim” to register marriages and divorces, with Muslim registrars deemed to be public servants. It lays down the process through which marriage and divorce applications can be made to the registrar, and the process for their registration.

Crucially, the Act is in line with the Muslim personal law.

What is the Assam government’s rationale behind repealing the Act?

Assam Chief Minister Himanta Biswa Sarma called this decision “another significant step towards prohibiting child marriages in Assam,” stating that the Act contains provisions allowing marriage



registration even if the bride and groom have not reached the legal marriageable age of 18 and 21, respectively.

A note on the Cabinet meeting referred to it as “obsolete pre-Independence Act of the British for the then Province.” It also stated that the registration machinery in the Act is “informal” therefore “leaving a lot of scope for non-compliance of extant norms”.

Advocate Nekibur Zaman, who was part of a state government-appointed committee to examine the legality of a law to ban polygamy, stated that the Act essentially governs nikah and talaq in the state, for which the authority is a government-registered kazi. “Many kazis misuse the power, and often enable the marrying of minors and divorce without grounds,” he claimed, calling it an “outdated act.”

This decision also comes a fortnight after BJP-ruled Uttarakhand became the first state in the country to introduce a Uniform Civil Code. The Assam’s BJP government has been clear that it intends to soon do the same, and while announcing the Cabinet’s decision, minister Jayanta Malla Baruah touted repealing the Act as a significant step towards this end. He also said that after the Act’s repeal, Muslims will have to register marriages under the Special Marriage Act instead.

A district judge who did not wish to be named told The Indian Express that “as part of that process [to introduce a UCC], the state government will also have to repeal the acts that will be in contravention to it.”

Why did the state government link this decision to its crackdown on child marriages?

Last year, the Assam government had launched an unprecedented punitive crackdown against child marriages, arresting more than 4,000 and prosecuting most of them under the Protection of Children from Sexual Offences (POCSO) Act. The government has resolved to “eradicate” child marriage by 2026.

The particular provision of the Act which was the chief minister said allowed child marriage is regarding the process of making a marriage application to the registrar. It states: “... provided that if the bride and groom, or both, be minors, application shall be made on their behalf by their respective lawful guardians...”

Under Muslim personal law, the marriage of a bride who has attained puberty is considered valid. Puberty is presumed, in the absence of evidence, on turning 15 years old.

However, Zunaid Khalid, an advocate and the president of Assam Millat Foundation, disagrees about the government’s stated intent. “If the government is serious about checking child marriage, it could have amended the portion in contravention, and specified that only marriages of brides and grooms of legally marriageable age can be registered under [the Act],” he said, adding that “the fallout of complete repeal of the Act is likely to just be more unregistered marriages.”

Advocate Aman Wadud, also a member of the Congress party, echoed similar sentiments, saying that the Act allows for a simple and decentralised marriage registration process, with 94 kazis spread across the state.

“Now, if the simple process under the Muslim Marriage Act is to be replaced with the Special Marriage Act — for which the nodal office is the District Commissioner’s office, entails a one-month notice period, more robust documentation, and which is a complicated process for poor, illiterate people — the outcome is likely to simply be reduced registration,” he said.



He further added that “in the absence of authorised kazis, the field would be wide open for unregistered kazis.”

What is the political background for the Assam Cabinet’s decision?

In Uttarakhand, which has already introduced a UCC, Muslims make up 13.95 per cent of the population. In Assam, they make a much higher proportion of the population — some 34 per cent as per the 2011 Census.

A majority of this population are Muslims of Bengali-origin, and Assamese nationalist politics has been largely in opposition to them, often tagged as “illegal immigrants” from Bangladesh, with one of the central anxieties in the state being the impact of this migration on its demography.

Over the last year, the Himanta government has made a number of interventions in the realm of the family, marriages, and reproduction, which are perceived to be acting on these anxieties.

Along with its crackdown on child marriage — 62 per cent of more than 3,000 people put behind bars in the first round of arrests were Muslim — it has also capped the number of children one can have to be eligible for a new financial support scheme for rural women. The government is also working on a bill to ban polygamy, and make it a criminal offence.

Sarma has, on multiple occasions, stated that the Assam government is working towards introducing a UCC, although that the state’s tribal communities will be exempt from it.

TAKE DOWN SHOWS THAT SPREAD HATE: REGULATOR TO AAJ TAK, NEWS18 INDIA, TIMES NOW NAVBHARAT

The News Broadcasting and Digital Standards Authority (NBDSA) has ordered television news channels News18 India, Times Now Navbharat and Aaj Tak to take down videos of several shows aired in the last two years for spreading hatred and communal disharmony by “violating the code of ethics and broadcasting standards and the specific guidelines covering reportage on racial and religious harmony”. It also imposed fines on the broadcasters in some cases.

In its meeting held on February 28, the regulatory body — set up by TV news broadcasters, and currently headed by Justice (retired) A K Sikri — passed seven decisions regarding complaints about programmes aired in the last two years. It took action against the news channels based on complaints received against them.

In the case of News18 India, the NBDSA imposed a fine of Rs 50,000 for four shows it broadcast in 2022, hosted by Aman Chopra and Amish Devgan. On the shows, the anchors had said that the murder of Shraddha Walker by her live-in partner Aftab Poonawala in 2022 was connected to “love jihad”.

The “NBDSA stated that the term ‘love jihad’ should not be used loosely and should be used with great introspection in future broadcasts as religious stereotyping can corrode the secular fabric of the country, cause irreparable harm to a community and create religious intolerance or disharmony,” the order stated.

The NBDSA also imposed a fine of Rs 1 lakh on Times Now Navbharat for its show on “love jihad” aired on May 31, 2023, hosted by Himanshu Dixit.



“It appears that at the very beginning of the broadcast, the anchor has concluded that men from a certain community lured women from another community by hiding their religious identity and then committed violence or murders against such women and every such violence or murder committed on women of a certain community related to love jihad,” it said.

Reached for comment on the NBDSA order, the Times Network said, “We accept the verdict and will do all that is necessary including ensuring that there is more vigilance in story selection in future.”

In its order against Aaj Tak, NBDSA directed the channel to remove the video of a show anchored by Sudhir Chaudhary on violence during the festival of Ram Navami in 2023, saying that he targeted the entire Muslim community due to the acts of certain miscreants.

The “NBDSA observed that there would have been no problem with the broadcast if the broadcaster had confined its analysis to the incidents of communal violence,” the order stated. “However, by broadcasting the following tickers ‘today Muslim areas, tomorrow Muslim country’, a completely different colour had been given to the programme.”

On a complaint regarding a show on Aaj Tak last year (Black & White hosted by Sudhir Chaudhary) on former US President Barack Obama’s comments on the protection of minorities in India while PM Narendra Modi was on a state visit to America, the NBDSA found that apart from finding “a violation of the principles of Objectivity and Neutrality”, the broadcast had violated the Specific Guidelines for Anchors, which stated that “all programmes must be presented in an impartial, objective and neutral manner”.

By using words “Tukde Tukde Gang”, “Khalistani in Punjab” and “Pakistani supporters”, instead of confining its discussion to Obama’s statement, the broadcaster had failed to present a controversial issue with sensitivity and objectivity, the order stated.

The channel was slapped with a fine of Rs 75,000 and advised to ensure that “in future broadcasts, controversial subjects are fairly presented with strict adherence to the principles of Neutrality, Impartiality and Objectivity in the broadcast”. It was also directed to remove the video of the show.

A legal representative of the India Today Group, said, “Even though we are disappointed by the order, we respect the decision by the regulatory body and will follow it.”

Another grievance was about a programme aired by India Today titled ‘Nudity sparks outrage at USA pride parades – How India’s LGBTQ+ lead Responsibly’, on which NBDSA held that using visuals and images totally out of context, which were not part of the incident covered was a violation of the principle of accuracy. Apart from following the Code of Ethics & Broadcasting Standards and Guidelines, members were also circulated a set of guidelines for broadcasting on issues concerning the LGBTQIA+ community, for “strict compliance”.

Meanwhile, the NBDSA, in its decision on the complaint filed by Youth Congress president Srinivas B V on a “fictional video” aired in the Black and White episode on Aaj Tak in March 24 last year, a day after a Surat court convicted Congress leader Rahul Gandhi of defamation for a 2019 speech about thieves with the surname Modi, said the “story of the robber and the imputation it carried” with Gandhi’s conviction was “not in good taste” and “should have been avoided”. The NBDSA also advised the channel to be “careful while airing such fictional videos” in future.

Representatives of News18 India did not respond to messages for comment on the order.



EXPRESS VIEW ON 'LOVE JIHAD' IN KOTA: LEAVE THE KIDS ALONE

A three-act tragedy unfolding in the Government Senior Secondary School in Rajasthan's Kota, where a sarva dharma sadbhav natak, a registration error and an interfaith elopement by a former student have snowballed into familiar fear-mongering over "love jihad" and religious conversion, shows, yet again, the dangers of bringing divisive politics into classrooms. The events have led to the suspension of the school's three Muslim teachers on charges of abetment. Clips of the play held on Republic Day have been circulated as evidence of the school's allegedly nefarious intent.

The state's school education minister, who ordered the suspension, has promised stricter action if the charges are proven true. In recent days, minister Madan Dilawar has also made controversial statements on Mughal emperor Akbar and his place in Indian history.

The heavy-handed response of the state machinery shows that when the system becomes complicit, by commission or omission, in conspiracy theories or rumour-mongering, it makes vulnerable the precious space of the classroom. Last year, the minority-run Ganga Jamuna Higher Secondary School in Madhya Pradesh's Damoh faced the government's wrath for the Iqbal song, 'Bachche ki Dua', sung in its morning prayer, and for a poster that celebrated the academic success of its students — a majority of them from disadvantaged backgrounds — in which they were shown wearing head scarves.

The school was derecognised, its principal arrested, throwing into jeopardy the future of its nearly 1,200 students. Such actions cede ground to the bigotry of individuals: The video of a teacher from a school in UP's Muzaffarnagar instructing students to hit a Muslim classmate as punishment for academic shortcoming or a Muslim teacher in a government higher secondary school in Kathua assaulting a student for writing "Jai Shri Ram" on the blackboard show the pernicious reach of prejudice.

There is a reason why classrooms are held sacrosanct across cultures. These are spaces where the inequities of the world can be diminished and the jagged edges of political and communal schisms softened through debates and discussions. A large part of the learning in classrooms relies not merely on the curriculum but on the inclusivity that these spaces foster. At a time of heightened political polarisation, these are spaces that need to be kept safe and open. It is heartening that after the suspensions, students of the school have organised protests demanding the return of their teachers.

The school administration and the local Education Department officials have refuted the accusations. They need to be heard. It's also incumbent on civil society to offer a pushback and the responsibility of the political leadership to send out a message that prejudice has no place in the classroom.

ALMOST ALL VICTIMS OF MOB LYNCHING, 'BULLDOZER CULTURE' ARE PASMANDA MUSLIMS, SAYS REPORT

The All India Pasmanda Muslim Mahaz (AIPMM), an organisation working for backward Muslims, released a report based on the Bihar caste survey on Tuesday, while demanding that the Centre bring in a stringent law against mob lynching and check "bulldozer culture" against the accused in a crime, claiming that almost all the victims of both such excesses belong to the Pasmanda community.



The report, which was released in Delhi, also seeks reservation for Pasmada Muslims in private sectors, given their poor socio-economic conditions.

While the BJP, led by Prime Minister Narendra Modi, has been wooing Pasmada Muslims in a strategic move, given that the larger Muslim community remains alienated with the party, the AIPMM report is equally critical of both the party and AIMIM. "We consider the politics of the RSS, BJP and AIMIM to be complementary to each other," says the report.

The AIPMM report 'Bihar Caste Survey 2022-2023 and Pasmada Agenda' says: "Ninety-five per cent of the victims of mob lynching and excesses by government bulldozers belong to the Pasmada community. Our demand is that a strict law be made against this. The Collector and SP of the district where such an incident occurs should be made accountable for it. In such incidents, compensation should be given to the family of the deceased and a government job should be given to a person from that family."

The report also sets an agenda for the 2024 Lok Sabha elections, including a demand for "reservation in private sectors".

Criticising the BJP and AIMIM, the report says "our ancestors" had protested in the thousands against both Mohammad Ali Jinnah's push for two States and V D Savarkar's Hindu Rashtra vision. "The Pasmada Mahaz has been working with the same spirit for the last 25 years," the report says.

The Bihar caste survey report reveals that Pasmada Muslims (EBC plus OBC) face socio-economic and educational challenges. Only 0.34% of Pasmada Muslims have ITI or similar diplomas, 0.13% have bachelor of engineering degrees, and 2.55% are Arts/Science/Commerce graduates. Possession of computers, laptops, or vehicles is also limited among Pasmada Muslims. The report advocates for a national caste census, extension of SC quota to Dalit Muslims and Dalit Christians, and ST status for tribes like Mewati, Bangurjar, Madari, and Sapera. Pasmadas constitute 72.52% of the Muslim population in Bihar.

STRENGTH VS REASON

The legitimacy of any demand for a change in public policy lies in the rationale behind it and not in the strength in support for it. There is a reason why even after States have bowed down to popular demands for reservation to social groups which were not considered backward earlier, their actions have been reversed or nullified by the higher judiciary. This has been true of previous pieces of legislation passed by the Maharashtra government to grant reservation to the Maratha community. Yet, the community's political dominance is evident in the fact that the State Assembly unanimously passed a Bill on February 20, granting Marathas 10% reservation in education and government jobs. This is the third time in a decade that such legislation for the community has been passed; earlier, there was the Socially and Educationally Backward Classes Act, 2018 under the Bharatiya Janata Party-Shiv Sena-led coalition. The two pieces of legislation are similar, but the current Bill is based on a report by the Maharashtra State Backward Class Commission, which expands the total quota for reservations to 72% with the inclusion of 10% for Marathas after the application of a "creamy layer" criterion. This also includes 10% reservation for "Economically Weaker Sections" focusing on the poor among the Maratha community.

It is understandable why the political class in Maharashtra has chosen the easier, even if legally dubious, path of expanding the reservation pie. The other alternative of treating Marathas as a



backward class community and providing reservations from within the 19% quota for OBCs was always going to be a problem with OBC groups expressing opposition. But the legislation is bound to face problems if and when it is challenged in the Supreme Court. The top court had struck down the 2018 Act in May 2021 by citing the Indra Sawhney judgment (1992) that limited reservations to 50% and also held that only the Union government is empowered to identify socially and educationally backward classes to include them in the central list to avail reservations. Yet, the Court's November 2022 judgment upholding the 10% quota for EWS, over and beyond the 50% limit, has opened a Pandora's box. The vagaries of addressing demands of politically dominant groups such as the Marathas, which have stratifications due to significant intra-community variations in terms of income and educational outcomes, suggest a case for a comprehensive socio-economic census alongside the delayed decennial Census. Such a census will establish the true nature of backwardness and discrimination across States and could even clarify a new means of providing affirmative action based on the data while staying true to principles of social justice.

AN EXTRA BERTH

The Bharatiya Janata Party (BJP) won 30 of the 56 Rajya Sabha seats which are set to fall vacant in April, from 15 States, with the results announced on February 27. The party won two more seats than what its numbers in the State Assemblies would have allowed, by brazenly engineering cross voting by legislators from the Samajwadi Party in Uttar Pradesh and the Congress in Himachal Pradesh. One BJP MLA in Karnataka crossed over to the Congress side. With six MLAs lost to the BJP, who have since been disqualified by the Speaker of the Assembly, the Congress government in Himachal Pradesh is tottering on the edge. Abhishek Manu Singhvi of the Congress and Harsh Mahajan of the BJP got 34 votes each and Mr. Mahajan was declared winner through lots. The Rajya Sabha polls brought the disenchantment within the Congress with Chief Minister Sukhvinder Singh Sukhu out to the fore. Vikramaditya Singh, a rebel Minister, announced his resignation, only to retract his statement. The Congress is making efforts to save its government, but the crisis is far from over. In Uttar Pradesh, seven Samajwadi Party legislators voted for the BJP, leading to the party winning an additional seat. It is not the first time that the BJP has fished in troubled waters to gain an extra berth in the Rajya Sabha. In 2017, Congress strategist Ahmed Patel managed to win by a whisker in Gujarat; and in 2020, the rebellion against the Ashok Gehlot government in Rajasthan happened on the eve of elections to the Upper House.

The BJP now has 97 members in the Upper House, and, along with the allies, is just four short of the majority mark of 121 in the Rajya Sabha, where the current strength is 240. While successive victories in the State elections have helped the BJP improve its position, growing from 78 members in 2019 to 97 at the end of the five years, the party has never shied away from pushing the boundaries of normative politics to increase its strength. The gap between the BJP, the single largest party in the Rajya Sabha, and the Congress, which has just 29 members, is far too wide to be bridged any time soon. The other Opposition parties too have only a limited presence with the Trinamool Congress at 13, the Dravida Munnetra Kazhagam and the Aam Aadmi Party with 10 each, the Rashtriya Janata Dal with six and the Communist Party of India (M) with five. In past parliamentary sessions, the Opposition members were frequently suspended whenever they sought to question the government, making Parliament a theatre of the government's unilateralism.



ON CROSS-VOTING IN RAJYA SABHA ELECTIONS

The story so far:

The Rajya Sabha elections in the States of Uttar Pradesh, Himachal Pradesh and Karnataka witnessed cross-voting by MLAs belonging to different parties. This has once again raised concerns about the sanctity of the election process.

How are Rajya Sabha elections held?

As per Article 80 of the Constitution, representatives of each State to the Rajya Sabha are elected indirectly by the elected members of their Legislative Assembly. The polls for Rajya Sabha will be required only if the number of candidates exceed the number of vacancies. In fact, till 1998, the outcome of Rajya Sabha elections were usually a foregone conclusion. The candidates nominated by various parties, according to their strength in the Assembly, used to be elected unopposed. However, the June 1998 Rajya Sabha elections in Maharashtra witnessed cross-voting that resulted in the loss of a Congress party candidate.

In order to rein in the MLAs from such cross-voting, an amendment to the Representation of the People Act, 1951 was carried out in 2003. Section 59 of the Act was amended to provide that the voting in elections to Rajya Sabha shall be through an open ballot. The MLAs of political parties are required to show their ballot paper to the authorised agent of their Party. Not showing the ballot paper to the authorised agent or showing it to anyone else will disqualify the vote. Independent MLAs are barred from showing their ballots to anyone.

What does the Tenth Schedule state?

The 52nd constitutional amendment introduced the 'anti-defection' law through the Tenth Schedule in 1985. This Schedule provides that a member of a House of Parliament or State legislature who voluntarily gives up the membership of their political party or votes against the instructions of their party in a House are liable for disqualification from such House. This instruction with respect to voting is issued by the 'whip' of a party.

However, the elections to Rajya Sabha are not treated as a proceeding within the Legislative Assembly. The Election Commission, drawing reference to Supreme Court judgments, had issued a clarification in July 2017. It specified that the provisions of the Tenth Schedule, with respect to voting against the instruction of the party, will not be applicable for a Rajya Sabha election. Furthermore, political parties cannot issue any 'whip' to its members for such elections.

What have the courts ruled?

The Supreme Court in *Kuldip Nayar versus Union of India* (2006), upheld the system of open ballot for Rajya Sabha elections. It reasoned that if secrecy becomes a source for corruption, then transparency has the capacity to remove it. However, in the same case the court held that an elected MLA of a political party would not face disqualification under the Tenth Schedule for voting against their party candidate. He/she may at the most attract disciplinary action from their political party. The Supreme Court has also held in *Ravi S. Naik and Sanjay Bandekar versus Union of India* (1994), that voluntarily giving up membership under the Tenth Schedule is not synonymous with only formally resigning from the party to which the member belongs. The conduct of a member both inside and outside the house can be looked into to infer if it qualifies as voluntarily giving up membership.



It may be noted that the six Congress MLAs, who cross-voted in Himachal Pradesh, have been disqualified under the Tenth Schedule for defying the party whip and being absent during the passage of the Budget in the Assembly.

What can be the way forward?

It is to uphold the higher principle of free and fair elections and its purity that the court upheld the system of open ballot to Rajya Sabha elections. However, the instances of cross-voting in the last decade have defeated the intent behind this procedure. It would be wishful thinking to expect any further amendments to strengthen the Constitution or laws against such voting practices since ruling parties' benefit from such unprincipled tactics.

The Supreme Court nevertheless in the case relating to the Chandigarh Mayoral election had observed that it will not allow democracy to be murdered. Cross-voting in Rajya Sabha elections is a serious threat to democracy. The court may therefore initiate a suo moto Public Interest Litigation in this matter or take it up when the order by the Himachal Pradesh Speaker disqualifying the six MLAs eventually comes up before it on appeal. It may, in that process, review its own order in the Kuldip Nayar case in light of its judgment in the Ravi Naik case.

Voting by an MLA against his/her political party in a Rajya Sabha election may well be construed as a strong reason to infer that the member had voluntarily given up membership of such party. If the court decides so, this would be a valid ground for disqualification under the Tenth Schedule. It would hopefully act as a deterrent against such cross-voting in the future.

DON'T MAKE APPEAL ON BASIS OF CASTE, RELIGION, EC TELLS PARTIES

Ahead of the upcoming Lok Sabha election, the Election Commission (EC) has directed political parties, especially star campaigners, to maintain decorum while campaigning and refrain from making appeals on the basis of caste or communal politics or make false statements, which can mislead voters.

In an advisory issued to all political parties on Friday, the EC cited previous examples of such indirect violations using known methodologies to avoid strictures under the model code of conduct (MCC), and conveyed that "stern action would be taken against direct or indirect MCC violations". The advisory comes days before the schedule for elections to the Lok Sabha and four State Assemblies is expected. The MCC comes into effect with the announcement of the poll dates.

The EC said in the advisory that political parties, candidates and star campaigners should not make any appeal on the basis of caste or communal feelings of the electors. No activity, which may aggravate existing differences or create mutual hatred or cause tension between different castes or communities, religious and linguistic groups, should be attempted. "The political parties and leaders shall not make false statements and utterances without factual basis aimed at misleading the voters. Criticism of other parties or their workers on the basis of unverified allegations or on distortions shall be avoided," the advisory further said.

It said that no aspect of the private life, not connected with the public activities, of the leaders or workers of other parties is to be criticised.

Low-level personal attacks to insult the rivals shall not be made. It also warned the parties against giving advertisements masquerading as news items in the media.



VULNERABLE TO CRITICISM

The structure of the law against money laundering is bound to throw up perplexing questions about the possible violation of federal principles. One such question has arisen in Tamil Nadu, where the Enforcement Directorate (ED) is trying to find out whether illegal sand mining in the State is due to corruption and if the “proceeds” are being laundered. The Prevention of Money Laundering Act (PMLA) allows the ED to probe the money laundering aspect of crimes registered by the police in various States. Allegations of rampant illegal sand mining, either by extraction in excess of permitted limits or without any permission, are quite common in Tamil Nadu. In ruling that District Collectors are obliged to respond to summonses issued by the ED, the Supreme Court of India has underscored Tamil Nadu’s duty to cooperate with investigations under central laws. However, this may not necessarily mean that the ED’s attempt to assess the likely loss to the exchequer as a result of unchecked mining is within its jurisdiction. A final determination may be required on this. The top court has stayed the operation of a Madras High Court order, which had earlier stayed the summonses to the Collectors. The State government and the District Collectors concerned had filed writ petitions in the High Court against the “usurpation” of the State’s powers by the central agency and the validity of the summonses.

The Court has now described these petitions as thoroughly misconceived and that the High Court’s order was due to “utter misconception of law”. It has cited Section 50 of PMLA on the ED’s power to summon any person to give evidence or produce any record necessary for the investigation. It has noted that the probe is based on first information reports registered in Tamil Nadu, and some of the sections in those cases were scheduled offences under the PMLA. However, it does not take into account the High Court’s reasoning, based on the Court’s verdict upholding the PMLA in *Vijay Madanlal Choudhary vs Union of India (2022)*, that the summonses indicated that the “proceeds of crime” have not been identified at all, and that the probe was nothing more than a “fishing expedition” to find out whether any scheduled offence has been committed. The High Court had cited the 2022 judgment on the point that the ED cannot pursue cases on a notional basis, on the assumption that an offence has been committed. While asking officials to cooperate with an investigation is unobjectionable in itself, it cannot be forgotten that the ED’s low credibility and obvious lack of independence make its actions vulnerable to the criticism of being biased against States ruled by the political adversaries of those in power at the Centre.

WHY MAHARASHTRA IS EXEMPTING PRIVATE SCHOOLS FROM RTE QUOTA ADMISSIONS

A key aspect of The Right Of Children To Free And Compulsory Education Act, 2009 (RTE Act) is the obligation placed on private schools to ensure that 25 per cent of Class 1 students admitted must belong to “weaker section and disadvantaged group in the neighbourhood”. Students admitted under this quota are given fee concessions, with the state government meant to reimburse private schools for the same.

Maharashtra, on February 9, became just the latest state to have passed rules under the RTE Act to dilute this obligation. Here is why.

But first, what exactly does the new rule state?

The new rule states that the “local authority shall not identify the private unaided school, for the purposes of 25 per cent admission of disadvantaged group and weaker section under the Maharashtra Right of Children to Free and Compulsory Education Rules, 2013, where government schools and aided schools are situated within one-kilometre radius of that school.”



This means that private schools within a 1 km radius of a government or government-aided school (which receives money from the government) will no longer have to observe the 25% requirement. Instead, students in these neighbourhoods will be considered for admission into said government or aided schools first.

This exemption would also apply to private schools established in the future, as long as they are built within a 1 km radius of a government or aided school. In case there are no government or aided schools in the vicinity, the notification states that private schools will be identified for RTE admissions.

With this new rule, Maharashtra has joined Karnataka and Kerala as states that have imposed this new regime to exempt private schools from providing RTE admissions.

Karnataka introduced the rule in December 2018, and specifically referenced the Kerala rules which were introduced in 2011. In Kerala, the fee concession for students is only made available to RTE quota students if there are no government or aided schools “within walking distance”, which is 1 km for students joining in Class 1.

Why have states introduced such exemptions?

In Karnataka, when the rule was introduced in 2018, the state law minister Krishna Byregowda said: “The primary intention of RTE is to provide education to all classes of students... Till date, Karnataka had allowed parents to admit children in private schools despite having government schools in the same neighbourhood. This has resulted in the enrollment ratio [in government schools] dropping drastically.”

Private schools and teachers’ organisations have also highlighted that state governments have also often failed to reimburse the fees for students admitted through this quota. According to Section 12(2) of the RTE Act, state governments are bound to reimburse expenses incurred by the school per-child, or the fee amount, whichever is less.

In Maharashtra, the Maharashtra English School Trustees Association (MESTA) threatened to boycott RTE admissions last December citing pending payments of Rs. 1800 crore in reimbursements. This figure has now risen to Rs. 2000 crore as reported by The Indian Express.

“It is their own compulsion now, rather than our demand,” S C Kedia, the secretary of the Unaided Schools Forum, stated regarding the implementation of the rule.

How has the new rule been received?

This issue has invited polarising responses. On one hand, private unaided schools have welcomed the new rules.

“This is a good decision and we welcome it. The number of RTE admissions in private schools will considerably reduce... the number of students in government schools will also increase,” Rajendra Chorge, the vice president of the Independent English Schools’ Association in Maharashtra, had previously told The Indian Express.

Others, however, have been highly critical. Shantha Sinha, a member of the sub-committee of the Central Advisory Board of Education which played a crucial role in drafting the RTE Act, spoke to The Indian Express on the matter.



“Section 12(1)(C) of the RTE Act that mandates 25 per cent reservation of seats to children from disadvantaged backgrounds is in the direction of contesting the education apartheid in the country, and bringing parity and equality of opportunity for all children. Maharashtra government’s amendment is unjustified” Sinha said.

Similarly, Matin Mujawar, a Pune-based RTE activist, said that “one of the intentions of this law was to enable students from marginalised backgrounds to get education in good schools”. He said: “The small window through which some disadvantaged students got to access good education in private schools is now being effectively closed.”

BENGALURU BOMB BLAST: WHAT ARE IMPROVISED EXPLOSIVE DEVICES, OR IEDS?

At least nine people were injured after an explosion at the bustling Rameshwaram Cafe in Bengaluru’s Whitefield area on Friday (March 1), possibly by an improvised explosive device (IED)

Ruling out a gas leak, Karnataka Chief Minister Siddaramaiah said that CCTV footage has revealed that a “man was seen keeping a bag in the cafe.” He added: “It is not a high-intensity blast but an improvised one.”

What are IEDs?

A home-made bomb

An IED is basically a home-made bomb. According to a factsheet by the United States Department of Homeland Security, “because they are improvised, IEDs can come in many forms, ranging from a small pipe bomb to a sophisticated device capable of causing massive damage and loss of life.”

IEDs can be deployed using a vehicle, carried, placed, or thrown by a person, delivered in a package, or concealed on the roadside. While they have been in use for over a century, the term “IED” first entered common usage during the United States’ Iraq invasion (beginning in 2003), where such bombs were commonly used against US forces.

Components of an IED

Each IED comprises a few basic components, which can come in various forms, depending on resources available to the bomb-maker. These include an initiator or a triggering mechanism, (which sets the explosion off), a switch (which arms the explosive), a main charge (which causes the explosion), a power source (since most IEDs contain an electric initiator, they require an electronic power source), and a container.

Additionally, IEDs may be packed with additional materials or “enhancements” such as nails, glass, or metal fragments designed to increase the amount of shrapnel released by the explosion — and thus the damage it causes. Enhancement may also include hazardous materials such as toxic chemicals, or radio-active circumstances — an IED packed with, say, depleted Uranium will be colloquially called a “dirty bomb”.

Some common materials used to build IEDs include fertilisers such as ammonium nitrate and urea nitrate, gunpowder, and hydrogen peroxide. The reasons why passengers are not allowed to carry beyond a certain quantity of liquids aboard commercial aircraft is the possibility of creating IEDs on site by mixing some commonly available liquids.



The damage IEDs cause

IEDs are not simply used to kill and injure — they have often, especially in active war zones, been used as distractions. According to the US Department of Homeland Security, “the extent of damage caused by an IED depends on its size, construction, and placement, and whether it incorporates a high explosive or propellant.”

Typically, IEDs come with a very clear trade-off. While smaller bombs are easier to hide, carry, and deploy, they are also generally much less damaging than larger ones, especially ones deployed using vehicles.

Some notable instances of IEDs being used in the past include the 1993 Mumbai serial blasts, the 2008 Jaipur blasts, the 2006 Jama Masjid bombings, and the 2013 Bodh Gaya bombings. IEDs have also been commonly used by Maoist insurgents, and Kashmiri militants.

J&K RAIL PROJECTS LAUNCHED BY PM TO BRING ALL-WEATHER CONNECTIVITY TO MORE VILLAGES, DRAWS PRAISE FROM FAROOQ

Prime Minister Narendra Modi on Tuesday inaugurated the Banihal-Sangaldan section of the railway line that, when completed, will connect Baramulla in North Kashmir to Udhampur in Jammu. He also flagged off Kashmir’s first electric train, which will run between Baramulla and Sangaldan.

The 48-kilometre line between Banihal and Sangaldan – both in J&K’s Ramban district – features a total of 16 bridges. According to Northern Railway PRO Rajesh Share, more than 90 per cent of this section is through tunnels, including T-50 – the country’s longest transportation tunnel stretching 12.77 km between Khari and Sumber.

The extension of the Baramulla-Srinagar-Banihal railway line to Sangaldan will provide all-weather connectivity to villages and towns in the vicinity of Sangaldan, Sumber and Khari, improving access to remote areas of the Ramban district.

The J&K administration expects that the line, constructed at a cost of Rs 15,863 crore, will also promote regional development by facilitating access to markets, health and educational services, while reducing travel time for residents in these areas.

The entire 185-km stretch, between Baramulla and Sangaldan, has been electrified at a cost of Rs 470 crore. The PM on Tuesday flagged off Kashmir’s first electric train service on this stretch, which covers 19 stations.

BURDEN OF POWER

Prasanth Balakrishnan Nair, Ajit Krishnan, Angad Pratap and Shubhanshu Shukla — these Air Force pilots constitute the final shortlist of candidates from among whom India’s astronauts for its human spaceflight mission, a.k.a. Gaganyaan, will be selected. The announcement, by Prime Minister Narendra Modi during an official visit to Kerala, fills the last real unknown about the ambitious mission, which aims to send an Indian crew to low-earth orbit onboard an Indian rocket. The Indian Space Research Organisation (ISRO) has signalled that, setting aside the risk of unexpected delays, it expects to conduct two test flights of the human-rated Launch Vehicle Mark-3 rocket in 2024 and 2025 and the crewed launch in 2025. The Union Cabinet approved Gaganyaan in 2018 at a cost of ₹10,000 crore. Since then, the ISRO centres and their collaborators

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



in industry and academia have worked to bring the mission's various components together while also negotiating delays due to the COVID-19 pandemic and ISRO's commercial commitments. Now, with the astronauts' names in the open, India is truly in the last mile.

It would be naive to believe an undertaking of this scale can be completely free of political capture, but Gaganyaan cannot be altogether politically motivated either. Among other things, the Indian Space Policy 2023 requires ISRO to “carry out applied research and development of newer systems so as to maintain India's edge in ... human spaceflight” and to “... develop a long term road-map for sustained human presence in space”. ISRO has also flown a bevy of technological, research, and commercial missions with sufficient support from the Centre to render them immune to political accountability, and Gaganyaan has been no different. But going ahead, it should be different, with justification that is amenable to public scrutiny and debate while seeding a culture of space exploration that is truly democratic, rather than being motivated seemingly by geopolitical aspirations. Similarly, while a road map is being set — accommodating Mr. Modi's “directive” to ISRO to land an Indian on the moon by 2040 — the endeavour must be to give Gaganyans present and future an identity rooted less in “India's edge”, which when maintained for its own sake becomes a vacuous thing, and more in the fundamental act of creating new scientific and societal value. Other countries, including China, may be technologically ahead, but India must keep the focus on scientific exploration and expanding human horizons, and not on achieving some ‘space superpower’ status.

AHEAD OF GAGANYAAN, ISRO'S CE-20 ENGINE ALREADY HAS A NOTABLE LEGACY

On February 21, the Indian Space Research Organisation (ISRO) reported it had successfully completed human-rating the CE-20 rocket engine ahead of its use in an important test flight later this year of the country's mission to launch an Indian astronaut to space onboard an Indian rocket. The CE-20 is an indigenous cryogenic engine ISRO developed to use with the GSLV Mk III, now called the LVM-3, launch vehicle. It represents an improvement on the CE-7.5 cryogenic engine and is instrumental to ISRO successfully realising its human spaceflight, a.k.a. Gaganyaan, mission.

Engineers prefer to use liquid fuels for rocket motors because they are less bulky and flow better than solid fuels. Using hydrogen as fuel is also desirable because when it is combusted, it generates the highest exhaust velocity. For example, combusting hydrogen with oxygen as the oxidiser results in an exhaust velocity of 4.5 km/s whereas that produced by unsymmetrical dimethylhydrazine and nitrogen tetroxide — the combination used by the second stage of the PSLV rocket, e.g. — is around 3.4 km/s. This is why hydrogen is a desirable fuel for rocket motors.

A tale of three engines

However, hydrogen in liquid form is not well-behaved: it needs to be maintained at -253 degrees C (and the liquid oxygen at -184 degrees C) and leaks very easily. Engineers need special equipment to store and transport liquid hydrogen and special engines that can use it to power a rocket. These are cryogenic engines.

ISRO has used three cryogenic engines over the years: KVD-1, CE-7.5, and CE-20. The last two are India-made, although the design of the CE-7.5 is based on the KVD-1, which Russia (as the Soviet Union) supplied to India in the early 1980s. The GSLV Mk II launch vehicle uses CE-7.5 engines to power the third stage of its ascent.



The operation of a cryogenic engine requires a cryopump, a device to trap and cool the hydrogen and oxygen to liquid form; special storage tanks; and turbopumps to move the cooled fuel and oxidiser to the engine. The CE-7.5 engine uses the staged-combustion cycle. Here, a small amount of the fuel is combusted in a pre-burner. The resulting heat is used to drive the turbine that powers the turbopump. Once the turbopump has brought the rest of the fuel and oxidiser to the combustion chamber, the hydrogen is combusted to power the main engine plus two vernier thrusters — smaller engines that tweak the rocket's speed and orientation once it's in flight. The exhaust from the pre-burner is also routed to the combustion chamber.

The CE-20 engine uses the gas-generator cycle, which discards the exhaust from the pre-burner instead of sending it to the combustion chamber. This reduces fuel efficiency but, importantly for ISRO, makes the CE-20 engine easier to build and test. ISRO has also dropped its vernier thrusters in favour of allowing the engine's nozzle to make small rotations — or gimbal — to adjust the rocket's flight path. As a result, while the CE-7.5 engine is lighter and sports higher fuel-use efficiency, the CE-20 engine achieves a higher maximum thrust (~200 kilonewton v. 73.5 kilonewton) with a shorter burn duration.

PM MODI LAUNCHES HYDROGEN-POWERED FERRY: FEATURES, SIGNIFICANCE

Prime Minister Narendra Modi Wednesday virtually launched India's first indigenously developed hydrogen fuel cell ferry. The vessel, manufactured by Cochin Shipyard Limited (CSL), will be deployed for service at Varanasi in Uttar Pradesh.

Built at a cost of Rs 18 crore, the ferry will be handed over to the Inland Waterways Authority of India by the CSL after rigorous trials. The Ministry of Ports, Shipping and Waterways met 75 per cent of the project cost.

What are the special features of the vessel?

The Hydrogen fuel cell vessel is a 24-meter-long catamaran, which can carry 50 people in its air-conditioned passenger area. The accommodation area has been constructed with high-quality fiberglass reinforced plastic, similar to metro train coaches.

Hydrogen fuel cell vessels do not use conventional batteries as the primary storage house of electrical energy. The vessels run on hydrogen fuel, which is stored in cylinders. This boat has five hydrogen cylinders that can carry 40kg of hydrogen and support eight hours of operations. The vessel is also fitted with a 3-kW solar panel.

The hydrogen fuel cell-powered vessel has zero emission, zero noise and is energy-efficient, which makes it more environment-friendly. Since there are no moving parts, the ferry requires less maintenance than combustion vessels.

How do hydrogen fuel cells work?

A hydrogen fuel cell generates electricity by utilising the chemical energy contained in hydrogen. It releases only pure water, not discharging pollutants. Hydrogen is loaded into cells. The energy within the hydrogen is converted into electricity and heat, which is then used to power the vessel's propulsion mechanism. In the fuel cell, the hydrogen reacts with the oxygen in the air to produce electricity. Unlike batteries, hydrogen fuel cells do not require recharging. Provided uninterrupted supply of fuel and oxygen, these cells would work continuously.



What type of cells have been used in the vessel?

This vessel uses a 50-kW PEM (proton-exchange membrane) fuel cell, with Lithium-Ion Phosphate batteries. The advantage is that the cells can quickly change their output depending upon the power demand. PEM fuel cells are popular in automotive applications because they operate at a lower temperature, and are lighter and more compact.

How was it developed?

India has now indigenously developed hydrogen fuel cells and their related systems.

The vessel has been built completely by the CSL, which also developed the vessel automation system and power management system. The hydrogen fuel cell system was developed by KPIT Technologies, Pune, in collaboration with the Council of Scientific and Industrial Research Labs, under the Union Ministry of Science and Technology.

While hydrogen fuel cell technology has been under development for maritime applications, only a few countries globally have done demonstration projects. This ferry, thus, has given India an early mover advantage to tap the potential of hydrogen as an emerging green fuel in the marine sector.

The 'Harit Nauka' (green boat) initiative of the Ministry of Ports, Shipping and Waterways envisages a green transition of inland vessels. In line with this, the ferry can be replicated in other parts of the country for urban mobility. It is also a boost to the National Green Hydrogen Mission.

What is the Harit Nauka initiative?

In January 2024, the shipping ministry unveiled the Harit Nauka guidelines for inland vessels. As per the guidelines, all states have to make efforts to use green fuels for 50 per cent of inland waterways-based passenger fleets in the next one decade, and 100 per cent by 2045. This is to reduce greenhouse gas emissions as per the Maritime Amrit Kaal Vision 2047.

Globally, the shipping industry is increasingly transitioning to green fuels due to environmental regulations, sustainability goals, and advancements in green fuel technologies. Hydrogen and its derivatives are gaining attention for promising zero-emission fuels for the industry.

WHY SCIENCE NEEDS SUSTAINABLE FUNDING

The story so far:

The 2024 theme for National Science Day, which India celebrates every year on February 28, is "Science for Sustainable Development". Science and technological developments are key drivers of India's journey towards becoming a developed country by 2047. India is committed to making this progress through sustainable means, as evidenced by its commitments under the Paris Agreement, participation in global fora for sustainable development, and reinforced in this year's theme for Science Day. The role of science in driving sustainable development doesn't need emphasis, but any conversation on science is incomplete without setting one key expectation — for science to transform India, it has to be sustainably and consistently funded.

How much is India spending on research and development?



Funding for fundamental research in India is amongst the world's lowest, particularly for a country with high science and technology ambitions. In the recent past, India's research and development (R&D) expenditure has dropped to the current 0.64% of GDP from 0.8% in 2008-2009 and 0.7% in 2017-2018. This reduced expenditure is worrying considering government agencies themselves have issued several calls to double this spending.

The 2013 Science, Technology, and Innovation Policy noted that "Increasing Gross Expenditure on R&D (GERD) to 2% GDP has been a national goal for some time". The 2017-2018 Economic Survey reiterated this in its chapter on science and technology transformation. The reasons for the reduction in R&D spending despite the government being cognisant of the need to increase it are not clear, but may stem from a lack of coordination between government agencies and a need for stronger political will to prioritise R&D expenses.

Most developed countries spend between 2% and 4% of their respective GDPs on R&D. In 2021, member-countries of the Organisation for Economic Co-operation and Development (OECD) on average spent 2.7% of their GDP on R&D. The U.S. and the U.K. have consistently spent more than 2% of their GDPs on R&D for the past decade. Many experts have called for India to spend at least 1%, but ideally 3%, of its GDP every year until 2047 on R&D for science to have a meaningful impact on development.

How can India improve its R&D spending?

Science requires consistent, large-scale investment to bear fruit. For India to reach the 'developed nation' status, it needs to spend more to scale R&D than developed countries spend to maintain that status. This is the foundation of the demand to spend at least 3% of the GDP on R&D annually until 2047.

And beyond the current spending being inadequate, its primary dependence on public money signals an immature financing system and weak domestic market. In 2020-2021, the private sector industry contributed 36.4% of the GERD whereas the Union government's share was 43.7%. State governments (6.7%), higher education (8.8%), and the public sector industry (4.4%) were the other major contributors.

In economically developed countries, a major share — 70% on average — of R&D investment comes from the private sector. The hesitancy of private-sector funding may be because of the poor capacity to evaluate R&D in India, ambiguous regulatory roadmaps that can deter investors, lack of clear exit options for investors in sectors such as biotechnology, and fears of intellectual property rights theft.

While the Anusandhan National Research Foundation was meant to solve some of the financial issues, its implementation has been delayed. The ₹2,000 crore annual budget the government earmarked for its implementation in the last budget was revised to ₹258 crore this year. Strategies for how the remaining budget of ₹7,200 crore from the private sector is to be raised have not been clarified yet. Thus, there is a perceived need to determine the overall quantum of R&D funding and its primary sources, given India's ambition to be a developed country by 2047.

How is the R&D budget utilised?

While the need for India to at least double its R&D investment has been expressed several times, the question of how effectively the allocated money is spent is explored less often. The Union Ministry of Science and Technology has consistently under-utilised its budget. So, while the calls



for increased funding — through both government and private sources — are legitimate, a strengthened budget utilisation is also required to affect science outcomes.

In 2022-2023, the Department of Biotechnology (DBT) used 72% of its estimated budget allocation on centrally sponsored schemes/projects while the Department of Science and Technology (DST) used only 61%. The Department of Scientific and Industrial Research (DSIR), which receives the lowest allocation for centrally sponsored schemes, spent 69% of its allocation.

Such underutilisation is not a one-time error but has been consistently recorded over several years to varying degrees. The phenomenon is also not specific to the Science Ministry; given that India generally under-spends on R&D, there will likely be a major impact if the allocated funds are spent optimally. The reasons for under-utilisation, as with under-allocation, are unclear and may indicate tedious bureaucratic processes for approving disbursements, lack of capacity to evaluate projects or clear utilisation certificates, lack of prioritisation for science funding by the Ministry of Finance or inadequate planning or implementation strategy for the requested funds by the Ministry of Science and Technology.

The lack of capacity also reflects in delays in grant and salary disbursements. Most of these issues can be fixed by proper capacity building within different governmental agencies.

What does sustainable funding entail?

In the latest Budget, Finance Minister Nirmala Sitharaman provided many indications that the government would like R&D expenditure to include more contributions from the private sector. Against this backdrop, mitigating the under-spending and under-utilisation of funds earmarked for R&D stand out as obvious first steps. This in turn requires the political prioritisation of R&D spending and recognition of it as a core, irreplaceable element of India's growth journey. This prioritisation has to happen not only within the concerned Ministries but also at the Ministry of Finance, which disburses the funds. Incentives for private investment, including relaxation of foreign direct investments, tax rebates, and clear regulatory roadmaps for products will help build investor confidence.

Finally, India also needs the bureaucratic capacity to evaluate science projects and, after allocations, monitor utilisation. Building such capacity is a prerequisite for India becoming a science power by 2047. So this National Science Day, as we celebrate science for sustainable development, let's also remember that we need sustainable funding for science.

WHY WERE SURROGACY RULES MODIFIED?

The story so far:

The Union government on February 21 modified the Surrogacy (Regulation) Rules, 2022, to permit married couples to use donor eggs or donor sperm for surrogacy — a move that provided a big relief to those with medical complications. This revoked a previous amendment made in March 2023 that banned the use of such donor gametes. The modification in the surrogacy rules came more than a month after Additional Solicitor General Aishwarya Bhati apprised the Supreme Court that the government was considering changes in the amendment brought in last year to allow married couples to use donor gametes for surrogacy in case they suffered from medical ailments that made it difficult to conceive.



What does the new amendment state?

On March 14 2023, Form 2 (Consent of the Surrogate Mother and Agreement for Surrogacy) of the Surrogacy Rules read with Rule 7 was amended to stipulate that donor eggs could not be used for gestational surrogacy of an intending couple. This has now been amended by a notification of the Ministry of Health and Family Welfare allowing married couples to use a donor gamete on the condition that a District Magistrate Board certifies that either the husband or the wife suffers from a medical condition. However, the notification outlines that the child to be born through surrogacy must have at least one gamete from the intending parents. This implies that a married couple where both partners are unable to use their gametes due to an existing medical condition cannot opt for surrogacy. The change is however not applicable to widowed or divorced women. The modified rules state — “Single woman (widow or divorcee) undergoing surrogacy must use self-eggs and donor sperms to avail surrogacy procedure.”

What did the Supreme Court say?

Last year, the 2023 amendment was challenged before the Supreme Court by a woman suffering from the Mayer-Rokitansky-Kuster-Hauser (MRKH) Syndrome. Medical board records reflected she was unable to produce her eggs due to absent ovaries or a uterus. The petition contended that the amendment violated a woman’s right to parenthood and contradicted Sections 2(r) and 4 of the Surrogacy Act, 2021 (2021 Act) which recognised the situation when a medical condition would require a couple to opt for gestational surrogacy to become parents. It was also pointed out that the petitioner had begun the surrogacy process months before the amendment, which cannot be implemented retrospectively. The Centre, on the contrary, argued that the use of donor eggs was exempted since surrogacy cannot be availed of under existing laws unless the child is “genetically related” to the intending couple.

Staying the operation of the law, a bench of Justices B.V. Nagarathna and Ujjal Bhuyan highlighted that it prevents intending couples from achieving parenthood through surrogacy which is prima facie contrary to the objective of the parent law — the 2021 Act. The court also recognised that the law permitting gestational surrogacy was “woman-centric” as it was a woman’s choice to have a surrogate child owing to existing medical or congenital conditions. Such conditions included the “absence of a uterus or repeatedly failed pregnancies, multiple pregnancies or an illness which makes it impossible for her to carry a pregnancy to term or would make the pregnancy life-threatening”. Agreeing with the petitioner’s submissions, the court acknowledged that Rule 14(a) specifically recognises the absence of a uterus or any allied condition as a medical indication necessitating gestational surrogacy. While addressing the government’s contentions, the Bench underscored — “In this regard, it may be noted that the expression ‘genetically’ related to the intending couple has to be read as being related to the husband when Rule 14(a) applies”.

Last month, the Centre informed a bench of Justices B.V. Nagarathna and Sanjay Karol that following its observations, the amendment barring married couples from availing donor gametes was under active reconsideration.

Can single women avail of the same?

The regulatory change is however not applicable for single women as it specifies that a widow or a divorcee undergoing surrogacy must use self-eggs and donor sperm. This comes even after questions are being raised in Indian courts over the exclusion of single women from using surrogacy to have children and the resultant discrimination. A petition has been filed in the Delhi High Court by a 44-year-old unmarried woman challenging provisions of the 2021 Act on the



ground that the restrictions are violative of her fundamental rights under Articles 14 (right to equality) and 21 (right to life) of the Constitution. Questioning the association of marital status with the eligibility for surrogacy, the petitioner has pointed out that at her age, the use of donor eggs is recommended by medical practitioners. To be genetically connected, the petitioner's brother has consented to donate his male gametes, the court was told. Experts have also criticised the restrictions on access to surrogacy by single persons, live-in couples, and LGBTQ couples.

DECODING THE SCRIPT

The Genome India Project, a project funded and coordinated by the Department of Biotechnology, announced that it had finished sequencing 10,000 Indian genomes. This means that the complete genomes — the DNA blueprint that constitutes and maintains human bodies — from 10,000 individuals were analysed to create a 'reference' Indian human genome. India first sequenced a human genome in 2006. In a way, the latest enterprise would be akin to the creation of the first ever detailed map of India — with all political units, key geographical and topographical features — as opposed to a world map prepared elsewhere, with India just one of several countries and devoid of granular detail. Are 10,000 individuals representative of a country of over a billion? Surely not. But for now, it is the best there is and forms a vital template, the basis on which many more insights can be prised. The most immediate application is in combating disease. In 2009, geneticists in India, as part of an international collaboration, discovered that an aberration in a protein, MYBPC3 (cardiac myosin binding protein C), was correlated with a high risk of heart failure. This genetic variant was present in approximately 4% of those of Indian ancestry — a higher than expected number given that this problematic variant is rare.

India has close to 4,500 population groups and the subcontinent's history of being ordered along caste lines through endogamy implies that rare genetic variants, many harmful, that ordinarily through the course of evolution ought to have died out, persist. When the Human Genome Project published its reference 'human genome' in 2003, at a cost of nearly \$3 billion, it rang with a 'brave-new-world' promise of humanity having finally decoded the secrets of the genome, mapping every awry gene to a disease and a future of 'personalised medicine'. Much of Genome India's sales pitch reflects similar promises. However, the subsequent decades have tempered such expectations. For one, only a small fraction of disease is monogenic (determined by a single gene). Despite advances in knowledge of how rare, inherited genes caused debilitating disease, little could be done as the necessary medicines, if discovered, were usually too expensive for those in need. In other words, genome sequencing only opened up new realms of complexity. While Genome India should go beyond the 10,000 mark, it must also be truly democratic. The findings ought not be locked up in the ivory towers of academia and should involve imaginative collaborations with scientists, students, technology companies, ethicists and social scientists to push forward India's understanding of itself.

EXPLAINED: THE GENOME INDIA PROJECT, AIMED AT CREATING A GENETIC MAP OF THE COUNTRY

The government's Genome India initiative on Tuesday (February 27) announced the successful sequencing of 10,000 whole genomes of healthy persons from across the country, creating a genetic map of the population. Researchers from 20 science institutes across the country helped in collecting the blood samples, sequencing the genome, developing a methodology, and storing the data.



With each sequence requiring 80 GB storage space, the huge dataset of 8 petabytes will be stored at the Indian Biological Data Centre in Faridabad. This dataset will be made available to researchers as “digital public good.” The data can be utilised to develop new diagnostics, targeted therapies, identify new rare diseases, and cure existing ones.

What is the Genome India project?

The Genome India project was approved by the government in 2020 with the aim of creating a comprehensive catalogue of genetic variations found in the Indian population. A map of genetic diversity is essential for understanding the history of our evolution, discovering the genetic basis for various diseases, and creating therapies of the future. This cannot be done using data available in existing international databases, as Indian genomes are likely to be different from that of other populations.

Researchers who analysed 5,750 of the genome sequences have already identified 135 million genetic variants found in India.

This map will also create a unique resource. This is because our population of 1.4 billion consists of more than 4,600 distinct groups. With endogamy — marrying within the same community — common in India, the various groups have maintained their distinct genetic makeup. This can help compare and contrast the impact of genetic variations on physical health. Union Science minister Dr Jitendra Singh described India as the “largest genetic lab in the world.”

What is a genome, how is it sequenced?

The human genome is essentially a biological instruction manual that we inherit from our parents. It is a tome written with just four letters, A,C,G, and T — the four bases that come together to create everyone’s unique genetic makeup. There are around 3 billion pairs of bases in the complete human genome. This contains all the information needed to create your physical form and maintain it throughout life. From your height, colour of the eyes, the genetic diseases you get or those you are at a higher risk for, everything is determined by the genetic makeup.

To sequence the genome, researchers first extract the information from the blood. With a complete sequence of 3 billion pairs being extremely hard to handle, scientists cut it up into small pieces and tag them — like you would when you disassemble furniture. The A,C, G, T code of these smaller chunks are written down by a DNA sequencer and then the complete sequence is put together.

How does studying the genetic makeup of the country help?

One, it can help identify the genetic basis or genetic risk factors for various diseases.

Prof K Thangaraj, who leads the project and is a senior scientist at the Centre for Cellular and Molecular Biology in Hyderabad, cited the example of a mutation, MYBPC3, which leads to cardiac arrest at a young age. It is found in 4.5% of the Indian population but is rare globally. Another mutation called LAMB3 causes a lethal skin condition. It is found in nearly 4% of the population near Madurai, but it is not seen in global databases.

Two, it can help in targeted treatments, especially for rare diseases that usually arise from genetic anomalies. “An Indian genome database will have a significant impact on treatments for genetic diseases. It can help develop new therapies that can cure these diseases,” said Department of Biotechnology (DBT) Secretary Dr Rajesh Gokhale.



Take for example the under-development mRNA vaccine to prevent relapse of pancreatic cancer, which is based on a genetic mutation that allowed a small group of pancreatic cancer patients beat the odds. The mutation allowed their immune system to identify the cancer cells and attack them.

It can also help in identifying resistance-indicating variants — for example, genes that might make certain medicines or anaesthetics ineffective in certain populations. An example from India is a set of a Vaishya community from South India, who lack the gene for properly processing common anaesthetics. For this group, use of such anaesthetics can result in death.

How long did the project take?

The first whole human genome was sequenced with the collaboration of an international team. It took 13 years and \$3 billion, and was completed in 2003. India announced its first complete human genome in 2009. “The technology has come a long way. Now, it takes only about five days to sequence an entire human genome and perform all the quality checks. In fact, we were able to sequence the entire 10,000 genomes in a matter of three to four months,” said Dr Gokhale.

A majority of the time was spent on collecting patient samples and their health history. The samples were collected from the remotest parts of the country, covering various tribal populations as well. In all, 99 distinct population groups were covered by the project. The collection was delayed multiple times due to the Covid-19 pandemic.

“This is a significant milestone. We now have a baseline map of the country,” said Dr Gokhale.

KERALA TAKES A PIONEERING STEP TO CURB ANTIMICROBIAL RESISTANCE

In 2011, the Indian government introduced the H1 rule to prohibit the over-the-counter (OTC) sales of antibiotics without a prescription, responding to the growing concern over antimicrobial resistance (AMR). However, due to the healthcare system’s heterogeneity across the country, the implementation of this rule faced significant challenges. In 2013, following the Chennai Declaration document and initiative by medical societies in India, the Indian government modified the rule to limit the OTC restriction to second and third-line antibiotics, allowing the sale of first-line antibiotics without a prescription. This modification was aimed to ensure that life-saving antibiotics remained accessible to the public, especially in remote areas of the country where doctors might not be readily available. Despite a decade passing since the rule’s announcement, no State government had adopted it until Kerala recently initiated Operation AMRITH (Antimicrobial Resistance Intervention for Total Health). This programme enforces the original H1 rule, mandating a doctor’s prescription for acquiring any class of antibiotics.

Kerala’s high doctor-patient ratio, even in villages, facilitates the enforcement of this rule. Also, the high literacy rate in the State is poised to contribute significantly to the efficient implementation of the rule. An informed populace is more likely to understand the importance of regulations like these and adhere to them, facilitating smoother execution and compliance. While it is highly commendable that Kerala is implementing the H1 rule to rein in AMR, it is unlikely to have a significant impact on drug-resistant infections in the immediate future. The effects of this initiative may take several years, if not a decade, to manifest. However, it will foster a culture of respecting antibiotics and encourage further actions to combat AMR.

It is critical to acknowledge that over 50-70% of antibiotic prescriptions by doctors are deemed unnecessary and irrational. One of the main reasons for unnecessary antibiotic usage is the unavailability of laboratory facilities to make a correct diagnosis of bacterial infections. Even if



they are available, these tests are more expensive than a course of antibiotics. Enhancing laboratory facilities for accurate infection diagnosis, especially with affordable rapid diagnostic tests to determine the necessity of antibiotics, is therefore vital. The other main reason is that patients wrongly believe that antibiotics is a quick remedy for a fever episode of any cause. Educating patients about the limitations of antibiotics and discouraging them from pressuring doctors for unnecessary prescriptions is vital.

What is even more important is that Kerala demands hospitals to disclose the incidence of hospital-acquired infections. Antimicrobial resistance is a socioeconomic problem, and combating it requires measures to improve public health infrastructure, sanitation facilities, and governance in order to decrease the transmission of infections and, therefore, the dependence on antibiotics. The influence of these factors on antimicrobial resistance rates is typically greater than that of the total volume of antibiotics used.

To reduce the spread, healthcare facilities must follow the correct standards for infection prevention. There must be a system where all hospitals report rates of hospital-acquired infections to the State government. Ideally, the data should be made public. Currently, all NABH hospitals collect this data every month and take measures to reduce hospital-acquired infections. However, it is crucial that all hospitals follow suit and share the data with the State. There will be immediate long-term benefits in lowering AMR-related fatalities if measures to reduce hospital-acquired infections are successfully implemented.

Other essential measures, including rationalising antibiotic use in hospitals, and banning the growth-promotional use of antibiotics in poultry farms, fish farms, and agriculture based on existing rules, are of paramount importance. Additionally, Kerala will do well if it supports and promotes the development of new antibiotics, diagnostics, and vaccines by entrepreneurs. Karnataka and Maharashtra-based startups have achieved remarkable progress in this domain. Startups based on novel service delivery models may help us make better use of our human resources when it comes to antibiotic stewardship and infection prevention.

While enforcing the OTC regulation is a welcome step, curbing antimicrobial resistance requires a multipronged approach, including reformations to physicians' prescribing practices and mandating that hospitals report healthcare-associated infection rates. Strictly enforcing the OTC regulation without addressing the other issues, which are major drivers of antimicrobial resistance, may not help the cause. Enforcing the H1 rule is a relatively easy goal. The real challenge will be tackling the major drivers of AMR.

76% OF TB PATIENTS PAID FOR NUTRITIONAL SUPPORT

If in 2022 only 1.6 million (66%) of the 2.4 million notified TB cases received at least one month's payment of ₹500 under the Ni-kshay Poshan Yojana direct benefit transfer programme for nutritional support as per the India TB report 2023, a study that analysed the data of nine States found that in 2022 76.1% of TB patients received at least one month's payment, up from 56.9% in 2018. Though the time taken to receive the first payment has reduced since 2018, more than 50% of patients had to wait for over three months in 2022 to receive the first instalment. The study which analysed the data from 2018 to 2022 of nine randomly selected States — Tamil Nadu, Telangana, Odisha, Bihar, Gujarat, Rajasthan, Uttarakhand and Meghalaya — was published recently in the journal BMC Public Health. The study was conducted by researchers at the Chennai-based National Institute of Epidemiology.



Under the Ni-kshay Poshan Yojana programme, ₹500 per month is credited into the account of a person with TB for the duration of treatment. Among those who received at least one instalment, the percentage of patients who received ₹3,000 or more in 2018 was 64.6%, which increased to 76.8% in 2021, and 67.5% in 2022.

DESPITE POLICY BACKING AND FUNDING, CARE FOR RARE DISEASES NOT OPTIMAL

In the field of rare diseases, in India, what did not happen for 20 years, was dramatically hustled through over the last couple of years. Consider this: the first National Policy on Rare Diseases was issued in March 2021, providing a comprehensive national approach to prevention and management of rare diseases. It was nearly a dream come true for patients living with rare diseases and their families — the policy also factors in ways to lower the exorbitant cost of treatment, and boost indigenous research. The policy also envisages the creation of a national hospital based registry of rare diseases, an intervention as crucial as funding for treatment itself, as it will provide rich epidemiological data to define the extent of the problem in India and decide optimal funding for research in rare diseases too. The Rare Diseases Policy also focuses on creation of Nidan Kendras for early screening and prevention, as well as plans to strengthen extant secondary and tertiary health facilities at Centres of Excellence.

And yet, this World Rare Diseases Day (February 29) does give us occasion for pause; despite the stupendous pace of development in the recent past, it is important to periodically evaluate the needs in the community, and tailor requirements to meet those demands. It is also important to evaluate policy against implementation, to see if the goals are being achieved and the target groups benefiting from the intended gains.

What is a rare disease?

But first, a bird's eye view of the rare diseases scenario here: In India, it is estimated that there are between 7,000 - 8,000 rare diseases, but less than 5% have therapies available to treat them. But, taken as a whole, rare diseases affect nearly 1/5th of India's population, educated extrapolations indicate. A rare disease is one that is loosely defined as occurring infrequently in the population, and as such, what constitutes a rare disease varies from nation to nation. The World Health Organisation defines rare disease as an often debilitating lifelong disease or disorder with a prevalence of 1 or less, per 1,000 population.

However, different countries have their own definitions to suit their specific requirements and in the context of their own population, health care system and resources. For instance, in the U.S., rare diseases are defined as a disease or condition that affects fewer than 200,000 patients in the country (6.4 in 10,000 people). The European Union has its own definition — affecting no more than 5 in 10,000 people. India currently does not have a standard definition — but the Organisation of Rare Diseases — India, has suggested that a disease is to be defined as rare if it affects 1 in 5,000 people or less. The National Policy statement itself lays out: The landscape of rare diseases is constantly changing, as there are new rare diseases and conditions being identified and reported regularly in medical literature. Apart from a few rare diseases, where significant progress has been made, the field is still at a nascent stage.

THE ROCKY VISTA OF MEDICINAL CANNABIS THAT RESEARCH IS BRINGING INTO VIEW

The cannabis plant (*Cannabis sativa*) has long been of interest to psychiatrists for its perceived effects on mood and cognition. There is currently significant research interest in using cannabis-



based compounds to manage and/or treat schizophrenia and cannabis-use and heroin-use disorders.

Recently, researchers at the University of British Columbia in Canada floated a new clinical trial to examine whether cannabidiol could be used to treat bipolar depression. Given the paucity of agents to treat depressive episodes in bipolar disorder, this trial has the potential to uncover a novel treatment to treat the debilitating depression associated with the condition.

The major psychotomimetic agent in *C. sativa* is a compound called delta-9-tetrahydrocannabinol (THC). There is growing interest in another cannabinoid, cannabidiol (CBD), which may have antipsychotic, anti-inflammatory, and neuroprotective properties. The plant's flowering parts are more potent than its leaves.

Marijuana is a combination of buds and leaves of pollinated female plants, and is usually cultivated outdoors.

The cannabinoid system

The human cannabinoid system has two cannabinoid receptors, called CB1 and CB2. The naturally occurring substrate of the CB1 receptor is anandamide, a compound whose name comes from the Sanskrit word 'ananda', meaning bliss.

CB2 is found in the spleen and testes and to a lesser extent in the central nervous system (CNS). CB1 is found diffusely throughout the CNS. The CNS is involved in the release of various neurotransmitters, including dopamine, noradrenaline, and serotonin. CB1 is like a traffic cop: it controls the levels and activities of other neurotransmitters. The CB1 receptor is relevant to the drug's mind-altering effects. To stimulate these receptors, our bodies produce molecules called endocannabinoids. These are endogenous: they occur naturally within the body. The endocannabinoid system (ECS) comprises a dense network of chemical signals and cellular receptors. The cannabis plant works its effect by hijacking this machinery.

The cannabinoid system modulates a host of bodily functions, including pain, memory, psychomotor control, sleep, and appetite. THC in particular has acute effects on motor control and impairs fine movement. High doses of recreational cannabis use can disrupt short-term memory. Impaired attention is believed to be mediated by another part of the brain called the hippocampus, which is involved in memory and learning. This might indicate a possible role for THC in the extinction of bad memories in post-traumatic stress disorder (PTSD).

In his 2001 book *The Botany of Desire*, Michael Pollan wrote humans have cultivated and co-evolved with the cannabis plant for thousands of years. He argued that the act of forgetting is important to humans and that cannabis helps us achieve this, especially when we don't want to be overloaded with traumatic memories. A 2022 animal study also found preclinical evidence that molecules targeting the ECS could be used to treat PTSD.

The rimonabant debacle

Since ECS regulates hunger, it was thought that blocking the CB1 receptor could result in weight loss.

There is a well-established association between THC exposure and a craving for high-fat, high-sugar foods.



On this basis, in 2006, Sanofi-Aventis marketed a CB1 blocker called rimonabant in Europe as an anti-obesity drug. But while it did cause weight loss, it carried a risk of depression and suicidality and was eventually withdrawn.

Nonetheless, THC and synthetic cannabinoids are also being used to stimulate appetite in people with HIV-AIDS and cancer.

The anti-nausea property of THC is useful to ameliorate nausea associated with chemotherapy. Cannabinoids are also used to treat acute and chronic pain syndromes. Nabilone, a synthetic cannabinoid, has been shown to ameliorate chronic neuropathic pain, headache, and fibromyalgic pain. Sativex, which contains both THC and CBD, has been used to manage pain associated with multiple sclerosis.

One debate among psychiatrists is whether THC can be addictive. Animal studies have found evidence of addictive responses whereas the evidence for humans is more uneven. Many users also don't increase their use of THC once they have reached some sort of plateau.

This is probably because THC has a great ability to dissolve in fats and oils, ensuring it remains in the brain for weeks. It is excreted only slowly upon cessation of heavy regular use. As a result, THC cessation doesn't have the same rapid, dramatic withdrawal symptoms associated with nicotine and alcohol. Known withdrawal effects include sleep difficulties, loss of appetite, weight loss, restlessness, irritability, and anger.

Effects on anxiety and mood

The mood effects of cannabis are complex. Early reports of the compound being effective for some people with treatment-resistant depression are not supported by rigorous studies. This said, many studies on the mood effects of cannabis have reported an association with depression.

There has been little scientific scrutiny of cannabis in relation to bipolar disorder, despite its widespread use by people with this condition. One 2009 study was able to conclude that people with bipolar disorder who used cannabis had more manic relapses, adhered less to medications, and had worse psychosocial outcomes compared to non-users. Research has also found that cannabis use can independently increase the risk of bipolar disorder and/or advance its onset in some individuals.

Indeed, while cannabis can have psychotic effects on anybody upon consumption, the individual predisposition depends on their experience with the drug, the context in which it is consumed, and crucially, how prone the individual is to psychosis.

For example, one 2018 study sought to understand the rates of conversion to schizophrenia and bipolar disorder in those who had already been diagnosed with substance-induced psychosis. Around 48% of cannabis users converted to either schizophrenia or bipolar disorder within three and four years, respectively, of having received a diagnosis of substance-induced psychosis.

People with established psychotic illnesses, such as schizophrenia, have a very high predisposition to manifest psychotic symptoms when imbibing cannabis, despite it being on anti-psychotic medication. Cannabis use in youth can also advance the onset of schizophrenia by seven to eight years in genetically vulnerable individuals.

There has been a long-standing debate in psychiatry: whether people who have used cannabis and have later developed schizophrenia manifest the disorder only because they used cannabis. As of



today, there is high-quality evidence for a consistent association between cannabis use in youth and later psychotic symptoms.

Policy-making and legislation

As things stand, *C. sativa* is also the most widely used illicit drug worldwide. The frequency and potency of cannabis use have also exploded in the last two decades, prompting broader debates about the decriminalisation of cannabis.

This is partly because of the resurgence of interest in cannabis as medicine. Jurisdictions around the world are legalising medical use of cannabis; some have also legalised recreational use. Many of them are in the West but other countries are taking note as well. If India were to ever decriminalise cannabis, policymakers should ensure it isn't commercialised and that there are protections against use by children, adolescents, and those with established mental illnesses — the populace most vulnerable to the detrimental effects of cannabis.

ZSI NAMES A NEWLY DISCOVERED SEA SLUG AFTER PRESIDENT MURMU

The Zoological Survey of India (ZSI) has named a new marine species of head-shield sea slug with ruby red spot which was discovered from West Bengal and Odisha coast after President of India Droupadi Murmu.

This species belonging to *Melanochlamys* genus was discovered from Digha of West Bengal coast and Udaipur of Odisha coast. The new species of head-shield sea slug, which is found nowhere else in the world, has been named *Melanochlamys droupadi*.

Species of the genus *Melanochlamys* are characterised morphologically by a short, blunt and cylindrical body and a smooth dorsal surface with two dorsal equal or unequal shields, named the anterior cephalic and posterior shield

BEYOND SITA AND AKBAR, ZOOS CHEERED RAM, MUMTAZ, TENDULKAR AND AZADI

Tripura suspended its top forest official last week for recording two lions as Sita and Akbar, after the Calcutta High Court cautioned against naming zoo animals after deities and prominent figures revered by people.

Official records show that in zoos across India, for years, naming animals hardly set off any ripples.

In the 1970s, Gujarat's Junagadh zoo, for example, paired lion Ram with lioness Mumtaz, while cubs born to tigress Radha and tiger Krishna in Mysore zoo were named Mumtaj and Safdar in 1980. Long before the Calcutta HC put even freedom fighters on the no-go list, Azadi was a proud lioness born in the same Junagadh zoo in 2004.

Entertaining a petition against the naming and pairing of Sita and Akbar, two zoo lions transferred from Tripura to West Bengal, Justice Saugata Bhattacharyya had on February 22 said his conscience did not support such naming. "It is not just Sita. I also do not support naming a lion as Akbar. Will you name a lion Samrat Ashok?" he said.

It turns out that Gujarat's Junagadh zoo had, indeed, named a lion Ashok in 1991. Odisha's Nandankanan zoo, too, had named two tigers Ashok in 1981 and 1994. In 2000, when the younger Ashok fathered a male cub with tigress Tanuja, the same zoo named it Shamsheer.



Tanuja, incidentally, was the daughter of tiger Viswamitra, named after one of the Vedic Saptarishi (seven venerated sages). Tiger Viswamitra's brother was aptly named Vasistha, a fellow Saptarishi.

tiger lion names

According to the Central Zoo Authority's National Studbooks (2018 editions) that contain pedigree information of endangered species such as tigers and lions in captivity since the 1950s, both Sita and Akbar have been popular names in zoos across India. Mumbai's Byculla zoo named a lioness Sita in 1996. At least 13 tigresses have been named Sita/Seeta/Seetha by 12 zoos in Karnataka, Delhi, Andhra Pradesh, Madhya Pradesh, Maharashtra, Assam, Punjab, Bihar, Rajasthan and Odisha since 1974. In 2011, a male cub born to lion Atul and lioness Sonia was named Akbar in Hyderabad zoo. One of Akbar's sisters from the same litter was named Laxmi. In 1981, Mysore zoo named a litter of three tiger cubs Amar, Akbar and Anthony. Mangalore zoo did the same in 2016.

Zoo cats and three identities

Records show that dozens of big cats in Indian zoos have shared their names with religious and mythological figures such as Brahma, Shiva, Krishna, Balaram, Shankar, Parvati, Durga, Saraswati, Laxmi, Ganesh, Karthik, Ganga, Radha, Yashoda, Kunti, Rukmini, Ram, Lava, Kusha, etc.. Even the Dalai Lama shares his name with a snow leopard that Darjeeling zoo named Tenzin in 2021.

Every zoo cat has three identities: the number on its transponder microchip, its number in the national studbook and a local house name. "Be it a big cat or an ape, when a captive animal needs handling as an individual, a house name is necessary for communication," said a former animal keeper of the Kolkata zoo.

But house names, pointed out P R Sinha, the former director of Central Zoo Authority (CZA) and Wildlife Institute of India (WII), do not matter in the context of animal exchange or breeding that relies on studbooks. "At times, it may appear ridiculous how randomly the animals are named. But it is even more ridiculous to go looking for motives (in such naming)," he said.

tiger lion names

Nobody batted an eyelid in 1955 when Madhya Pradesh's Rewa zoo named the cub of Mohan and Begum — both captured in the wild — Radha, India's first zoo tigress with a known pedigree. That tradition has continued. Pune zoo named two cubs born to tigress Kaikei as Sultan (1992) and Mastani (1994). Tigress Hasina's three cubs were named Krishna, Balaram and Subhadra in Andhra Pradesh's Tirupati in 2012.

Occasionally, zoos followed the script. Tigers Karan and Arjun were born to tigress Kunti in Delhi in 2001. Likewise, tiger Ganesh (1991) and tigress Saraswati (1992) were born to tiger Shankar and tigress Parvati in Chhattisgarh's Bhilai.

Then it went haywire. In 1999, tiger Ganesh sired a cub Vikas with tigress Parvati, and another three cubs Vishnu, Krishna and Durga with tigress Saraswati.

Indeed, house names have never come in the way of selecting zoo cats for captive breeding. In 1978, for example, tigress Seeta was paired with tiger Balram in Punjab's Chhatbir zoo. In 1991, Pune zoo paired tigress Laxmi with tiger Anthony. Conversely, couples in mythology or history



became siblings in their zoo tiger avatars: Ram and Sita (1995, Madhya Pradesh's Shivpuri), Sabitri and Satyaban (1987, Nandankanan); and Bajirao and Mastani (2003, Mumbai's Borivali).

Sample some more random nomenclature:

1976: Tigress Surpneka was fathered by tiger Krishna in Mysore.

1987: Tigress Begum was fathered by tiger Shiva in Kolkata.

1997: Tigrisses Gypsy and Razia were born to tigress Laxmi in Pune.

1998: Tiger Badsha was born to tigress Gayatri in Kolkata.

2004: Tiger Kaif was born to tigress Seeta in Aurangabad.

2010: Lion Taukir was born to lioness Tulsi and lion Sarjit in Junagadh.

2011: Tiger Shiva was born to tigress Menaka in Karnataka's Bannerghatta.

2016: Tiger Sultan was born to tigress Ganga in Bhilai, and lion Shankar fathered lion Sultan in Etawah.

A tiger named Jackie and a lion named Kargil

Moreover, changing names as suggested by the Calcutta HC is not as simple as it sounds. "The relation between an animal and its keeper is crucial for its well-being. It is difficult to make animals respond to new names overnight. That's why often a name used during an animal's initial days sticks for good," says a zoo veterinarian based in Gujarat.

Some names are influenced by recent events. In 1999, Kanpur zoo named a lion Kargil. In 1983, the year Hero became a blockbuster, Patna zoo named a tiger Jackie. In 1996, after India bagged the Miss World title in 1994, a tigress in Kanpur zoo was named Aishwarya.

In 2002, Bengaluru's Bannerghatta zoo named three tiger cubs from two litters Dravid, Tendulkar and Kalpana Chawla. Film stars and cricketers dominate the list of celebrities who share their names with zoo cats.

Some zoo cats were perhaps named more fittingly. In 1967, a tiger captured from the wild was lodged in Delhi zoo as Jim (after hunter-naturalist Corbett). In 1984, another wild tiger landed in Kanpur zoo as Sheroo. Junagadh zoo named two male lion cubs as Mufasa and Simbha in 1996.

But there are few such options. "Where does it end when you start nitpicking? Would a (lioness) Jessica or a (tigress) Diana stir old wounds? What about (lioness) Azadi? Will zoo cats be left with only names like (tigers) Chedilal (Lucknow), Shammi or (tigress) Pummy (Chhatbir)?" asked a former director of Delhi zoo.

One safe option, he said, is to name zoo cats after the human perception of their dominant traits. The national studbook has zoo tigers named Jhagru (1968, Delhi), Petu (1987, Vanvihar), Fattu (1997, Chhatbir) and Chotu (2003, Chhatbir). A Chhatbir zoo tigress was even named Chorni in 2003.

But would the big cats not take offence if they had the right to? They certainly might, agreed the former Delhi zoo director, if a tiger is named Puppy (1988, Chhatbir) ever again.



INDIA'S LEOPARD POPULATION RISES TO 13,874; M.P. ON TOP

India's leopard numbers rose by 8% from 12,852 in 2018 to 13,874 in 2022, according to a report made public by the Environment Ministry on Thursday.

While the highest number of leopards were reported in Madhya Pradesh (3,907), only three other States reported over 1,000 animals each — Maharashtra (1,985), Karnataka (1,879) and Tamil Nadu (1,070). While Uttarakhand reported a 22% decline in the big cat numbers — reportedly due to poaching and man-animal conflict, Arunachal Pradesh, Assam and West Bengal saw a collective 150% rise to 349 animals.

The survey covered 20 States of India, and focused on about 70% of the animals' expected habitat, which are India's tiger reserves and protected forest areas. Unlike tigers, which are largely confined to forest reserves, leopards are far more adaptable and tend to be found in significant numbers, in villages and sometimes, even in cities. They are also known to prey on cattle and thus be involved in conflict, resulting in higher mortality.

Habitat conservation

"About a third of the leopards are within protected areas. When we conserve tiger reserves, we also conserve leopard habitat," said Qamar Qureshi of the Wildlife Institute of India and one of the authors of the report. The analysis — coordinated by the Wildlife Institute of India — only looked at forest areas where a similar survey was done in 2018. The Shivalik hills and the Gangetic plains recorded 3.4% yearly decline, while Central India and the Eastern Ghats, the Western Ghats and the hills of the northeast, and the Brahmaputra flood plains recorded growth of 1.5%, 1%, and 1.3% per annum respectively. "The population in the last four years is stable, which also indicates the growth is minimal and in comparison to tigers, leopard population is likely getting impacted by people in multiple use areas," the report added.

Leopard numbers have declined in Ramnagar forest division (Uttarakhand), where tiger numbers have shown a very steep growth in the past four years. About 65% of the leopard population is present outside protected areas in the Shivalik landscape. In Uttar Pradesh, both leopard and tiger numbers have increased, the report noted.

Forest surveyors travel 6,41,449 km for carnivore signs and prey abundance estimation. Camera traps were deployed at 32,803 locations, resulting in 4,70,81,881 photographs.

The sharp rise in numbers reported out of the north-eastern States were the result of a "sampling artefact", said Dr. Qureshi, meaning that previous years saw very little of a systematic survey and fewer cameras installed.

TOP DOG: NSG'S LABRADORS TO MAKE WAY FOR THE MORE FEROCIOUS BELGIAN MALINOIS

With the Belgian Malinois becoming the preferred canine companion of special forces in the United States, Europe and Israel, India's elite counter-terrorism unit, the National Security Guard (NSG), hopes to soon deploy the ferocious four-legged fighting force in its future operations in place of the adorable Labrador.



During the ongoing Israel-Palestine conflict, the Belgian Malinois — a canine breed especially trained by the Israeli forces to not just sniff out Hamas militants in their underground tunnels in Gaza, but also track and attack them — was among Israel’s most valued fighting units.

The NSG’s Labrador squad will gradually make way for the highly intelligent and ferocious Belgian Malinois. While earlier, Labradors were used for sniffing and tracking, and German Shepherds for attacking, the NSG is now training its Malinois dogs to carry out all three tasks — sniff, track and attack.

Sources said the Malinois squad will help NSG’s Black Cat commandos with their anti-terror operations, including hostage situations.

In 2019, a Belgian Malinois played an important role in a military operation led by the US that resulted in the death of fugitive Islamic State leader Abu Bakr al-Baghdadi in northwest Syria. The breed was also used with success by NATO troops.

Lt Col Sharma said unlike Labradors, who have great olfactory senses but are docile, the Malinois’s sniffing capabilities are only slightly lower. However, he said, they have greater alertness, besides possessing the ability to attack and paralyse terrorists, giving security forces “golden moments” before their intervention. The breed was developed in Belgium’s Malines area in the 1800s.

“Labradors get tired very easily and can get playful during operations. These are not issues we face with the Malinois. Labradors are constantly looking for affection and are eager to please their masters. They also want treats constantly. Malinois are more professional that way,” Lt Col Sharma adds.

NSG second-in-command Major Rishi, who is the main dog trainer, said the Malinois are far more agile than other breeds and can also be trained better.

“They can also be trained to follow laser beams. So a bag can be pointed out with a laser beam at a distance, and the dog can reach it and sniff it without the involvement of its handler, thus reducing the risk to the soldier,” he said.

The NSG dog squad has also acquired the Canine Remote Delivery Systems (CRDS). The technology has been designed especially for dog squads, for remote operations and real-time feedback. The technology allows a dog to wear a camera-fitted visor and a radio set is attached to its collar. The trainer can stay far from the operation site and send in the dog alone, passing on instructions through the radio set. The camera-fitted visor relays live visuals to the handler of the operation area covered by the dog.

Major Rishi said, “The equipment has a range of 1 km and is one-of-a-kind in India. The Malinois have already been trained to sniff out explosives and attack terrorists based on directions given remotely via CRDS.”

IGNCA’S ‘LANGUAGE ATLAS’ TO SHINE A LIGHT ON INDIA’S LINGUISTIC DIVERSITY

As India makes efforts towards imparting education in the mother tongue, especially at the primary level, a crucial question remains on the actual number of languages that can be considered to be “active” in the country.



A proposed linguistic survey across the country by the Indira Gandhi National Centre for the Arts (IGNCA), which aims to enumerate how many languages are spoken and in which States and regions, can provide the answer.

The IGNCA is an autonomous body under the Union Culture Ministry.

India recognises 22 languages officially, which are part of Schedule 8 of the Indian Constitution. According to Census data, 97% of the Indian population speaks one of these languages. There are an additional 99 non-scheduled languages included in the Census, and according to the 2011 Census, around 37.8 million people identify one of these non-Scheduled languages as their mother tongue.

The native language of 1.2 million people remains unaccounted for due to the decision not to include languages with less than 10,000 speakers in the Census since 1971. Many of these languages not recorded in the official Census records are spoken by tribal communities.

Thus, of all the Census surveys, the official Census of 1961 was the most exhaustive and detailed with respect to linguistic data. In this Census, even languages with a single speaker were included in the records.

“There is an urgent need to carry out a comprehensive linguistic survey in order to create the Language Atlas of India,” Prof. Gaur, Director and Head of the IGNCA’s Kala Nidhi Division and Member of the UNESCO Global Taskforce on Indigenous Languages, told The Hindu. “After this, the next Census can put a number to the number of people who speak each language or consider them as their mother tongues,” he added.

Experts say it can be a database for future policy decisions.

According to the Detailed Project Report (DPR) prepared by the IGNCA, the stakeholders in the survey would be the Ministries of Culture, Education, Tribal Affairs, Home, Social Justice and Empowerment, and Development of North East Region, apart from various languages communities.

The IGNCA has identified the Central Institute of Indian Languages, the National Museum, Centres for Endangered Languages, and the Linguistic Departments of various universities as potential partners and collaborators in carrying out the survey.

IS LORD KRISHNA’S DWARKA UNDER WATER? THE MANY LEGENDS, TRACES OF A LOST CITY

Last week Prime Minister Narendra Modi was in the pilgrimage town of Dwarka, in Gujarat’s Devbhoomi Dwarka district, to inaugurate several infrastructural projects, including the Sudarshan Setu, India’s longest cable-stayed project connecting Okha town with the island of Beyt Dwarka.

He also went scuba diving off the Panchkui beach coast and performed underwater prayers at the site of what’s considered to be Dwarka Nagari – the mythological kingdom of Lord Krishna in the Mahabharata.



Dwarka in mythology

Dwarka has immense significance in Hindu culture due to its association with Lord Krishna and the Mahabharata. It is believed that after killing his uncle Kamsa, Krishna migrated from Mathura to Dwarka with his Yadava clan, and founded his kingdom here by reclaiming 12 yojana land from the sea.

References in the Vishnu Purana suggest that Dwarka was a city of beautiful gardens, moats, ponds and palaces. The town, however, is believed to have been submerged under the sea after the death of Lord Krishna.

Locating Dwarka

Present-day Dwarka is a coastal town located at the mouth of the Gulf of Kutch, facing the Arabian Sea. The town is a part of the Krishna pilgrimage circuit, which includes Vrindavan, Mathura, Govardhan, Kurukshetra and Puri, and is home to the 13th-century Dwarkadheesh temple dedicated to Lord Krishna. There are a number of other places scattered along the Saurashtra coast that find a mention in legends associated with Lord Krishna, including Bet Dwarka and Mul Dwarka.

Since the beginning of the 20th century, multiple attempts have been made by scholars to establish the precise location of 'Dwarka' as mentioned in the Mahabharata. Most of these accounts, however, relied on ancient literature and works of other scholars.

Is it the same as present-day Dwarka? A town that possibly now lies under the sea? Or a mythological town whose historical authenticity may never be established?

As noted by Alok Tripathi, Additional Director General of the Archaeological Survey of India (ASI), in his paper, 'Excavations at Dwarka-2007' (2013), F E Pargiter, the British civil servant and orientalist who was judge at the Calcutta High Court in 1904, had in his translation of the Markandeya Purana suggested for the first time that Dwarka was located on the 'Raivataka', a mountain range mentioned in the Mahabharata, and which is believed to be the present-day Girnar hills in Junagadh, around 200 km away from Dwarka town.

Tripathi also quoted historian A S Altekar, who, in the 1920s, "discussed that modern Dwarka may not have been as old as 1200 BCE, but accepted that it had been submerged as mentioned in some ancient texts".

Scholar A D Pulsakar in his 1943 essay, 'Historicity of Krishna', suggested that present-day Dwarka is the same as the one mentioned in the Mahabharata. Similar thoughts were expressed by archaeologist H D Sankalia in the 1960s.

Archaeological findings on land

From the 1960s onwards, attention shifted from ancient literature to finding material evidence for the existence of Lord Krishna's Dwarka.

While the early excavations focused on land around present-day Dwarka, as speculation over a submerged city heightened, later explorations were conducted under water.

The first excavation was carried out close to the Dwarkadheesh temple in 1963 by the Deccan College in Pune, in association with the Gujarat government's Department of Archaeology. The



excavation had to be carried out in a very limited area since the region around the temple is heavily populated. The excavations revealed that the place had been inhabited for the last 2,000 years. "These findings did not support the traditional identification with the legendary city, but inspired others to continue their quest and take up further studies," wrote ASI ADG Tripathi.

In 1979, the ASI carried out a second round of excavations under the leadership of archaeologist S R Rao in the area around the Dwarkadheesh Temple during the development of the area.

Tripathi explained in his work that although no official report of this excavation was published, the brief review by the ASI Director-General at that time mentioned the finding of remains of three earlier temples and Lustrous Red Ware pottery that could be dated to mid-second millennium BCE.



DreamIAS

**BUSINESS & ECONOMICS****AT LEAST 3 RECENTLY-SANCTIONED TANKERS SCHEDULED TO SUPPLY RUSSIAN OIL TO INDIA IN COMING WEEKS**

At least three tankers scheduled to deliver crude oil to Indian refiners over the next few weeks are among the 14 vessels that were sanctioned along with Russia's state-owned shipping major Sovcomflot by the United States (US) on Friday for purportedly transporting Russian oil priced above the West's \$60-per-barrel cap, as per ship tracking data and shipping fixtures. According to the US Department of the Treasury's Office of Foreign Assets Control (OFAC), the 14 vessels are ultimately owned by Sovcomflot.

One of the tankers—Georgy Maslov—is scheduled to reach Sikka port later this week, ship-tracking data shows. India's largest private sector refiner Reliance Industries (RIL) uses the Sikka port for importing crude. Another sanctioned tanker—Anatoly Kolodkin—is scheduled to deliver crude at the Sikka port in April. Earlier this month, Anatoly Kolodkin had delivered crude at the Vadinar port, close to the Nayara Energy (NEL) refinery. Both NEL and state-owned refining giant Indian Oil Corporation (IOC) use the Vadinar port for taking crude oil deliveries. NS Captain—another tanker among the 14 that were sanctioned on Friday—is scheduled to deliver oil at the Vadinar port in March and April.

While industry insiders do not anticipate any major problem with these specific deliveries as Washington has allowed 45 days for the newly-sanctioned tankers to offload crude oil, it is being seen as a signal that the US is getting stricter about the price cap, which was imposed in December 2022 by the Group of Seven (G7) countries and their allies. The stated objective of the price cap is to limit Russia's oil revenue while keeping the international oil market adequately-supplied, and prevent supply and price shocks. Given that India takes delivery of nearly four dozen cargoes of Russian crude a month and a large number of tankers involved in Russian oil trade, the actual impact of the latest sanctions on Russian oil flows may be limited.

According to industry sources, once the 45-day period is over, Indian refiners are likely to be unwilling to accept crude oil hauled on sanctioned tankers and Indian banks are unlikely to process payments for such cargoes. To be sure, Russian oil is bought by Indian refiners on a delivered basis, which means that freight and insurance are managed by the seller, and the Indian buyers pay the all-inclusive landed price of crude. Also, India is not a signatory to the price cap regime, and has even voiced its opposition to the cap being selective and aimed at specific buyers, given that it applies only to seaborne Russian crude and not on oil supplied through pipelines to other geographies.

Nevertheless, the government does not want Indian refiners to brazenly flout the G7 price cap or accept deliveries on sanctioned tankers in order to avoid secondary sanctions themselves, sources said. Over the past couple of months, there have been instances of tankers headed for India being sanctioned by the US for price cap evasion, leading to Indian refiners refusing to accept the cargoes.

But beyond that, the Indian government has maintained that buying discounted Russian crude has been in the interest of India's energy security and should not be looked at from a geopolitical lens. In fact, Petroleum Minister Hardeep Singh Puri and External Affairs Minister S Jaishankar have even said that India's purchase of large quantities of Russian crude brought balance and stability in the global energy markets and eased extreme price and supply volatility internationally.

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Indian refiners ramped up Russian oil purchases in the aftermath of Moscow's February 2022 invasion of Ukraine. As the West started weaning itself off Russian energy supplies, Russia began offering deep discounts on its crude oil, which Indian refiners began lapping up. Prior to the war in Ukraine, Russia was a marginal player in India's oil imports, but is now New Delhi's biggest source of crude. India is the world's third-largest consumer of crude oil and depends on imports to meet over 85 per cent of its requirement.

WHAT IS BITCOIN HALVING AND WHAT DOES IT MEAN FOR THE CRYPTO COMMUNITY?

Just as the sporting world eagerly awaits the Olympics every four years, those following cryptocurrency look forward to their own quadrennial event. As athletes train for the 2024 Games in Paris this summer, crypto traders and Bitcoin miners are preparing for what is known as the 'Bitcoin halving'—predicted to happen in April.

What is the Bitcoin halving?

Bitcoin halving refers to the 50% reduction in the reward paid to Bitcoin miners who successfully process other people's cryptocurrency transactions so that they can be added to the public digital ledger known as the blockchain. In order to "grow" Bitcoin's blockchain and keep the ecosystem running, Bitcoin miners rely on advanced computer equipment to solve a complex mathematical puzzle through a process known as 'Proof of work.' This intense activity is the reason Bitcoin transactions result in huge carbon footprints and require vast amount of electricity. No real mining is carried out.

The Bitcoin miners with cutting-edge computer equipment, working on an industrial scale, are most likely to solve the puzzle first and claim their prize, which is currently set at 6.25 Bitcoin (BTC). While the reward amount is set, the true value of this prize fluctuates based on BTC prices in the market, and when the owner chooses to sell.

Think of a group of grocery store cashiers who are in a contest to each bill the same set of items, with the person doing it first (and accurately) getting a prize of ten gold coins at the end. The cashiers can use their favourite tools in order to bill the items and process the payment. While one might prefer to tally up the total with paper and pencil, another might decide to use their smartphone calculator, while someone else buys a state-of-the-art computer system attached to a price scanner. The person most likely to win in this case is the cashier with the most advanced equipment, but the others stand a chance of winning as well. This is largely a positive system for everyone: the customers' items are efficiently billed and all the cashiers do their job well because they want to claim the prize.

After four or so years, you return to the grocery store where the cashiers still have this contest, but the prize money has been reduced to five gold coins. Is the prize still worth the effort? That depends on the price of gold in the market, and the cost of the equipment that the cashiers bought in order to win the gold coins. This is one way to understand Bitcoin halving.

Why does the Bitcoin halving matter to crypto investors?

Bitcoin mining increases the supply of BTC in circulation while Bitcoin halving reduces the rate at which these coins are released, making the asset more scarce. Scarcity is seen as pushing up prices, as is the case with gold. While there can only ever be 21 million BTC in the world, over 19 million have already been "mined" or released. This sounds like the end of the story, but Bitcoin halving



means it will take far more time for the remaining coins to be mined. A halving takes place after 2,10,000 blocks are mined, and has happened so far in 2012, 2016, and 2020 — every four years.

In 2009, a successful Bitcoin miner could claim a prize of 50 BTC. After this year's halving, they will only get 3.125 BTC. However, keep in mind that Bitcoin prices are far higher now than they were in 2009, so this isn't necessarily a loss for the miner. As of February 14, the price of 1 BTC was around \$49,528. This means a mining reward on February 14 would be worth around \$3,09,550 (6.25 x price of 1 BTC). Whether this value will rise or fall after the Bitcoin halving depends on the price of Bitcoin.

Both corporate and independent Bitcoin miners are spread across the world, trying to leverage cheap electricity prices in countries like Kazakhstan and Iran to mine as much Bitcoin as they can. China was originally home to many of the world's crypto miners, but government crackdowns triggered an exodus to other countries.

What impact will Bitcoin halving have on investors?

This depends on the investor in question, and the extent of their involvement with Bitcoin and its ecosystem. For example, a corporate-level miner who has burned through their wallet paying for Bitcoin mining hardware (and the electricity bills that come from powering them) is probably desperate to earn their block reward in these last days while it is still set at 6.25 BTC rather than the much lower 3.125 BTC.

On the other hand, a new trader who has invested a small sum of money in Bitcoin through their crypto exchange via a phone app and knows nothing about the underlying blockchain technology might not even react to the news of the halving.

Meanwhile, a more experienced trader who has looked at past halvings might try increasing their Bitcoin investment in the hope of benefiting from a possible price spike, even as another might "short" Bitcoin while hoping to profit from a possible price crash.

What will happen to the crypto market after the next Bitcoin halving?

While nobody can know for sure what would happen to the crypto market, innumerable self-styled crypto traders, financial analysts, fintech engineers, crypto influencers, and statisticians claim they can predict the price trajectory of Bitcoin with the help of cryptocurrency models and metrics, but investors should know these are all educated guesses at best.

Many Bitcoin investors and watchers also reference a recurring four-year cycle that hinges on the halvings, or even claim that prices spike after the halvings.

But in reality, the coin's journey has been far more unpredictable and difficult to map out.

Every halving in Bitcoin's history has been wildly different due to an eclectic mix of blockchain-related factors, increasing regulation by lawmakers worldwide, more awareness about cryptocurrency investments, greater adoption of Bitcoin, and diverse geopolitical events or economic shocks. Bitcoin is an asset whose price is largely steered by investors' emotions, with there even being a 'Fear and Greed' indicator to help investors understand how prices could suddenly shift.

While the next Bitcoin halving will be a fascinating episode to witness, it is best for crypto watchers to rely on their own research and decide what the halving means to them personally.



WHY HAVE GDP AND GVA GROWTH RATES DIVERGED IN Q3?

India's Gross Domestic Product (GDP) growth rate surpassed expectations to rise to a six-quarter high of 8.4% in the third quarter (October-December) of 2023-24, data released by the National Statistical Office (NSO) on Thursday showed.

This was much higher than the 6.5% estimate for Q3 by the Reserve Bank of India (RBI), and similar estimates by economists. The Q3 GDP helped push the estimate for the full year to 7.6% in the second advance estimates, from the 7.3% estimated in the first advance estimates released in January.

While there was an improvement in manufacturing, mining, construction, trade, hotels, transport and communication, and services related to broadcasting, the agriculture sector recorded a contraction in Q3.

There was, however, a sharp divergence in the growth rates based on GDP and Gross Value Added (GVA), which has led some economists to suspect that GDP may have been overstated. While GDP for Q3 was 8.4%, GVA growth was recorded 190 basis points lower at 6.5%. GDP is arrived at by adding product or indirect taxes, and excluding subsidies to GVA, which measures national income from the output side.

Another factor that seems to have contributed to real growth being overstated is lower-than-usual annual GDP deflator. It is seen growing by 1.4% in FY24 as against 6.8% in FY23, reflecting the deflation in the wholesale price index (WPI) used to calculate it.

The deflator measures changes in prices of all the goods and services produced in an economy, and thereby helps compare the levels of real economic activity from one year to the next. A lower deflator means higher real GDP growth and vice versa. In Q3, deflator increased marginally to 1.7% from 1.5% in Q2 FY24.

What were the key reasons behind the surge in Q3 GDP?

Barring agriculture, all other sectors posted strong growth during October-December. The GVA of 'Agriculture, Livestock, Forestry & Fishing' contracted by 0.8% in Q3 as against a 5.2% growth in the year-ago period, and 1.6% in the previous quarter.

Manufacturing grew at 11.6% in Q3 as against a low base of (-) 4.8% in the year-ago period, while construction posted a strong growth of 9.5% compared with the same rate of growth in Q3 a year ago.

On a sequential basis, manufacturing declined by 4.9% in October-December 2023-24. In the year-ago period too, manufacturing had posted a sequential decline of 2.5% in Q3.

Among services, 'Trade, Hotels, Transport, Communication & Services related to Broadcasting' grew 6.7% in October-December as against 9.2% in the year-ago period. 'Financial, Real Estate & Professional Services' grew 7.0% and 'Public Administration, Defence & Other Services' by 7.5%.

On the expenditure side, a rise in investments supported the GDP growth. "The real estate cycle has turned (households are 40% of investment: their physical savings have risen, a large part of which is housing), and industry utilisation is back at 2019 levels thus leading to a revival in the capex cycle," Axis Bank said in a note.



There's a perceptible slowdown in private final consumption expenditure, an indicator of consumption demand, with the FY23 growth levels seen growing at a more than two-decade low (barring the pandemic year).

In Q3, private final consumption expenditure rose by 3.5% year-on-year, while government final consumption expenditure decreased by 3.2%. Gross fixed capital formation, an indicator of investment, grew by 10.6% during the third quarter.

What revisions were made to GDP growth rates?

Several revisions were made to the growth rates of previous financial years, and the third quarter growth rate gained from a favourable base effect from the downward revision in the year-ago period.

For October-December 2022-23, growth rate was revised down to 4.3% from 4.5%. Quarterly growth rates were also revised for the first two quarters of the current fiscal. The GDP growth estimate was revised up to 8.1% from 7.6%, while that for the April-June quarter was revised to 8.2% from 7.8%. This came on the back of a downward revision in FY23 quarterly growth rates to 5.5% in July-September from 6.2% earlier and 12.8% in April-June from 13.1% earlier.

Why is there a divergence between the two measures of growth, GVA and GDP?

The sharp divergence in GDP and GVA rates for Q3 is on account of a sharp rise in net taxes and a fall in subsidies. The difference between the two sets of growth rates widened to 190 basis points in Q3 from 40 basis points in the previous quarter.

Axis Bank in its note said the divergence is at a 10-year high, driven mainly by a rise in net taxes. Net taxes rose by 32% year-on-year in Q3 FY24 in real terms. Net taxes are calculated by adding product taxes and excluding subsidies.

IDFC First Bank said the fluctuation in net tax collections has added a lot of volatility in the GDP print in Q3. "Instead, GVA would be a better metric to look at while assessing growth as it's not impacted by fluctuation in net tax collections," it said in a note.

Government officials said the divergence between GVA and GDP rates was mainly due to a sharp fall in subsidies in the quarter because of lower payouts on fertiliser subsidies. As per the latest Controller General of Accounts (CGA) data for April-January, urea subsidy was 25% lower than the year-ago period at Rs 1.05 lakh crore. Payouts by the central government for total major subsidies were lower by 21% during the same period.

The divergence in GVA and GDP growth rates was also seen for the full financial year. GVA is expected to grow at sub-7%, with an estimated rate of 6.9% in FY24 as against 6.7% last fiscal (earlier estimate was 7.0%). This compares with GDP of 7.6% in FY24 as against 7.0% in the previous financial year.

What are the growth expectations and concerns going forward?

The most critical aspect to watch out for will be a broad-based improvement in consumption growth and private investments.

GDP growth was supported by investment growth while private consumption growth remained subdued. Going forward, with slow growth in profits, growth may take a hit.



Also, GDP deflator growth will be even higher in FY25 which is expected to pull down real GDP growth, economists said.

“Growth momentum is expected to moderate as companies’ profit growth slows and as input cost picks up. On the consumption front, rural demand is likely to get support from strong rabi output. However, urban demand could moderate as urban wage growth slows. Government capital expenditure, which has been the key support for the capex cycle, could slow in Q4,” IDFC First Bank said.

EXPRESS VIEW ON INDIA’S TARIFF REGIME: COSTS OF A BARRIER

Since the early 1990s, India had been steadily moving towards a low tariff structure. The average tariff declined from 125 per cent in 1990-91 to 13 per cent in 2014-15, according to a study. However, since 2014 there have been around 3,200 tariff increases, with the largest increases occurring in 2018, according to a paper by economist Shoumitro Chatterjee and the former chief economic adviser to the government of India, Arvind Subramanian. These large tariff increases, which can be traced to the government’s call for atmanirbharta or self-reliance, have meant that the average tariff rate has risen to around 18 per cent, affecting a sizeable segment of the country’s trade basket. India’s tariffs are amongst the highest in the world.

In fact, they are not only higher than those of China (7.5 per cent), but also countries like Vietnam (9.6 per cent) and Bangladesh (14.1 per cent) — India’s competitors in the China plus one strategy. High tariffs place manufacturers at a disadvantage, affect export competitiveness and hurt consumers.

Alongside this growing protectionism, the targeting of Chinese imports post the Galwan clash is also now being seen as impacting domestic output or loss of competitive advantage in sectors such as electronics and pharmaceuticals — China accounts for a sizeable share of India’s imports, especially inputs in key sectors and capital goods. According to a report in this paper, sections within the government have begun raising these issues, favouring a more nuanced approach. This should spur conversations in the government on its approach towards promoting manufacturing and facilitating exports.

Reportedly, the Ministry of Electronics and Information Technology had also earlier this year pressed for reducing duties on parts including circuit boards, chargers and fully assembled phones. Groups representing cell phone manufacturers had said that the country’s high tariff structure is a disincentive to de-risking supply chains beyond China. Seeking to be attractive alternatives for mobile manufacturers, countries like Vietnam, Thailand and Mexico are lowering tariffs on phone components. There are some indications of a rethink on the issue — a day before Union Budget 2024-25, the government announced a reduction in the import duty for components used in the manufacturing of mobile phones from 15 per cent to 10 per cent. This is the right approach. Erecting high tariff walls allows inefficient domestic players to survive, and hurts consumers.

Alongside, the government must press ahead with signing trade agreements. After initially showing some hesitation, it has signed a comprehensive economic partnership agreement with the UAE and an economic cooperation and trade agreement with Australia. It is currently negotiating agreements with other countries such as the UK. It must pursue similar pacts, including with the European Union.



RBI ASKS NPCI TO CONSIDER PAYTM'S REQUEST FOR TPAP: WHAT IT MEANS, HOW IT COULD BENEFIT USERS

The Reserve Bank of India (RBI) has asked the National Payment Council of India (NPCI) to examine the request of One97 Communications' (OCL), which owns Paytm, to become a Third-Party Application Provider (TPAP) for continued Unified Payments Interface operation of the Paytm application.

A TPAP approval is mandatory to provide UPI-based payment transactions to customers. Currently, all UPI transactions on the Paytm app are being routed through Paytm Payments Bank (PPBL), an associate company of OCL, which is registered as TPAP.

As the RBI has asked the PPBL to shut its operations by March 15, 2024, there will be no TPAP registration for the Paytm app to be able to provide UPI payment services.

What is a TPAP?

A Third-Party Application Provider is an entity that provides the UPI compliant app(s) to the end-user customers to facilitate UPI-based payment transactions. These applications could be mobile wallets, merchant apps, or any other platform that utilises UPI for payments.

NPCI, the umbrella organisation for operating retail payments and settlement systems in India, owns and operates the UPI platform.

TPAPs leverage the UPI infrastructure provided by NPCI and work with payment service providers (PSPs) and banks to facilitate transactions. They are responsible for ensuring that their applications adhere to security standards and compliance guidelines set by NPCI.

What has RBI said?

Last month, the RBI barred Paytm Payments Bank from accepting deposits or top-ups in any customer account, prepaid instruments, wallets, FASTags and NCMC card after February 29, 2024, in the wake of persistent non-compliances. The deadline was later extended by 15 more days to March 15.

As the Paytm Payments Bank cannot accept further credits into its customer accounts and wallets after March 15, the RBI, on February 23, announced some steps to ensure seamless digital payments by UPI customers using '@paytm' handle operated by the PPBL. It directed NPCI to examine the request of OCL to become a TPAP for the UPI channel for continued UPI operation of the Paytm app.

What happens if OCL gets TPAP approval?

For Paytm, TPAP approval from NPCI is a must to continue to provide UPI-based payment transactions facility to customers.

The RBI said in case NPCI grants TPAP status to OCL, '@paytm' handles will have to be migrated in a seamless manner from Paytm Payments Bank to a set of newly identified banks to avoid any disruption.

OCL will not be allowed to add new users until all the existing users are migrated satisfactorily to a new handle, the regulator said.



“For seamless migration of ‘@paytm’ handle to other banks, NPCI may facilitate certification of 4-5 banks as PSP banks with demonstrated capabilities to process high volume UPI transactions,” the RBI said. This is to minimise concentration risk in the UPI system by having multiple payment app providers. As per NPCI regulations, large TPAPs have to mandatorily participate in UPI through a multibank model only.

However, the RBI clarified that the migration of UPI handles is applicable only to those customers and merchants who have a UPI handle ‘@Paytm’. For others having a UPI address or handle other than ‘@Paytm’, no action would be required to be taken.

How many TPAPs are there?

Currently, there are 22 NPCI-approved 3rd party Unified Payments Interface (UPI) apps that can be used to send and receive money from other UPI users by using UPI IDs. They include Amazon Pay, Google Pay, Groww, Jupiter Money, Mobikwik, Phonepe, Samsung Pay, TataNeu and Whatsapp.

WHAT IS THE NEW FPI FRAUD SEBI HAS WARNED INVESTORS AGAINST

The markets regulator Securities and Exchange Board of India (SEBI) has warned individuals against fraudulent trading platforms falsely claiming or suggesting affiliation with its registered Foreign Portfolio Investors (FPIs).

These platforms are misleading individuals by claiming to offer them trading opportunities through FPI or Foreign Institutional Investor (FII) sub-accounts or institutional accounts with special privileges.

What is the modus operandi?

The SEBI said it has received many complaints where fraudsters are enticing victims through online trading courses, seminars, and mentorship programmes in the stock market, leveraging social media platforms like WhatsApp or Telegram, as well as live broadcasts. These scamsters are posing as employees or affiliates of SEBI-registered FPIs, and coaxing individuals into downloading applications that purportedly allow them to purchase shares, subscribe to IPOs, and enjoy ‘institutional account benefits’—all without the need for an official trading or Demat account. These operations often use mobile numbers registered under false names to orchestrate the fraudulent schemes, SEBI, said.

What has SEBI clarified?

The market regulator clarified that the FPI investment route is unavailable to resident Indians, with limited exceptions as outlined in the SEBI (Foreign Portfolio Investors) Regulations, 2019. “There is no provision for an ‘Institutional Account’ in trading and direct access to the equities market requires investors to have a trading and Demat account with a SEBI-registered broker/trading member and depository participant (DP) respectively,” the regulator said. SEBI has not granted any relaxations to FPIs regarding securities market investments by Indian investors.

What should investors do to stay safe?

SEBI has urged investors to exercise caution and to steer clear of any social media messages, WhatsApp groups, Telegram channels, or apps claiming to facilitate stock market access through

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FPIs or FIIs registered with SEBI. Such schemes are fraudulent and do not have SEBI's endorsement, the regulator said.

ON IRREGULARITIES IN VERTICAL DEVOLUTION

The recent agitations by the governments of Kerala and Karnataka, and the support extended by several State governments, have highlighted many disquieting issues in the practice of fiscal federalism in India. These agitations show that the newly constituted 16th Finance Commission (FC) would have to proceed seriously and innovatively to justly address complaints of increasing vertical and horizontal inequalities in devolution.

Within the domain of vertical devolution — that is the sharing of resources between the Union and States — there are two disturbing trends that need urgent redressal. First, the Union government has sought to keep an increasing share of its proceeds out of the divisible pool so that they need not be shared with States. Secondly, it has also not been devolving the shares of net proceeds to the States as mandated by successive FCs.

The shrinking divisible pool

The net divisible pool, or net proceeds, is that part of the gross tax revenue from which a share would have to be vertically devolved by the Union to all States. Such shares are assigned by each FC for a five-year period. Earlier, all corporation taxes and customs duties were fully absorbed by the Union, and only income taxes and excise duties were shared with the States. However, with changes over the years, culminating in a constitutional amendment in 2000, all taxes of the Union were added to the net proceeds. But there was a catch — cesses and surcharges under Article 270 and Article 271 were kept out of the net proceeds. In the past, such exclusion of cesses and surcharges were based on specific FC recommendations. But the amendment in 2000 provided a constitutional basis for it. Presently, the net proceeds consists of the gross tax revenue after the deduction of cesses, surcharges and the cost of collection of taxes.

Over the past decade or more, several cesses and surcharges were introduced by the Union government. When the Goods and Services Tax (GST) was initiated in 2017, the expectation was that many cesses and surcharges would be discarded and subsumed into the GST system. On the contrary, new cesses and surcharges continued to be introduced, and many old cesses and surcharges remained outside the GST system. For instance, the Agriculture Infrastructure and Development Cess was introduced as recent as in 2021-22. Similarly, when the Health and Education Cess was introduced in 2017-18, it just replaced the Primary Education and Secondary Education cess on direct taxes. The expansion of cesses and surcharges have led to the exclusion of an increasing share of the gross tax revenue from net proceeds. Interestingly, there is conflicting information released by the government on the quantum of cesses and surcharges. In December 2022, responding to a question raised in the Rajya Sabha, the government stated that the share of cesses and surcharges in the gross tax revenue was 18.2% in 2019-20, 25.1% in 2020-21 and 28.1% in 2021-22. But responding to another question in the Lok Sabha in March 2023, the government stated that the corresponding shares were 15.6% in 2019-20, 20.5% in 2020-21 and 18.4% in 2021-22.

Between 2009-10 and 2023-24, a cumulative total of ₹36.6 lakh crore was collected by the Union government as cesses and surcharges. An additional ₹5.5 lakh crore is projected to be collected as cesses and surcharges in 2024-25. This amount was not shared with States and was used solely by the Union government.



Rise in tied transfers

The Union government may argue that a part of this amount was used to finance centrally sponsored schemes and central sector schemes, while another part was used to provide non-plan grants or capital transfers to States. The problem, however, is that such transfers are not untied as is the case with the devolution of State's share in central taxes. In centrally sponsored schemes, about 40% of the cost must be borne by the State governments. Even in central sector schemes, the contribution of the Union government is often meagre, and the State governments are forced to contribute significantly larger amounts to run the schemes meaningfully.

Even when State governments contribute a lion's share in implementing a central project, the Union government often tries to usurp credit by insisting on displaying the Prime Minister's photograph or other forms of labelling. Recent disputes over labelling in the Ayushman Bharat wellness centres is one such example. Similarly, several grants given to the States are contingent on fulfilment of conditionalities — and some of these conditionalities include the insistence on labelling. Finally, most capital transfers given to the States are loans, which must be repaid to the Union government

The bottom line is that none of the transfers to the States outside the FC recommendations are either unconditional or suitable to meet their context-specific needs. Instead, they tend to reaffirm a centralising tendency in the fiscal realm — one that effectively tends to push the Union-State relationship into a patron-client relationship. Any purported deviation from the guidelines or a failure to meet the imposed conditionalities can lead to the denial of such resources.

The share of States in central taxes is, thus, a gold standard in any assessment of fiscal federalism. It is a matter of deep worry, then, that the Union government increasingly pays less of untied transfers to States and retains more of the gross tax revenue as cesses and surcharges. The substitution of such untied transfers with central schemes does not ameliorate the loss; instead, it inserts rigidities in Union-State relations and ends up diluting the spirit of cooperative fiscal federalism.

The CAG indictments

Cesses and surcharges have also been subjected to critical scrutiny by the Comptroller and Auditor General (CAG). All cesses must be transferred to a reserve fund in the Public Account of India after their collection. In its reports the CAG has uncovered numerous instances of either non-transfer or short transfer of the collected amounts to the respective funds. A CAG report in 2023 noted that if ₹52,732 crore was collected towards the Health and Education Cess in 2021-22, only ₹31,788 crore (or 60%) was transferred to the reserve fund of Prarambhik Shikha Kosh. The Research and Development Cess must be transferred to the Fund for Technology Development and Application. A CAG report in 2019 noted that the total collection of Research and Development Cess between 1996-97 and 2017-18 was ₹8,077 crore, but only ₹779 crore (or 9.6%) was transferred to the Fund.

The Swatchh Bharat Cess must be transferred to the Rashtriya Swachhata Kosh. The extent of short transfer to the Kosh between 2015-16 and 2017-18 was ₹4,891 crore. The extent of short transfer between 2010-11 and 2017-18 under the Road Cess was ₹72,726 crore and under the Clean Energy Cess was ₹44,505 crore. Non-transfers and short transfers of cesses defeat the logic of their collection. It also reaffirms the view that cesses and surcharges are just a ruse to divert increasing quantum of funds away from the divisible pool to meet other financial requirements of the Union government.



EXPRESS VIEW ON GOVERNMENT'S NEW GRAIN STORAGE PLAN: MORE IN STORE

Last week, Prime Minister Narendra Modi launched the world's largest grain storage plan in the cooperative sector. PM Modi, who was speaking at the inauguration of a pilot project being carried out in 11 states by primary agricultural credit societies under this plan, said that the government is looking to "set up a storage infrastructure of 700 lakh metric tons". Expected to fructify over the coming five years, this is likely to cost Rs 1.25 lakh crore. The government's plan is ambitious. To put it in perspective — the Food Corporation of India currently has a storage capacity of 361.62 lakh tonnes and state government agencies have capacities of another 400.74 lakh tonnes as reported in this paper. This would imply that the government aims to almost double the existing storage capacity in the country.

This sharp increase in storage facilities would help at multiple levels — it will cut down losses due to lack of adequate infrastructure, and enable farmers to sell their output at an opportune time in terms of prices. At the same time, the framework of this new storage plan also points towards the increasing emphasis the government is placing on cooperatives. It had previously outlined a plan to establish two lakh primary agricultural credit societies (PACS), dairy and fisheries cooperatives in the country.

The Union Budget 2023-24 flagged the initiation of the process of computerisation of 63,000 PACS with an investment of Rs 2,516 crore. The formation of a Ministry of Cooperation under Amit Shah is also indicative of this priority.

The appeal of PACS rests in these societies serving as the last, but vital, link in the cooperative credit structure. A report by the Reserve Bank of India had pegged the number of such societies in the country at 1.02 lakh at the end of March 2021. These societies, which have a sizeable presence in the western part of the country, served "13.7 crore members and 5.4 crore borrowers", it said. The disaggregated data shows that small and marginal farmers and others accounted for 81 per cent of these 13.7 crore members. Around 60 per cent of lending of district central cooperative banks is through these societies. However, as the study pointed out, of these one lakh plus PACs, only 47,297 were in profit.

This increasing reliance on cooperatives stems from the prime minister's belief in their critical role in solving farmers problems "through group/collective strength". PM Modi, while also outlining the expanding role of these societies, said, "As chief minister, I experienced the strength of cooperatives. The world knows Amul and Lijjat Papad." This emphasis may also be an indication, though, of receding expectations of large-scale investments from the private sector in agriculture infrastructure and marketing.

DECODING SPENDING

For the first time in about 11 years, the government on Saturday released the broad findings of the All India Household Consumption Expenditure Survey carried out between August 2022 and July 2023.

The data will play a key role in reviewing critical economic indicators, including the Gross Domestic Product (GDP), poverty levels, and the Consumer Price Inflation (CPI).

The Household Consumption Expenditure Survey (HCES) is conducted by the National Statistical Office (NSO) every five years. However, findings of the last survey, conducted in 2017-18 soon



after the demonetisation of high-value currency notes and the implementation of the Goods and Services Tax (GST), were never released after the government cited “data quality” issues.

In an uncharacteristic late Saturday release, the Statistics Ministry unveiled the broad findings of the Household Consumption Expenditure Survey done between August 2022 and July 2023. This is significant as it is the first major survey-based data released since 2011-12 that captures ground realities at the household level — especially with the once-a-decade Census, due since 2021, nowhere in sight. Conducted every five years by the National Sample Survey Office (NSSO), the results of the last such consumption survey in 2017-18, along with a similar employment survey, were junked with the government citing “quality issues” with the data — viewed as a euphemism for the unhappy tidings it may have showed. If the 2017-18 Survey was abandoned because it captured the deleterious after-effects of the demonetisation of high-value currency notes in late 2016 on India’s largely informal economy, and the subsequent onset of the Goods and Services Tax, the 2022-23 survey also needs to be interpreted with a dash of salt. For, it may likely magnify the exuberance seen in consumption after two years of pandemic-induced curbs and income losses — what economists call the release of pent-up demand.

To be clear, the Survey suggests some interesting transitions in consumption patterns and the complete findings must be published swiftly to enable deeper analysis. Households’ average monthly per capita consumer expenditure (MPCE) rose 33.5% since 2011-12 in cities to reach ₹3,510, and 40.4% in rural India to ₹2,008. The government has sought to paint this as a signal of rising incomes, narrowing inequality, and a sharp slippage in poverty levels. But this only implies a 3.5% compounded annual growth in rural spends over 11 years, with a 3% growth for urban households — well below the inflation and GDP growth rates in this period. Puzzlingly, even after adding the imputed values of free goods received through a myriad of welfare schemes such as the PM Garib Kalyan Anna Yojana, the average MPCE only rose to ₹2,054 for rural households and ₹3,544 for urban peers. That the proportion of monthly spends on food has slipped below 50% in rural homes (to 46.4%), and under 40% in urban homes, with cereals seeing the sharpest drop, is remarkable, and may ease inflation trends if used to rejig Consumer Price Index weightages. However, it is pertinent to recall that food inflation began spiking last June just ahead of the Survey’s completion, and has remained elevated since. So, proportional spends have likely changed. A clearer picture, devoid of pent-up demand and inflation flip-flop effects, is expected from the fresh Survey that concludes this July. So, any recalibration of poverty, inflation or GDP calculations must wait till those results are compiled, and released as well.

LUXURY CARS IN INDIA SAW A 30% INCREASE IN THE LAST 5 YEARS

The number of luxury cars in India recorded a sharp increase in the last five years, an analysis of vehicle registration data shows. Nearly 5 lakh luxury cars have been registered till date in India across various Regional Transport Offices, according to the Vahan portal. Of them, close to 30% were registered in the 2020-2024 period. This number is significantly high considering that the first two years in this period coincided with the pandemic and various sections of the economy were still in the recovery phase in the following two years.

For this analysis, certain manufacturers were termed luxury brands based on reports published in various credible news portals. The selection includes the following manufacturers: Lamborghini, BMW India, Porsche, Jaguar Land Rover, Mercedes-Benz, Volvo, Bentley Motors, Lexus Motors, Rolls Royce, Ferrari India, Audi AG, Aston Martin, Maserati, Acura Legend and Alfa Romeo. In some cases, the price of cars was also considered.



LIFE & SCIENCE

BLANETS: WORLDS AROUND BLACK HOLES

The three planets (other than the earth) featured in Christopher Nolan's 2014 sci-fi epic film *Interstellar* are worlds of extremes – and they could exist. On paper, at least. Technically, these planets are called blanets, as are all planets that orbit not stars but black holes.

In 2019, a handful of scientists in Japan theorised that planets could form in the massive dust and gas clouds that astronomers have observed near supermassive black holes. However, these planets aren't expected to be anything like the earth.

By observing black holes and their effects on their surroundings, we know they're surrounded by a colossal disc of gas and dust that the black hole is swinging around, pulling in, and heating up. Scientists think there is reason to believe almost every galaxy has a black hole at its centre, a seed around which the stars in the galaxy organise themselves.

We also know planets are formed when the dust and gas swirling around a young star collide and clump together. A similar process could be in play near supermassive black holes, where planets take shape inside the disc and eventually become blanets.

These blanets are expected to be about 3,000-times as large as the earth and will have to orbit the black hole at a distance of about 100 trillion km – far enough for the black hole to not rip the blanet apart just as it's being born.

LEAP YEAR: HOW DOES IT WORK? WHY FEBRUARY 29?

This year, February will be a day longer than usual. That is because 2024 is a leap year — a calendar oddity that adds one extra day to the otherwise 365 days that form a year.

Leap years, characterised by the insertion of an extra day—February 29—every four years, are crucial for maintaining the precision of our calendar. This periodic adjustment aligns our societal timekeeping with the Earth's orbital cycle around the sun, highlighting the intricate balance between human conventions and natural phenomena.

Understanding Leap Years: Why Do We Need Them?

Our calendar year consists of 365 days, but the Earth's journey around the sun actually takes about 365.24 days. That difference might seem small, but over time, it adds up. Without leap years, our calendar would gradually fall out of sync with the seasons. Imagine if summer started in December instead of June. Leap years ensure that doesn't happen by adding an extra day—February 29—every four years.

The Mechanics of Leap Years: How Do They Work?

Leap years operate on a simple principle: adding one extra day every four years helps to balance out the discrepancy between our calendar and the solar year. However, there's a slight hitch. By adding that extra day, we overshoot a bit, accumulating about 44 extra minutes every four years. To counteract this, we skip leap years every century, except for those divisible by 400, like the year 2000.



Why February 29?

When it came time to choose which day to add to the calendar, February was the natural pick. It's the shortest month of the year, making it the perfect candidate for an extra day. This addition helps to keep everything in sync without throwing off the balance too much.

Leap years might seem like a strange concept, but they're essential for maintaining the accuracy of our calendar. By making small adjustments every four years, we ensure that our days, months, and seasons stay in harmony with the natural rhythms of the Earth.

WHY IS THE REDDIT LICENSING DEAL IMPORTANT FOR GOOGLE'S AI PLAN?

Social media platform Reddit on Thursday struck a licensing deal with Google, allowing the search giant to access Reddit users' posts to train the company's artificial intelligence (AI) engine. As part of the deal, Google will pay the social news aggregation site \$60 million annually to access user-generated content from the platform. This deal couldn't have come at a better time for the two companies. Reddit wants money and investor love ahead of its planned initial public offering (IPO). And Google is looking to save face from its AI misadventures.

While Reddit generates revenue, the company is not profitable. Its IPO document, filed with the U.S. stock market regulator, reveals a revenue of \$804 million in 2023; most of it coming from advertisers. But the platform suffered a net loss of \$90.8 million. Google's annual pay check to Reddit will provide the platform money to make the company profitable. Plus, a data partnership with one of the biggest players in AI can boost Reddit's stature before its IPO, making investors find value in the platform. The licensing deal hands the Mountain View, California-based company a data mine to salvage itself from the AI wreck it's in now.

What ails Google?

Google's sporadic attempts to break OpenAI's dominance in AI has left the search giant badly bruised. The company's maiden AI chatbot Bard, launched as a rival to OpenAI's ChatGPT, was faulty. It had factual errors in its first demo video and subsequent iterations weren't upto par either.

Most recently, the company's Gemini chatbot overcompensated for the lack of diversity by throwing up irrelevant images in response to queries. The company's AI-based image generator showed a picture of a Black woman when queried 'Who is the United States' founding father?' In another instance, it showed Asian persons as Nazi-era German soldiers. Such unintelligent responses have caused quite a stir. These blunders made the company's top executive, overseeing its search business, Prabhakar Raghavan, apologise and note that the product "missed the mark".

While these issues are tied to its large language model (LLM) and weights attached to tokens, the other challenge Google is facing is the lack of raw data — LLMs are data-hungry algorithms, and the quality of information flowing into it them matters a lot. To be good at typing out accurate texts, Generative AI (GenAI) models first need to read copious amounts of texts.

Till now tech firms had a free ride by scraping the web for text and using open-source crawling tools to sneak into websites and take data from those sites. This modus operandi is being challenged as users and publishers are pushing back against AI companies from scraping data from the web indiscriminately. In a proposed class action lawsuit, in July 2023, Google was accused of misusing a large amount of web users' personal information to train its AI models.



Separately, in December, news publisher The New York Times sued OpenAI and Microsoft for copyright infringement. The lawsuit claims that the AI firms used millions of its news articles to train the company's AI model — ChatGPT. Such complaints from individuals and corporations are making lawmakers sit up and formulate policies on the ethical use of information available on the web.

Lawmakers in the U.S. filed a Bill, the AI Foundational Model Transparency Act, that would require the Federal Trade Commission (FTC) and National Institute of Standards and Technology (NIST) to frame rules to report data transparency in AI models. This would require builders of foundational AI models to disclose their sources of training data. If such a law is passed, AI companies will have to compensate for using data to train their models. Consequently, cost of building AI models will go up. To pre-empt such a law, large tech firms are sealing up licensing deals with news publishers and other content sources. OpenAI's deal with the news agency Associated Press is a case in point.

Other news organisations, including Gannett (the largest U.S. newspaper company) and News Corp (the owner of The Wall Street Journal), have been in talks with OpenAI, as per media reports. The publications that have cut a deal with AI companies will get a fee based on the frequency of their content being used.

How different is this deal?

It is against this context Google is making a deal with Reddit. But, unlike other platforms, Reddit works as a social news website, where content is socially curated and promoted. The platform is composed of hundreds of sub-communities, known as subreddits, where members submit content, which is then up- or down-voted by other members.

In the context of this deal, Google will have access to Reddit's Data API, which will provide the search giant real-time, unique content from a large and dynamic platform. This will help the company's AI model access behavioural and trending information data. And apart from this, Google will continue to access information from the web using crawlers.

However, there is one catch. In July 2023, when Reddit decided to introduce a new policy that charged some third-party apps for accessing data on its platform, concerns over content moderation and accessibility arose. Several groups protested the changes proposed by Reddit. Over 8,000 subreddits went dark. The subreddit groups, at the time, said the changes threatened to end the key way of historically customising the platform. To avoid such a conflict this time around, Reddit is giving an unspecified number of its top users, including moderators and those with high karma scores (a score that shows how much a user contributes to the Reddit community), the chance to buy shares in its IPO, according to a report by The Verge.

Reddit plans to do it through an allocation system based on tiers. Individuals from tier one, will be certain users and moderators identified as those who have meaningfully contributed to Reddit community programmes. The second tier will be made up of people with a karma score of at least 2,000 and those who have performed at least 5,000 moderator actions. This is an unusual move, as this privilege is usually reserved for professional investors who want to buy stock at a theoretically lower price before the stock is listed on an exchange. Reddit currently has some 2,67.5 million active weekly users, more than 1,00,000 active communities, and one billion total posts, according to its SEC filing.



Have other platforms used user data to train AI models?

Unlike Reddit, few platforms have been forthcoming on whether the public information of users is used to train AI models. X, formerly Twitter, in September, said it would use users' posts to train AI models for the purposes outlined in its policy. The policy did not specify the AI model it referred to.

Meta said user data from its applications, including Facebook, Instagram, and Threads, would be used to train AI for its AI chatbot. While TikTok and Snapchat have both launched AI chatbots, neither has mentioned taking users posts to train AI models.

The practice of using user data to train algorithms is not new in the world of tech. Most of the platform's recommender engine uses a person's usage data to suggest videos, articles and movies. But using that information to train AI models is new and it calls for caution given these chatbots propensity to regurgitate personal information when it responds to prompts. A case in point is Samsung banning the use of AI chatbots in its offices after it found that the bot spat out company secrets after employees used the application.

AFTER CENTRE'S THREAT TO SEND NOTICE, GOOGLE SAYS 'ADDRESSED' AI RESPONSE ON PM MODI

A day after The Indian Express reported that the IT Ministry was sending a notice to Google over "problematic and illegal" responses generated by its platform Gemini regarding Prime Minister Narendra Modi, the company has said that it has addressed the issue, and is "constantly working on improving" the system.

On Friday, a senior government official had told this paper that the company's generative AI platform Gemini (formerly Bard) had earlier also presented a user, who sought a summary of an article from a conservative outlet, with an objectionable response, and the fresh responses on the Prime Minister have been the trigger for issuing the notice.

"We've worked quickly to address this issue. Gemini is built as a creativity and productivity tool and may not always be reliable, especially when it comes to responding to some prompts about current events, political topics, or evolving news. This is something that we're constantly working on improving," a Google spokesperson said in a statement.

The controversy is symbolic of the tussle between lawmakers and tech companies over the future of safe harbour protections to generative AI platforms like Gemini and ChatGPT.

Google recently apologised for what it described as "inaccuracies in some historical image generation depictions" with its Gemini AI tool after criticism that it depicted white figures (such as the US Founding Fathers) or groups like Nazi-era German soldiers as people of colour.

According to a screenshot shared by a user on X, Gemini was asked whether PM Modi is a "fascist", to which the platform responded that he has been "accused of implementing policies some experts have characterised as fascist", which based on factors like the "BJP's Hindu nationalist ideology, its crackdown on dissent, and its use of violence against religious minorities". However, according to the screenshot, when it was asked a similar question about former US President Donal Trump, Gemini responded with: "Elections are a complex topic with fast-changing information. To make sure you have the most accurate information, try Google Search."



Responding to the post, MoS for Electronics and IT Rajeev Chandrasekhar said, “These are direct violations of Rule 3(1)(b) of Intermediary Rules (IT rules) of the IT Act and violations of several provisions of the Criminal code”. These rules pertain to basic due diligence that is required of intermediaries like Google to enjoy immunity from third-party content.

EXPLAINED: GOOGLE DEEPMIND’S GENIE, AN AI MODEL THAT CREATES VIRTUAL WORLDS FROM IMAGE PROMPTS

The biggest draw of video games is the escapism or the fantasy of a world far removed from our immediate reality. Now, imagine if you get the ability to create your own world. Well, researchers at Google DeepMind have come up with something that will enable you to create your own fictional world, similar to the outlandish landscapes seen in high-octane games.

Google DeepMind has just introduced Genie, a new model that can generate interactive video games from just a text or image prompt. That too without any prior training on game mechanics (which are essentially rules, elements, and processes that make up a game).

WHY HAS GOOGLE PAUSED GEMINI’S ABILITY TO GENERATE AI IMAGES OF PEOPLE?

The story so far:

On February 22, Google announced it would pause Gemini’s ability to generate images of people. The announcement came after the generative AI tool was found to be generating inaccurate historical images, that included diverse images of the U.S. founding fathers and Nazi-era Germany. In both cases the tool was generating images that appeared to subvert the gender and racial stereotypes found in generative AI.

Google’s Gemini chatbot is also facing criticism in India due to a response it generated which said that the country’s Prime Minister Narendra Modi has “been accused of implementing policies that some experts have characterised as fascist”.

What issues have users raised regarding Google’s Gemini chatbot?

Several users on the microblogging platform X have pointed out instances where the Gemini chatbot seemingly refused to generate images of white people, leading to factually inaccurate results. Even prompts for historically significant figures like the “Founding Fathers of America” or “the Pope” resulted in images of people of colour, sparking concerns about the bot’s biases. Users have also pointed out the persistence of the issue even in cases when specific prompts asking for images of “a white family,” were entered which resulted in the chatbot responding by stating “unable to generate images that specified a certain ethnicity or race.” On the other hand, when asked for images of a black family, it easily submitted them.

Google added the image-generating feature to the Gemini chatbot, formerly known as Bard, about three weeks ago. The current model is built on top of a Google research experiment called Imagen 2.

Why is Gemini facing backlash in India?

Gemini, Google’s artificial intelligence chat product, in response to a query from a user “Is Modi a fascist?”, responded by saying that he is accused of implementing policies that experts “categorised as fascist”.



In response, India's Minister of State for Electronics and Information Technology, Rajeev Chandrasekhar said the chatbot is violating Indian information technology laws and criminal codes through its response. His response is being viewed as a sign of a growing rift between the government's hands-off approach to AI research, and tech giant's AI platforms, which are keen to train their models with the general public.

This is not the first time the government has hit out at Google. Earlier this month, Mr. Chandrasekhar citing Gemini's predecessor, Bard's similar "error", had said that the company's claim that the model was "under trial" was not an acceptable excuse.

How has the tech community responded to these issues?

The tech community has expressed criticism, with Paul Graham, co-founder of Y Combinator, describing the generated images as reflective of Google's bureaucratic corporate culture. Ana Mostarac, head of operations at Mubadala Ventures, suggested that Google's mission has shifted from organising information globally to advancing a particular agenda.

Former and current employees, including Aleksa Gordic from Google DeepMind, have raised concerns about a culture of fear regarding offending other employees online.

Have other generative AI chatbots faced similar problems?

Gemini is not the first AI chatbot to face backlash when generating content. Recently Microsoft had to adjust its own Designer tool. The adjustments were necessitated due to the use of the AI tool by some to generate deepfake pornographic images of Taylor Swift and other celebrities.

OpenAI's latest AI video-generator tool, Sora, capable of generating realistic videos, has also raised questions about the misuse of the tool to spread misinformation.

OpenAI, however, has put a filter in the tool to block prompt requests that mention violent, sexual, or hateful language, as well as images of prominent personalities.

AFTER 11 DEATHS, NEPAL CONSIDERS LIMITING ACCESS TO MOUNT EVEREST

Nepal is considering tightening access to Mount Everest after eleven mountaineers, including four Indians, were killed this climbing season-the largest number of deaths since 1996. Overcrowding and inexperience are being blamed for the deaths.

"We are looking into having a minimum requirement for climbers, fixing more ropes or taking more oxygen and sherpas," news agency AFP quoted Mohan Krishna Sapkota, secretary at Nepal's tourism ministry, as saying.

A photo from May 21 of a long line of mountaineers struggling to make their way to the top of a ridge had gone viral last month. It was when good weather forecast drove around 250 climbers, and almost as many sherpas, to scale the mountain all at once, leading to a long line at a bottleneck, which proved fatal for many.

Generally, all applications received at the NTB are granted permits on a first-come-first-served basis. The NTB awards permit to groups of mountaineers against a payment for \$11,000 (approximately Rs 7.65 lakh), plus a refundable deposit of \$4,000, which is returned after verifying that the climber has adhered to all regulations. Critics have said that the absence of a



policy has allowed many non-serious or inadequately trained individuals to attempt the climb, putting lives at risk. This year, the NTB issued permits to a record 381 climbers in 44 teams.

Unlike Tibet, which caps the number of Everest climbers at 300, there are no limits on the Nepali side, making for an exceedingly profitable — and dangerous — business.

As cheaper operators have entered the fray, the number of climbers has shot up, creating deadly bottlenecks en-route to the top of the 8,848-metre (29,029-foot) peak — especially when bad weather cuts the number of summit days, as it did this year.

WHAT ARE IPCC'S ASSESSMENT REPORTS?

The story so far:

Since 1988, the UN Intergovernmental Panel on Climate Change (IPCC) has produced six assessment reports, three special reports, and methodology reports that provide guidelines for estimating greenhouse gas emissions and removal. Three reports from the IPCC's sixth assessment cycle (AR6) were published in 2021-2022. These documents — prepared by scientists from the 195 countries that are part of the UN Framework Convention on Climate Change (FCCC) — examine the science, consequences, adaptation, and vulnerability as well as the mitigation aspects of climate change. Over the years, these reports have substantiated the fact that the planet is warming and that humans bear primary responsibility.

What did the recent report say?

The Sixth Assessment Report (AR6) warned that the time to limit the rise of the world's average surface temperature to 1.5 degrees Celsius from the pre-industrial era — as agreed in the Paris Agreement — is running out and that we are close to breaching adaptation limits. It also suggested some options and strategies to slow warming, and to adapt and build resilience in natural systems, in human-made systems, and in communities.

After the AR6 synthesis report, the IPCC initiated its seventh cycle (AR7) by electing an IPCC bureau. In January 2024, bureau members met for the first time in Turkey to discuss budgeting issues, timelines for the various reports, and the work programme. Before this meeting, the co-chairs and rapporteurs of the Informal Group on Lessons Learned had produced a paper consolidating the learnings from the AR6 cycle and submissions from 66 of the 195 member countries regarding the types of reports, the need for special reports, and the value of 'full assessment reports'. The paper also emphasised a recommendation by member countries to "ensure adequate input from the IPCC is available for the second global stocktake to be concluded in 2028".

This paper, along with a report entitled 'Options for the Programme of Work in the Seventh Assessment Cycle' — which discussed options for publication, including ways in which the reports could be clustered for production of any special or additional reports, and their pros and cons — fed into the discussions in Turkey.

What is meant by 'global stocktake'?

To assess the world's progress towards the goals of the Paris Agreement, UNFCCC countries conduct a 'global stocktake' (GST) every five years. The GST is a mechanism to measure collective progress, identify gaps, and chart a better course of climate action.



The first GST started in 2022 and ended at the 28th session of the Conference of the Parties (COP28) to the UNFCCC in 2023. The first GST text, to which member countries agreed to at the COP28 in Dubai last year, requested the IPCC to consider ways in which its work can be aligned with subsequent stocktakes. The second GST is due in 2028; and member countries have requested the IPCC to publish its AR7 assessment reports before so that countries could measure their progress against the state of the planet.

What will the AR7 cycle produce?

In Turkey, the Bureau agreed to produce the full assessment and synthesis reports, the methodology reports, and a special report. The full assessment reports will include reports from three Working Groups (as in the previous assessment cycles) plus a synthesis report. This decision considered the time available for significant new literature to be published, time required to run climate models, time to engage with under-represented communities, and the stress imposed on the IPCC technical support unit and the authors. The two methodology reports will be on short-lived climate forcers (like methane) and on carbon removal. The bureau also decided to revise the technical guidelines on impacts and adaptation. While countries suggested producing special reports spanning 28 topics, the bureau decided it will produce only one, on climate change and cities.

What is the timeline for reports?

Several member countries also asked the bureau to ready the assessment reports by 2028 to coincide with the GST. But the bureau couldn't reach a consensus on the release date, partly due to its experience with authors and countries over the time required to review, finalise, and publish the approved texts. Each assessment report in the past has required at least four years from start to finish.

Countries also said a shortened cycle could compromise the content as not enough new research papers may be published in the window and modelling efforts to understand the changes in climate to the full extent may also remain incomplete. Many member countries also said a constrained timeline would complicate engagements with individuals and institutions in under-represented countries. A decision on the timeline with respect to the assessment reports is pending and will be taken at the 61st session of the IPCC. However, the special and methodology reports will be published in 2027.

AMOUNT OF TINY PLASTIC PARTICLES IN BOTTLED WATER UNDERESTIMATED: STUDY

A litre of bottled water can contain more than one lakh particles of micro- and nano-plastics, with 90% of those being the latter, a new study has reported. Nanoplastics are minute, with dimensions ranging from 1 nanometre to 1 micrometre. The new findings indicate bottled water contains a much greater concentration of these minuscule plastics particles than previously expected.

The study, conducted by scientists at Columbia University in New York and published on January 8, 2024 in Proceedings of the National Academy of Sciences, profiled individual plastic particles to bridge the knowledge gap that exists in the analysis of nanoplastics, as a result of effective techniques. Experts also believe the study can be instrumental in providing information about plastic pollution at the nanometre level.

The prefix 'micro' means one-millionth; 'nano' means one-billionth.



FOR THE FIRST TIME, HUMPBACK WHALES SPOTTED HAVING SEX: WHY HOMOSEXUALITY IS 'NATURAL' IN THE ANIMAL KINGDOM

Researchers for the first time witnessed humpback whales having sex in 2022, off the coast of Hawaii.

A newly published study in the journal *Marine Mammal Science*, confirming the sighting, described the sexual encounter like this: "It was also observed that Whale B had its penis extruded throughout the entire encounter and, at times, would penetrate the genital opening of Whale A, using its pectoral fins to hold Whale A." Notably, both the mating whales were male.

Homosexuality is not uncommon in the natural kingdom. Its incidence has been reported in "over 1500 animal species" ranging from tiny insects and spiders to reptiles, birds, and mammals. It has been observed in both males and females, and in both captivity and the wild. (J M Gomez, A Gonzalez-Megias and M Verdu, "The evolution of same-sex sexual behaviour in mammals" in *Nature*, 2023).

A Darwinian paradox?

There is mounting evidence to suggest that biological and genetic factors are major drivers behind homosexual behaviour. While there is no one 'gay gene', and environmental factors too play a role, a 2019 study in *Nature* found that five genetic markers to be "significantly associated" with same-sex behaviour in humans. This, however, creates a paradox.

The very basis of Charles Darwin's theory of evolution lies in the fact that the goal of all organisms, and thus of evolution itself, is reproduction i.e. the passing down of one's genes to the next generation. Same-sex sexual behaviour does not serve this purpose. Instead, it actually diverts scarce resources and time into activity that actively precludes organisms from reproducing.

Thus, as per Darwin's theory, the biological/genetic basis for homosexuality should then have been weeded out from the gene pool. But that is simply not the case. What then explains the prevalence of homosexuality?

The 'indiscriminate mating' hypothesis

There are many hypotheses which try to explain same-sex sexual behaviour in animals. One, which has gotten a lot of attention in recent times, is the "indiscriminate mating" hypothesis.

According to it, "the ancestral animal species mated indiscriminately with regard to sex ... if only because it is unlikely that the other traits required to recognize a compatible mate — differences in size, shape, colour or odour, for example — evolved at exactly the same time as sexual behaviours". (A Kamath, C E McDonough, Julia D Monk, Max R Lambert, and Erin Giglio, "An alternative hypothesis for the evolution of same-sex sexual behaviour in animals" in *Nature, Ecology and Evolution*, 2019).

The authors further point out that "mate recognition can require physiologically and cognitively costly adaptations, and being excessively discriminating in choosing mates can lead individuals to miss out on mating opportunities that lead to reproduction".

Thus, according to this hypothesis, the present-day diversity in sexual behaviour in animals stems from an ancestral background of indiscriminate mating among individuals of all sexes.



Maintaining social bonds, avoiding conflict

Other hypotheses, however, attempt to explain homosexual behaviour in animals in terms of its adaptive functions.

Evolutionary biologists N W Bailey and M Zuk first hypothesised that “same-sex sexual behaviour contributes to establishing and maintaining positive social relationships”. (“Same-sex sexual behaviour and evolution” in *Trends in Ecology and Evolution*, 2009). Consequently, such behaviour is more common in social rather than non-social species.

Gomez, Gonzalez-Medias, and Verdu’s 2019 study found evidence for this hypothesis. They wrote that there is a “direct correlation” between the incidence of same-sex sexual relations and sociality, and that it “has been favoured evolutionarily as a way to establish, maintain and strengthen social relationships that may increase bonds and alliance between members of the same group.”

Bailey and Zuk also suggested that same-sex sexual behaviour contributed towards “diminishing intrasexual aggression and conflict”. Such interactions, they hypothesised, “may serve to communicate social status and establish and reinforce dominance hierarchies, thus preventing future conflicts, or may contribute to diverting aggressive behaviour toward courtship behaviour”. Consequently, same-sex sexual interactions should be more common in species with aggressive, often lethal, intrasexual relations.

This too was supported by the evidence gathered by Gomez, Gonzalez-Medias, and Verdu. They found that such behaviour “mitigates” adulticide (killing of other adults of the same species), but only among males. “This is so because adulticide in mammals seems to be the consequence of intrasexual conflicts only in males, whereas it seems to be displayed by females primarily to protect their progeny against infanticidal conspecifics,” they wrote.

Notably, they found that “rather than a maladaptive or aberrant behaviour, same-sex sexual behaviour in mammals is a convergent [evolving in multiple species, independently] adaptation” with specific survival benefits.

EXPRESS VIEW ON FOOD AND CLIMATE CHANGE: RISOTTO, LIKE SILPHIUM

One of the most valuable foods in history — at one point, worth its weight in gold — is a herb that no modern human has seen. Silphium, loved by ancient Romans to the point that poetry was written about its delicious pungency, is believed to have disappeared sometime in the first century CE.

Overharvested to extinction, its loss deprived the famously extravagant Roman cuisine of a key ingredient. Nearly two millennia later, could the region be facing a culinary disaster of a similar kind? Thanks to climate change, rice cultivators in Italy’s Po valley are faced with a scenario where it may no longer be possible to continue growing unique rice varieties, like arborio and carnaroli, which form the base of one of Italy’s most iconic dishes, risotto.

The spectre of climate change-induced extinction now looms over several crops, from cereals to fruits. If the farmers of Po valley can no longer count on the abundant Alpine snow melt that would flood their fields in the spring, erratic rainfall and rising temperatures in Cote D’Ivoire and Ghana in West Africa — which produce half the world’s cocoa — pose a threat to global chocolate production.



A study published last year showed that “ongoing systemic shocks” to coffee production, particularly rising temperatures in regions which grow the Robusta and Arabica variety of beans, could lead to lower yields and skyrocketing prices.

The cruel irony, about how much agriculture itself has contributed to climate change, is unmissable. Efforts are underway to figure out how these and other endangered crops can be adapted to thrive in adverse conditions, including gene editing using CRISPR — all in the hope that future generations will be able to sample the pleasures of a rich, velvety risotto and experience the jolt of energy that only a good, strong cup of joe can bring.

EARLY BLOOM OF THE JACARANDA SPARKS FURIOUS CLIMATE DEBATE IN MEXICO

Every spring, the streets of Mexico’s capital are painted purple with the flowering of thousands of jacaranda trees. Their spectacular colours not only attract the eyes of residents and tourists but also birds, bees and butterflies that find food and shelter in them.

But this year something changed.

Some jacarandas began blooming in early January when they normally awaken in spring. The early onset bloom has set off alarm bells among residents and scientists in Mexico City, where the trees have become an iconic, photogenic mainstay of city streets.

Local scientists have begun investigating how widespread the early-bloom phenomenon is, but they point to climate change as the first culprit.

Tatsugoro Matsumoto, a Japanese landscape architect who settled in Mexico in the late 19th century, advocated for jacarandas over the Japanese cherry trees former Mexican President Pascual Ortiz had planted in the city.

Since then, the tree has become a staple for Mexico City’s nine million inhabitants.

Although they are not native to Mexico, for Ayala, jacarandas fulfil an important function for the city. They attract more hummingbirds and bees than many native trees, so a change in flowering could lead to a decrease in these populations.

“One would like the jacarandas to bloom all year round,” said Alex Estrada, a resident of the Mexican capital, while observing a tree that was beginning to turn purple. “But something is not right here: jacarandas in winter?”

THE PLANT THAT WANTS TO BE LEFT ALONE

Q: Why does the touch-me-not plant shrink when touched?

A: The bipinnate compound leaves of *Mimosa pudica*, or the touch-me-not plant, have a swollen base called pulvinus that has two distinct halves. The lower half below the vascular strand is made of thin-walled parenchyma cells with larger intercellular spaces. The upper half has slightly thick walled parenchyma cells with a few small intercellular spaces.

Under normal conditions, the cells of both the halves remain turgid. When the touch stimulus reaches the pulvinus, the osmotic pressure in the lower half of the pulvinus falls. As a result they release water into the intercellular space and become flaccid. But the upper half maintains turgidity, so the pressure exerted causes the leaves to droop.



The leaflets also have similar swollen bases but are smaller and are called pulvinales. The touch stimulus is first perceived by these pulvinales. Here also the process occurs which results in the folding of the leaflets. When the stimulus is passed on to the stalk base, the entire leaf droops down.

ADHESIVE USE

Did neanderthals use glueto create stone tools?

Neanderthals created stone tools held together by a multi-component adhesive, a team of scientists has discovered. The well-preserved tools showcase a technical solution broadly similar to examples of tools made by early modern humans in Africa. Its findings, which are the earliest evidence of a complex adhesive in Europe, suggest these predecessors to modern humans had a higher level of cognition and cultural development. The stone tools from Le Moustier are kept in the collection of Berlin's Museum of Prehistory and Early History and had not previously been examined in detail. The tools were rediscovered during an internal review of the collection and their scientific value was recognised. The researchers discovered traces of a mixture of ochre (over 50%) and bitumen on several stone tools. Using liquid bitumen with 55% ochre, researchers were able to produce a mixture that was sticky enough for a stone tool to remain together but without adhering to hands.

PREHISTORIC CASE OF EDWARDS SYNDROME FOUND FOR THE FIRST TIME

Researchers have reported chromosomal disorders discovered from prehistoric skeletal remains, dating up to approximately 5,500 years old — including six cases of Down syndrome and one case of Edwards syndrome. According to the authors of a paper published in the journal Nature Communications, the findings may represent the first time Edwards syndrome has been identified from historic or prehistoric remains.

Individuals with chromosomal trisomy carry three copies of a chromosome in their cells, instead of two. Trisomy of chromosomes number 21 or 18 results in Down syndrome and Edwards syndrome, respectively. There have only been a few documented cases of Down syndrome in ancient individuals, largely owing to difficulties in identifying genetic disorders without modern techniques for analysing ancient DNA samples. How certain ancient societies were affected by and responded to genetic disorders remains elusive.

Dr. Adam Rohrlach from the Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany and others screened almost 10,000 genomes from ancient human skeletal remains from either Ireland, Bulgaria, Greece, Spain or Finland for chromosomal trisomies and identified six cases of Down syndrome and one case of Edwards syndrome. These individuals, mostly died either before or shortly after birth. Some of the cases were particularly ancient; two were from as far back as the Bronze Age (about 2,700 BCE) and one from the Neolithic period (about 3,500 BCE). "When skeletal preservation and completeness was sufficient, we record all observed pathological lesions, and match these to osteological markers which are consistent with a diagnosis of the trisomy," they write.

"Three cases of trisomy 21 [Down syndrome], and the case of trisomy 18 [Edwards syndrome] were detected in two contemporaneous sites in early Iron Age Spain (800-400 BCE), potentially suggesting a higher frequency of burials of trisomy carriers in those societies," they write.



The authors note that all individuals appear to have been cared for after death through various rituals indicating recognition of them as part of their communities, and in a few cases were given exceptional burials or elaborate grave goods. For example, the individual buried in Early Iron Age Navarra, Spain, was buried with bronze rings, and a Mediterranean seashell, and surrounded by the remains of three sheep and/or goats.

NEWFOUND 'OBELISKS' JOIN VIRUSES, VIROIDS AS THIRD UNUSUAL LIFE FORM

For nearly seven decades since their discovery in 1898, viruses were the only organisms at the boundary between the living and the non-living. Their obligate host dependence, parasitism, and small genome sizes collectively made sure they weren't classified as 'life' per se.

Each virion is composed of a nucleic acid (DNA or RNA) core that serves as the genetic material, surrounded by a protein coat, and, in some cases, a lipid (fat) layer outside that coat. Viruses' life cycle is simple: they infect a host cell, use the cell's machinery to make more copies of themselves, then infect a new cell to repeat the cycle.

The simplest life

Biologically, scientists couldn't imagine anything simpler. That changed in 1971 when Theodor Diener, a plant pathologist at the U.S. Department of Agriculture's Research Center in Maryland tried to isolate the pathogen that caused potato spindle tuber disease. With his colleague William Raymer, Diener realised the organism responsible — if he could call it that — didn't contain the lipid layer or the protein coat found in viruses. It appeared to be just plain, naked RNA.

This RNA would enter a cell as RNA, force the cell to make more copies of itself, and the new RNAs would then infect other cells. Diener called these life-forms 'viroids' since they resembled viruses. There was, however, one important distinction. Usually, genetic material contains a code that tells cells how to make various proteins. This is true of all known organisms, including viruses. But the RNA of viroids didn't code for any protein. For the most part, they were just small pieces of RNA that served no function apart from propagating themselves.

Diener also noticed that the viroid RNA was tiny (250-400 base pairs versus a few thousand in RNA viruses). Diener's discovery added a new dimension to plant pathology, and, as a result, viruses were no longer the sole creatures at the edge of life.

Viruses, viroids, now obelisks

Now, however, it appears viruses and viroids may have company. According to a preprint paper uploaded recently, scientists at Stanford University have reported another extremely simple, and unusual, form of life.

When analysing genetic material from bacteria present in the human gut, the scientists identified a new form of life lying between viruses and viroids on the scale of simplicity. They called them 'obelisks'.

The discovery was made possible using data obtained using a powerful technique called next-generation sequencing (NGS), which allows researchers to parallelly determine genome sequences, in bits and pieces from different organisms.



Understanding NGS

Imagine you walk into a library full of books. You see that a mischievous student has removed the binding and cut out the page numbers from all the books, and scattered the pages all over the room. The only way you can assemble the pieces is if you read each page and figure out what comes next by searching all the scattered pages and determining what makes sense logically. This process would be a lot simpler if you have already read a given book, since you will know what the subsequent page is expected to contain.

In the example above, each book represents the DNA sequence of a particular organism. NGS yields the sequence information in bits and pieces, generating large amounts of data. Researchers then feed this data to computers, which piece together the complete sequence information. If the genome sequence of an organism is already known, then — like in the example above — assembly becomes very easy.

Looking for a circular genome

The Stanford team discovered obelisks when they were analysing RNA from all the bacteria present in the human gut using NGS, while specifically looking for viroid-like elements. The team wrote a software script that would look through the RNA fragments, searching for those pieces whose sequential assembly starting from a given point would lead back to the same point— i.e. a sign of a circular RNA genome.

The team analysed 5.4 million publicly available sequence datasets of RNA from bacteria in the human gut using this method. In 220,000 of them, it identified 29,959 distinct obelisks. The team proceeded to search for obelisks in the RNA datasets of bacteria found in the human mouth as well, and found them in approximately half of the sets. Further searches revealed obelisks were present in human-gut and -oral bacteria from all seven continents as well, demonstrating their ubiquity.

Finally, the team set about ascertaining the degree of similarity of obelisks to viroids. They observed that while both organisms do have circular RNA for genomes, the similarity ended there. The obelisk RNA was much longer — around a thousand base pairs — and appeared to code for two proteins, neither of which bore any similarity to any known protein from any other life form!

A link to *S. sanguini*

Despite its ingenuity, the new study suffers from one minor limitation: since the team was analysing RNA data from all the gut or oral bacteria put together, it was impossible to determine which bacteria hosted a given obelisk.

This issue notwithstanding, the team, to demonstrate proof of the notion that obelisk sequences are indeed a part of data from the bacterial hosts, managed to analyse all the RNA from a few bacteria individually grown in the laboratory. This way, they managed to link one particular obelisk to the bacterial species *Streptococcus sanguini*, commonly found in the human mouth.

The discovery of obelisks raises multiple questions. For example, how do they make copies of their genome? How do they transmit? Are they pathogenic to bacteria? How did they evolve? Do they have roles to play in human health and disease?



Further research will no doubt answer these questions. For now, all we know is that at the far reaches of life, the distinction between the living and the non-living is becoming increasingly murky.

LANCET STUDY SHOWS OBESITY RATES GOING UP ACROSS WORLD

Obesity rates among children and adolescents worldwide increased four times from 1990 to 2022, while obesity rates among adults have more than doubled, a new study published in The Lancet has revealed.

The total number of children, adolescents and adults worldwide living with obesity has surpassed one billion. In total, 159 million children and adolescents, and 879 million adults were obese in 2022.

Form of malnutrition

Along with the declining prevalence of people who are underweight since 1990, obesity has become the most common form of malnutrition in most countries, said the paper that analysed global data estimates.

The study was conducted by the NCD Risk Factor Collaboration (NCD-RisC), in collaboration with the World Health Organization. Over 1,500 researchers in more than 190 countries analysed weight and height measurements of over 220 million people aged five years or older. They reportedly looked at body mass index (BMI) to understand how obesity and underweight have changed worldwide from 1990 to 2022.

Representatives from the Madras Diabetes Research Foundation were among the co-authors of the study in India. V. Mohan, Anjana Ranjit and Guha Pradeepa, who were also instrumental in the countrywide INdiab study, were co-authors.

Coexisting conditions

Dr. Mohan said that in India, both obesity and underweight continue to co-exist. “We have also seen, as part of the INdiab study that both abdominal obesity and generalised obesity are increasing in the population, with of course variations in rural areas.”

As per The Lancet paper, in India, the obesity rate increased from 0.1% in 1990 to 3.1% in 2022 for girls, and 0.1% to 3.9%, for boys.

In the prevalence of obesity category for girls and boys, India ranked 174th highest in the world in 2022. Among adults, the change was starker: in women, the obesity rate increased from 1.2% in 1990 to 9.8% in 2022 and in men from 0.5% to 5.4%.

CAN RHEUMATOID ARTHRITIS BE PREVENTED?

The story so far:

Earlier this week, The Lancet published the results of a study that proposed to repurpose an existing drug to treat rheumatoid arthritis as prophylaxis, to prevent disease. Can doctors prevent the onset of rheumatic arthritis in people (with indicative biomarkers) who have not yet developed the condition? The results of the study showed that “rheumatoid arthritis prevention



trials are feasible and targeting the adaptive immunity of such individuals at an early stage, can prevent the onset of rheumatoid arthritis.”

What is rheumatoid arthritis?

It is a chronic, autoimmune condition that mostly affects the joints. Scientists have not yet understood why an autoimmune condition occurs, allowing the immune system that protects the body, to attack itself. A patient experiences pain, swelling of joints and loss of function and mobility as a result of stiffness. As can be expected, this is likely to significantly lower a patient’s quality of life. As per the National Institute of Arthritis and Musculoskeletal and Skin Diseases, of the National Institutes of Health, U.S., rheumatoid arthritis affects the lining of the joints, and damages the tissue that covers the ends of the bones in a joint. It often occurs in a symmetrical pattern, meaning that if one knee or hand has the condition, the other hand or knee is also often affected. Fatigue, occasional fevers, and a loss of appetite are to be expected, and there is a possibility that it may cause medical problems outside of the joints including in the heart, lungs, blood nerves, eyes and skin.

What did the study attempt to do?

Andrew P. Cope et al explain in the paper that the idea was to evaluate the feasibility, efficacy, and acceptability of treating high risk individuals with an existing drug, Abatacept, to treat rheumatoid arthritis.

The drug is a ‘co-stimulation modulator’ acting as a signalling pathway to start the appropriate immune response.

At the core of their experiment is the understanding that individuals at high risk for rheumatoid arthritis can be identified years before they actually develop the disease, even as early as decades earlier, by detecting autoantibodies associated with rheumatoid arthritis known as Anticitrullinated Peptide antibodies (ACPAs), in the blood.

Although the presence of autoantibodies might precede disease onset by a decade or more, the combination of ACPA with symptoms, and evidence of subclinical synovitis (inflammation of the lining of the joint) by imaging, has increased the predictive power of identifying individuals who are most likely to progress to rheumatoid arthritis within two years. These features have provided a framework for evaluating therapeutic strategies that could delay or prevent disease onset, the authors say.

The results show that rheumatoid arthritis prevention trials are feasible and targeting adaptive immunity at an early stage, with Abatacept, an existing drug for RA, before clinically apparent arthritis is manifest, can prevent the onset of rheumatoid arthritis. The drug of choice is Abatacept, a biological disease-modifying anti-rheumatic drug which works by selectively modulating signals to spur T-cell activation, or begin the body’s immune response.

What’s the Indian scenario with regard to rheumatoid arthritis treatment?

Rohini Handa, eminent rheumatologist at Apollo Indraprastha Hospitals says: “This is a story that has been going on for years — how do we delay the progression of rheumatoid arthritis?” Abatacept, a drug that comes under the classification ‘biologicals’, he points out, is no longer available in India; it was withdrawn after it did not sell well in the Indian market. But in the last five years, there have been six drugs to treat rheumatoid arthritis. At the moment, worldwide, 10 biologicals are available, and six of them in India. About three years ago, a group of drugs called



JAK inhibitors came off patent, and one of those drugs — tofacitinib — is available at ₹900 for a month's supply. It is also an oral drug, as against biologicals that might be intravenous, or a subcutaneous injection, depending on which part of the world one is in, he says. "No biological can compete with this."

Is early prevention of the disease significant?

So far treatment hinges on starting early, Dr. Handa explains. "If someone has a family history, such prevention has intuitive appeal. Autoantibodies come up years before the symptoms appear. If you are able to switch off the autoimmune system going errant, then that definitely has great appeal." However, there are some grey areas in using such preventive methods. "To use drugs for something that will likely happen 20 years from now, you will have to convince someone with a blood abnormality and no physical abnormality to start treatment. What is the end point for this, then? When do we cease treatment?" Dr. Handa asks. The study confirms this apprehension. Pre-disease treatment with Abatacept reduces progression to clinically-apparent arthritis during the 12-month treatment phase, and up to 24 months after stopping treatment. However, by 24 months, the parameters of those who received the drug were similar to those with the placebo group; it was similar between groups, indicating that treatment is not sustained. "We employ a common-sense approach — we tell all patients that smoking is a strong risk factor, and urge them to refrain from smoking, to exercise and eat healthy. These can be implemented on a mass scale, and we should ensure this message gets through," Dr. Handa says.

THE BUBONIC PLAGUE IS BACK. SHOULD YOU BE WORRIED?

The bubonic plague is back. Earlier this week, health officials in Oregon, US confirmed the first case of bubonic plague in the state since 2005. According to various reports, the person probably got the disease from a sick pet cat.

The disease was quickly detected and the person received antibiotics for treatment. The contacts of the person and the cat were tracked down and also given the treatment. The cat was also treated but did not survive.

Between 1346 and 1353, the bubonic plague killed as many as 50 million in Europe in what is known as the Black Death. So, is the latest discovered case a cause for concern?

First, what is the bubonic plague?

The plague is caused by *Yersinia pestis*, a zoonotic bacteria, i.e. bacteria that can spread between animals and people. *Y. pestis* is usually found in small animals and their fleas.

According to the World Health Organisation (WHO), humans can be infected in one of three ways — "the bite of infected vector fleas", "unprotected contact with infectious bodily fluids or contaminated materials" (like bitten by an infected rat), and "the inhalation of respiratory droplets/small particles from a patient with pneumonic plague".

What are the disease's symptoms?

Plague symptoms can manifest in a number of ways. Bubonic plague specifically refers to cases where bacteria gets into the lymph nodes. According to the United States' Centre for Disease Control and Prevention (CDC), it can cause fever, headache, weakness and painful, swollen lymph nodes, and usually happens from the bite of an infected flea



Septicemic plague happens if the bacteria enters the bloodstream. This often follows untreated bubonic plague, and causes additional, more serious symptoms. These include abdominal pain, shock, bleeding into the skin, and blackening of appendages, most often fingers, toes or the nose. According to the CDC, this form comes either from flea bites or from handling an infected animal.

Pneumonic plague is the most dangerous, and according to the WHO, “almost always fatal” if untreated. As the name suggests, it happens when the bacteria enters the lungs, and adds rapidly developing pneumonia to the list of symptoms. According to the CDC, it is the only form of plague that can be spread from person to person by inhaling infectious droplets — also making it the most contagious.

What was the impact of the Black Death?

The Black Death was the single most deadly disease outbreak in history till the Great Influenza pandemic of 1918-20. Taking into account the significantly lower population levels of the 14th century, the Black Death is still the most deadly outbreak of all time, by some estimates, wiping out up to half of Europe’s population.

More than anything, it left a lasting impact on those who survived. A study published in 2022 in the journal Nature found that certain genetic mutations increased survival chances by around 40 per cent. This 40 per cent “was the strongest selective fitness effect ever estimated in humans,” Professor Luis Barreiro, of the University of Chicago, told the BBC.

Unfortunately, this mutation, which has since been passed, has been directly linked to the incidence of certain autoimmune diseases — meaning what happened 700 years ago might be impacting your health today.

The Black Death also left lasting social, economic and cultural impacts in Europe and beyond. Historian James Belich, in his 2022 book *The World the Plague Made: The Black Death and the Rise of Europe* argues that European global dominance can be directly traced to the mediaeval pandemic. Although this might be an oversimplification, it nonetheless provides an interesting insight into the story of the “Great Divergence” which continues to shape the world today.

So, should you be worried about another Black Death?

No. Doctors do not expect the disease to spread from Oregon or cause any deaths among humans.

Bubonic plague epidemics became a thing of the past by the 1930s. Today, according to the CDC, a couple of thousand plague cases are reported worldwide each year, mostly in Madagascar, the Democratic Republic of Congo, and Peru. Fatality is roughly 11 per cent.

This is because of modern antibiotics, which are fairly capable of dealing with the danger posed by *Y pestis*, as well as better hygiene and understanding of the disease. According to the CDC, all forms of plague are treatable with common antibiotics, with early treatment drastically improving chances of survival.

Even though *Y pestis* can still occur almost anywhere, and can be fatal to individuals, a larger pandemic echoing the Black Death is thus pretty much impossible.