



CURRENT AFFAIRS FOR UPSC

1st to 7th September 2024



INTERNATIONAL

THE STATES THAT WILL DECIDE THE U.S. PRESIDENTIAL ELECTIONS

The battle lines for the U.S. presidential elections were drawn when Vice President Kamala Harris and Governor Tim Walz were announced as the Democratic Party's nominees for President and Vice President, respectively. They will face the Republican Party's nominees, former President Donald Trump and his running mate, J.D. Vance. As of now, according to opinion polls, Ms. Harris has a three-plus point lead on average over Mr. Trump.

In the U.S., it is not enough for the candidate to win the popular vote in percentage terms. They have to win the electoral college, a group of presidential electors from each State whose number is determined by the population of the State. The electoral college consists of 538 electors and the candidate requires a majority of 270 votes to become President. Large States such as California, Texas, New York, and Florida, for example, provide 55, 38, 29, and 29 electoral college votes each.

Since 2016, when Mr. Trump made his electoral foray, the starkness in the support base of the two parties has been more pronounced than ever before. States that are largely rural, have a substantial number of religiously minded voters, are less racially diverse, and have a large white-working class population tend to vote Republican, while Democrats receive substantive support from States with a significant urban population, a diverse demography, and a considerable number of college-educated voters.

There are some States with a mix of urban and rural voters and a diverse demography; these are the swing States where there is intense competition between the two parties. Some swing States, such as Pennsylvania, Michigan, and Wisconsin, are from the 'Rust Belt' — i.e., they were industrialised but have seen industrial decline and relative urban decay since. Some others, such as Georgia, Florida, and North Carolina in the south-east and Arizona, Nevada, and New Mexico in the west/south-west, are from the 'Sun Belt' — i.e., they have a warm climate.

HOLLOW MIDDLE

The regional elections in the eastern German States of Thuringia and Saxony — Brandenburg goes to the polls on September 22 — have captured attention because of the rise of the Alternative for Germany (AfD), the far-right party with neo-Nazi roots. The results underline an unmistakable trend in German politics — the AfD, despite earnest efforts by establishment parties to isolate it, is on the ascent. Classified as "extremist" by domestic intelligence, the AfD emerged as the largest vote-getter in Thuringia with 32.8% votes and finished second in Saxony, with 30.6% votes. Formed in 2013, it has built a base by constantly attacking the establishment and taking a hardline, nationalist approach towards immigration. The Reason and Justice Alliance, a leftist nationalist-populist upstart also known as the Sahra Wagenknecht Alliance (BSW), emerged as a dark horse with 15.8% vote in Thuringia and 11.8% in Saxony. The party, which opposed Germany's continued military assistance for Ukraine and campaigned for better social protection for workers and tougher laws to control immigration, finished third. The strong showing of the AfD and the BSW points to growing anti-establishment sentiment. While Chancellor Olaf Scholz's Socialists finished fifth in Thuringia with 6.1% vote and fourth in Saxony with 7.3% votes, his coalition partners, the Greens and the pro-market Free Democratic Party, fared worse. The conservative Christian Democrats was the only establishment party that did well.



Despite the Thuringia result, the AfD is unlikely to form the government as no party is willing to join a coalition led by it. But this strategy might face challenges. The AfD's rise has already pushed Germany's polity towards the Right, with even the Socialists taking a tougher line on immigration. Now with the largest vote share in Thuringia, the AfD will play a critical role in the statehouse as a powerful bloc even if it is kept out of government. And, if it continues to grow in popularity (it is expected to finish first in Brandenburg), even the policy of political untouchability will come under stress. To check the rise of the right-wing extremists, the establishment parties, especially Mr. Scholz's unpopular coalition, should be mindful of popular sentiments, angst and demands. The war in Ukraine and its impact on the German economy, which fell into a recession last year, are taking a toll on Germany. Berlin should work toward ending the war, tackling economic challenges and addressing working class concerns. Unless the underlying conditions that the far right exploits are addressed, mere political untouchability might not help in stalling the far-right's rise in Germany, where memories of the Nazi violence are still fresh.

ON GERMANY'S ELECTORAL ARCHITECTURE

The story so far:

On July 30, Germany's federal constitutional court upheld the government's move to downsize the lower house of parliament, with effect from the 2025 federal elections. The present 20th Bundestag (German Parliament) is its largest ever, since the first post-war legislature was inaugurated in 1949, with a total of 736 deputies. The current tally positions the Bundestag as the largest Parliament among democratically elected assemblies, even bigger than the 720-strong parliament of the European Union. The steady rise in the number of representatives has raised concerns on the strain imposed on the public coffers, as well as implications for the functional efficiency of the Bundestag.

What is the background?

The context to the July judgment is the constant enlargement of the Bundestag, a consequence of Germany's complex electoral architecture as well as the fragmentation of the party system in recent years.

Since the country's second quadrennial federal elections of 1953, each voter has exercised two votes, in what is known as the personalised proportional or mixed-member proportional representation system. The first vote is cast to directly choose a candidate from a local constituency via the conventional first-past-the-post method of obtaining a simple majority for a total of 299 seats. Voters simultaneously cast a second ballot to choose a political party for another 299 parliamentary seats, which are distributed across Germany's 16 regions. A party must have secured either 5% of the second vote share or a minimum of three individual constituencies to qualify for entry into parliament. The 5% threshold was stipulated to prevent too many splinter parties from entering the Bundestag. It is the second, that is, the state list vote that determines the relative strength of parties in the Bundestag, because the allocation of seats is proportionate to the number of second votes each party has received.

The conversion of the second votes into seats involves a two-stage process. Each region receives seats in proportion to the population resident therein. These are then distributed among the parties based on their respective share of second votes. The seats for each party at the federal level is subsequently fixed as per the number of candidate seats it won in the state, as well as the number of seats it was entitled to, based on the share of the second vote it received. The higher of



the above two figures is the final tally of the party's seats in a region. The cumulative addition of seats across the regions makes up the party's strength in the Bundestag.

GROWING STATURE

The island nation of Tonga played host to the annual meeting of the leaders of the Pacific Island Forum from August 26 to 30. More than 1,500 delegates from 40 nations were in attendance at the conference.

A grouping of island nations in Oceania, the Pacific Island Forum has seen an increase in stature over the past few years, as powerful nations seek to peddle influence in the region.

The Forum was founded in November 1971, with Australia, Cook Islands, Fiji, Nauru, New Zealand, Tonga and Western Samoa as the founding members.

At present, the Forum has 18 member states. Australia and New Zealand are among the larger nations in the bloc, with some having populations as small as 1,500 people.

Several of the member countries of the Forum are particularly susceptible to environmental challenges, making climate change and sea level rise key focal points for the forum.

A cherished method of dispute resolution central to the Forum is the "Pacific way", which seeks to build consensus and places relationships between the countries of the "Blue Pacific Family" at the centre. The Blue Pacific Family members are linked by common culture and heritage, and distinguish themselves from the broader Indo-Pacific region.

For this year's summit, China sent the largest delegation in the Forum's history. The U.S. also had a sizeable delegation led by Deputy Secretary of State Kurt Campbell.

The most pressing issue under discussion at the Forum was the ongoing unrest in the French territory of New Caledonia, where violence ensued between French officers and locals.

The Indigenous Kanak people of New Caledonia have long sought independence from France, which colonised it in 1853. Even though it granted citizenship to all Kanaks in 1957, the demand for independence has continued. The latest unrest followed attempts by the French government to amend its Constitution to expand voting lists in New Caledonia and grant more French residents the right to vote.

The Forum has now planned to hold an official "talanoa" (dialogue) on the matter later this year.

UN chief Antonio Guterres, in an address at the Forum, supported efforts to raise a climate fund to tackle regional issues. He said people were "treating the sea like a sewer." Water quality has deteriorated in several island nations as natural water sources have been contaminated by rising sea levels and natural disasters.

Police training centre

Under discussion is also an Australian-funded Pacific police training centre, viewed as a measure to counter China's bid to equip the law enforcement agencies of some island nations. The A\$400 million proposal envisages a regional policing plan to improve training and create a multinational crisis reaction force, comprising 200 officers. Four centres will be established across the Pacific with a hub in Brisbane. On August 28, the Pacific Island leaders endorsed the plan. The recognition



of Taiwan at the Forum has caused controversy. China and its allies, including Solomon Islands, have sought to remove Taiwan as a development partner, indicating that it is a part of China. But the final declaration reaffirmed a 1992 agreement, which allowed Taiwan to participate — the section was later removed following criticism from Chinese officials at the Forum.

Initial meeting of the Forum did not garner broad international interest, but this has changed in recent years. Bigger powers have sought to exercise influence over the resource-rich region. Chinese efforts to offer aid and military support in the region have drawn in other powers' interests. In 2022, China signed a security pact with Solomon Islands. It has also pressured nations in the grouping to reject the inclusion of Taiwan, with Solomon Islands, Kiribati and Nauru now accepting this position.

In 2022, amid China's rising influence in the region, the U.S. invited Pacific leaders to a White House summit for the first time.

Earlier, it was Australia and New Zealand which functioned as security partners in the region. Now the region has the attention of great powers.

CHINA STOPS SHORT OF AFRICA DEBT RELIEF AS IT PLEDGES MORE CASH IN CREDIT

China stopped short of providing the debt relief sought by many African countries this week, but pledged 360 billion yuan (\$50.7 billion) over three years in credit lines and investments.

— The Forum for China-Africa Cooperation (FOCAC) launched in 2000 took on an enhanced role after the 2013 inception of President Xi Jinping's Belt and Road Initiative (BRI), which aims to recreate the ancient Silk Road for the world's second-largest economy and biggest bilateral lender to Africa.

— China has also sought to use FOCAC to counter growing competition in Africa from the United States, the European Union, Japan and others.

— The new financial pledge is more than what Beijing promised at the last FOCAC in 2021, but below the \$60 billion of 2015 and 2018, which marked the peak of lending to Africa under the Belt and Road Initiative.

For Your Information:

— The Forum on China-Africa Cooperation was established in 2000 to formalise the strategic partnership between China and African nations. A summit is conducted every three years, with the host alternating between China and an African member.

— The FOCAC counts 53 African nations as its members – the entire continent except Eswatini, which has diplomatic ties with Taiwan against **Beijing's "One China" Policy**. The African Union Commission, the continental bloc tasked with ensuring cooperation and economic integration across its member countries, is also a member.

— The theme of this year's FOCAC summit is "Joining Hands to Advance Modernization and Build a High-Level China-Africa Community with a Shared Future."

— The last FOCAC summit was held virtually in Beijing and Dakar, Senegal in 2021, owing to Covid-19 restrictions. Commitments to continued economic and political cooperation were made. This year the summit is happening in Beijing.



HOW WILL MORALITY LAW HIT AFGHAN WOMEN?

The story so far:

The Taliban last week announced a new law on the “Propagation of Virtue and Prevention of Vice” which imposes its interpretation of sharia or Islamic law on the people of Afghanistan. It silences women’s voices apart from reiterating bans on bare faces, sparking global outrage, and also seeks to regulate many aspects of daily life.

What does the law say?

The 114-page document published in the official gazette says that women must cover their entire bodies and faces “due to the fear of temptation”, in the presence of unrelated men, as well as non-Muslim and “immoral” women. A woman’s voice —singing, chanting, or reciting aloud— is considered awrah or intimate and must not be heard. “Whenever a grown woman leaves her house out of necessity, she is obliged to cover her voice, face, and body,” it said, stipulating that any violation will lead to punishment. Unrelated men and women are not allowed to even look at each other.

Men must grow their beards, and must not wear neckties or have Western-style haircuts. All games and forms of entertainment, even traditional children’s games played with marbles or walnuts, are banned as a form of gambling. Travel must be planned to avoid times of prayer, and drivers are forbidden from transporting women who are not accompanied by a related male guardian. The morality police, called Muhtasib, are authorised to mete out discretionary punishment, including up to three days in prison. They can compel people to revere Islamic symbols, and check phones and laptops to ensure there are no images of living beings. They can also ensure that women’s voices or music do not emanate from homes.

Is this a new development?

Many of these regulations are already in place in Afghanistan, with some having been declared through Taliban decrees over the past three years, or imposed more haphazardly by local enforcers. Observers fear that the official codifying of these so-called “morality laws”, however, will lead to more brutal punishment and give a stronger backing to the Muhtasib.

A look at Afghan history shows the extreme regressiveness of these laws. Afghan women won the right to vote in 1919, and by the 1980s, women had become ministers and judges, doctors and singers, although progress was more limited in rural areas. The Taliban’s first stint, from 1996 to 2001, brutally dragged women back to the medieval era, but over the next two decades, a new generation grew up in relative freedom, and many hoped that the Taliban which returned in 2021 had also evolved. “They were portrayed as Taliban 2.0, as more moderate, so we engaged with them,” former Afghan lawmaker Fawzia Koofi told CNN after the new laws were announced. She noted that even some daughters of Taliban leaders had been educated abroad in the interim period. But since they came back to power, they have been “constantly targeting women” with “draconian measures”, she said. Nayanima Basu, an Indian journalist and author of *The Fall Of Kabul: Despatches From Chaos*, says that people in the provinces outside of the “bubble in Kabul” were clear that the Taliban’s thought processes had not changed. “There is a disparity between the Taliban leadership in Doha — which has offered assurances to the international community that exclusive schools and universities for girls will reopen — and the Stone Age thinking of those actually in power in Afghanistan,” she said.



How are women in Afghanistan reacting?

Some Afghan women have defied the ban on raising their voices in public, with videos being posted on social media showing them singing, even while covered from head to toe. A few have even reportedly protested on the streets, which “indicates that a small number do not care about their life and death because they do not have anything left to lose”, Ms. Koofi told CNN.

Others engage in subtler forms of resistance, but with long-term effects. Pashtana Dorani, now in exile, founded a non-profit called LEARN which runs five underground schools within Afghanistan, where 661 girls study clandestinely, in shifts, changing locations when they learn of Taliban surveillance. Videos posted a few days after the new law was announced show girls in burkhas learning science, mathematics and language. “They may shut the doors but they can’t take away our dreams,” Ms. Dorani wrote.

What has been the international response?

UN Women said the new rules were “oppressive”, while the office of the UN Commissioner for Human Rights called for the “utterly intolerable” law to be repealed. However, after the Taliban said it would no longer cooperate with the UN Assistance Mission in Afghanistan, UN spokesperson Stéphane Dujarric emphasised that the UN “will continue to engage with all stakeholders in Afghanistan, including the Taliban”. “I am a firm believer that political pressure will make the Taliban respond, but that political pressure has never been exerted,” Ms. Koofi told CNN, noting that the UN had agreed to the Taliban demand to exclude Afghan women from talks in Doha this summer. “So the Taliban thinks the world doesn’t really care about women’s rights,” she said, adding that differences between the global north and south has “further emboldened the Taliban”.

Officials in the Ministry of External Affairs shared a statement reiterating India’s position. “We have noted with concern the reports in this regard. India has consistently supported the cause of women’s education in Afghanistan. We have been emphasising the importance of the establishment of an inclusive and representative government that ensures equal rights of women and girls to participate in all aspects of society, including access to higher education,” he said.

DreamIAS



NATION

CANADIAN VISA IN HAND, RECORD NUMBER OF INDIANS ILLEGALLY ENTER US, SEEK ASYLUM IN UK

The number of undocumented Indians crossing over from Canada to the US on foot has reached an all-time high, data reviewed by *The Indian Express* show. This spike has placed Canada's visa screening process under the lens — more so, due to parallel concerns over Canada-bound Indian passengers seeking asylum in the UK while in transit.

— Corresponding data from across the Atlantic shows that the number of Indians seeking asylum “at port” in the UK saw a 136% spike in 2022 (1,170) over 2021 (495) before going up further in 2023 (1,319). This year, 475 asylum seekers have already been recorded “at port” until June.

— **Why Canada:** “Canada offers the ideal combination of an accessible visa and a soft border. It's a much safer option than taking one of those ‘dunki’ (illegal) routes via West Asia, Africa or the Caribbean, to join the crowd waiting to cross the heavily guarded Mexico border,” said an immigration consultant registered with the Canada Regulatory Council.

— **UK's Transit Loophole:** If the Canada border is attracting undocumented Indians to the US, the UK lure is the exemption for Canada-bound Indians from obtaining transit visas for London stopovers. In fact, the jump in the number of Indians stands out among the top five asylum seekers by nationality in the UK.

— According to the latest US Customs and Border Protection (CBP) data, an all-time high of 5,152 undocumented Indians entered the US from Canada on foot this June alone. And, the monthly number of Indians entering the US from Canada has surpassed those crossing over from the notorious Mexico route since December 2023.

— Stretching over nearly 9,000 km, the US-Canada line is the longest open border in the world, more than twice as long as the Mexico span — and, incidentally, nearly thrice the length of India's 3,400-km border with China.

FIRST TIME, PAK ARMY CHIEF ADMITS ITS MILITARY'S ROLE IN 1999 KARGIL WAR

In a first, Pakistan Army chief General Asim Munir has publicly acknowledged the role of the country's military in the 1999 Kargil conflict with India.

— Addressing an event at the General Headquarters in Rawalpindi Friday to mark Pakistan's 59th Defence Day, General Munir, referring to Pakistan's wars with India, said, “Be it 1948, 1965, 1971, the Pak-India war in Kargil or the Siachen battlefield, thousands of Shuhada (martyrs) have sacrificed their lives for the nation and Islam.”

— He also referred to the Kashmir issue as a global problem, stating that peace in South Asia can be established with its solution.

— This is the first time that a serving Pakistan Army chief has admitted to the country's military's involvement in the 1999 Kargil conflict, references to which have been avoided in official communication in Pakistan.

— India marked 25 years of Kargil Vijay Diwas on July 26 this year.

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**For Your Information:**

— Kargil Vijay Diwas, celebrated every year, is a significant day in the history of India. It is observed to pay tribute to the bravery of Indian soldiers who sacrificed their lives for the country during the Kargil War of 1999.

— The infiltration was discovered in May 1999, prompting the Indian Army to launch Operation Vijay and leading to the Kargil War. This conflict occurred between India and Pakistan in the Kargil district of Kashmir and along the Line of Control (LOC) from May to July 1999.

— Over two months, intense battles took place in the difficult mountainous terrain. The Indian Army managed to drive out Pakistani intruders and successfully recaptured Tiger Hill and other strategic positions as part of Operation Vijay.

— The Indian soldiers secured this victory after a three-month conflict on July 26, 1999. However, the war resulted in casualties on both sides, with the Indian forces losing nearly 490 officers, soldiers, and jawans.

EXPRESS VIEW ON PM MODI'S SINGAPORE VISIT: FACING EAST

Prime Minister Narendra Modi's visit to Singapore this week marks a major attempt to reboot one of India's most valuable partnerships in Asia and the world. It is also about giving a fresh impetus to India's engagement with South East Asia and more broadly the vast Pacific region. Before the PM's visit to Brunei — the first bilateral visit to this small petroleum-rich nation and Singapore this week — Delhi had hosted the prime ministers of Malaysia and Vietnam. President Droupadi Murmu travelled to Fiji and New Zealand last month. External Affairs Minister Subrahmanyam Jaishankar met several foreign ministers in the region and received them in Delhi. These engagements have once again demonstrated the extraordinary goodwill for Delhi in the region and the high expectations from India. The intensity of this Asian diplomatic activity at the beginning of Modi's third term will hopefully translate into concrete outcomes when the PM heads to Laos next month to attend the annual summit meetings with ASEAN and East Asian leaders.

The last few years have seen the growing importance of the Gulf region, leading to speculation that South East Asia has fallen off India's political radar. But Jaishankar has made it clear that both the Gulf and South East Asia are of vital importance to India. The fact, though, is that there has been a shadow over the salience of India's South East Asia policy in recent years. When he took charge in 2014, Modi rebranded India's Look East Policy unveiled by Delhi in the early 1990s as "Act East Policy". At the diplomatic level, this culminated in the presence of ASEAN leaders as honoured guests at the Republic Day celebrations in January 2018. At the geopolitical level, the regional environment had become more complex with the sharpening US-China conflict and Delhi's own deepening troubles with Beijing. India's membership of the newly revived Quad, too, raised concerns in the region. In Singapore this week, the PM made it clear that India and the Quad stand squarely behind ASEAN and its central role in the regional security architecture. Delhi's efforts at reassuring ASEAN have shown a measure of success as the region opens up to more defence and security cooperation with India.

It is in the trade domain, though, that significant questions remain about India's commitment in the region. Delhi's decision to walk out of the regional negotiations on trade liberalisation (RCEP) at the eleventh hour had deeply disappointed many, especially Singapore that had championed India's Look East Policy since the early 1990s. Despite recent calls from the region and the World Bank, Delhi is unlikely to reconsider its rejection of RCEP. It understands the importance of



plugging this loophole and is looking to strengthen bilateral trade and investment arrangements with all major economies in the region. Delhi is also looking at new areas such as digitalisation, health, space technology and advanced manufacturing to strengthen regional ties. This new Indian approach has been highlighted by India's "semiconductor diplomacy" with Malaysia and Singapore, both of which have significant capabilities in semiconductor production. It is up to Delhi's economic ministries now to translate the agreements for semiconductor collaboration into ground reality.

The Prime Minister was accorded a ceremonial welcome at the Parliament House by Prime Minister H.E. Mr. Lawrence Wong.

For Your Information:

— In 2010, a Free Trade Agreement was signed and entered into force between India and ASEAN. While India was part of negotiations to join the Regional Comprehensive Economic Partnership (RCEP) in 2020, it ultimately decided not to do so. However, in the past eight years, trade has grown in terms of value, barring the pandemic years of 2020 and 2021.

— ASEAN itself has recently faced issues that complicate coordination, such as the rise of China and its claims over the South China Sea (many of which compete with claims of ASEAN members like the Philippines) and the issue of military conflict in Myanmar.

PM IN BRUNEI

Amid China's aggressive behaviour in the Indo-Pacific region, Prime Minister Narendra Modi underlined in Brunei that India doesn't support "expansionism" but supports "development".

(Both Brunei and Singapore are key partners in India's Act East Policy and the Indo-Pacific vision. The Prime Minister's visit aims to strengthen these relationships and expand India's engagement with the broader ASEAN region.)

— Modi, who met Sultan Haji Hassanal Bolkiah on Thursday in Brunei's capital Bandar Seri Begawan, stressed the need to respect "freedom of navigation and overflight". The two leaders are meeting amid tensions in the South China Sea, where Chinese and Philippine Coast Guard vessels jostled over an island situated just 138 kilometres from the Philippines' west coast and 1,200 kilometres from China's southernmost province of Hainan.

— According to the joint statement issued after the bilateral talks, "Both leaders reiterated their commitment to maintaining and promoting peace, stability, maritime safety and security, as well as respecting freedom of navigation and overflight and unimpeded lawful commerce, consistent with international law, notably the United Nations Convention on the Law of the Sea (UNCLOS) 1982. The leaders also urged all parties to resolve disputes through peaceful means in accordance with international law, particularly UNCLOS 1982."

— Brunei claims to be part of the South China Sea, most of which Beijing says belongs to China. But unlike some other countries with claims in the region, Brunei has kept silent on its own claim to a relatively small area off northern Borneo, focusing on growing trade ties with China as the oil-reliant nation diversifies its economy.



— Officials said New Delhi is looking at capitalising on Brunei's potential to tap into its China+1 strategy. India also has vital stakes in the South China Sea, as almost 55 per cent of its trade passes through the disputed waters.

For Your Information:

— Prime Minister Narendra Modi arrived in Brunei Tuesday, on the first leg of his two-nation trip that will also include Singapore. He is the first Indian Prime Minister to travel to Brunei on a bilateral visit.

— Sultan Haji Hassanal Bolkiah, who is the longest reigning monarch in the world and has been among the world's richest for decades, has paid four visits to India so far.

— The prime minister inaugurated a new Chancery of the High Commission of India and visited the Omar Ali Saifuddien Mosque. The mosque is named after Omar Ali Saifuddien III, the 28th Sultan of Brunei (father of the current Sultan, who also initiated its construction), and was completed in 1958.

— Sultan Haji Hassanal Bolkiah, who is the longest reigning monarch in the world and has been among the world's richest for decades, has paid four visits to India so far — State visits to India in 1992 and 2008, and also attended the ASEAN-India commemorative summits in 2012 and 2018.

— ASEAN is central to India's Act East policy, which focuses on the extended neighbourhood in the Asia-Pacific region. The policy was originally conceived as an economic initiative but has gained political, strategic and cultural dimensions including the establishment of institutional mechanisms for dialogue and cooperation.

— India is part of the ASEAN Plus Six grouping, which includes China, Japan, South Korea, New Zealand and Australia as well.

— The Indian diaspora in Brunei is about 14,000 and they comprise a substantial number of doctors and teachers who, he said, have earned goodwill and respect for their contributions to Brunei's economy and society.

— There have been regular visits by Indian Navy and Coast Guard ships – ICGS Sagar in March 2014; INS Shakti in August 2014; INS Airavat in May 2016; INS Satpura in November 2017; ICGS Shaunak in January 2019.

— INS Jalashwa visited Brunei in May 2021 to bring back Covid relief donated by the Indian diaspora. INS Shivalik and INS Kadmat visited Muara Port in August 2021 for PASSEX with Brunei. Bruneian ship KDB Darulaman participated in MILAN 2012 (Andamans); and Royal Brunei Navy's Ship KP 80 Daruttauqwa visited Mumbai in August 2014.

— Other than naval ties, Brunei plays a role in the Indian space programme. India established a Telemetry, Tracking and Command station in Brunei in 2000 which tracks and monitors eastward launches of Indian satellites and satellite launch vehicles.

A THAW IN CHILL: DELHI, MALE HOLD DEFENCE TALKS

For the first time since India withdrew its uniformed military personnel from the Maldives early this year, New Delhi and Male held a defence dialogue here Friday at the level of top officials where



they discussed “ongoing defence cooperation projects” and “forthcoming bilateral military exercises”.

— This is significant since a chill has gripped bilateral relations since President Mohamed Muizzu assumed office last year on the plank of his “India Out” campaign.

— According to an official statement by the Defence Ministry on the 5th Defence Cooperation Dialogue between India and the Maldives, “the entire range of talks was “productive” which will advance shared interests of both the nations in the near future and bring stability and prosperity in the Indian Ocean Region.”

— Soon after coming to power in November 2023, Mohamed Muizzu, seen as pro-China, requested India to withdraw its military personnel from his country. Muizzu had defeated incumbent Solih on the “India Out” plank.

— Faced with a deadlock, the two countries agreed on February 2 this year that between March 10 and May 10, India would pull out 80-odd military personnel stationed in the Maldives.

— In August, in the first high-level visit to Maldives since Muizzu came to power, External Affairs Minister S Jaishankar went to Male to discuss bilateral cooperation. He framed Maldives as “one of the cornerstones of our ‘Neighborhood First’ policy... one of our Vision SAGAR, as well as of our commitment to the Global South...”

— In 2020, India had gifted a Dornier aircraft to Maldives and in 2019 handed over a patrol vessel. Last year, New Delhi had also given a coastal radar system to Male.

— Last year, Defence minister Rajnath Singh and his then Maldivian counterpart, Mariya Didi, had laid the foundation stone for the Coast Guard ‘Ekatha Harbour’ at Sifavaru in Uthuru Thila Falhu (UTF) atoll, which is among the biggest Indian grant-in-aid projects in Maldives.

— A year earlier, Modi and then Maldives President Solih kickstarted the Greater Male Connectivity Project (GMCP)—a \$500-million project financed by India. PM Modi had also announced that India will provide 24 vehicles and a naval boat and will build police facilities on 61 islands of the country.

For Your Information:

— Significance of Maldives for India:

— Location and maritime security: Maldives’ proximity to the west coast of India, and its location at the hub of commercial sea lanes running through the Indian Ocean imbues it with significant strategic importance to India. The security scenario in India’s periphery in the Indian Ocean is very much linked to the maritime strength of Maldives.

— Defence: This is the reason why India invests on Maldives’ security by training its defence forces. Estimates suggest that almost 70 per cent of Maldives’ defence training is done by India...

— China: India is obviously concerned at the expanding Chinese footprint there. So, from a purely strategic perspective, India needs Maldives on its side to secure its maritime periphery, keep an eye on the Indian Ocean, and check the influence of China in its neighbourhood.



HOW SUPREME COURT HAS CENTRED RIGHTS OF THE ACCUSED IN RECENT PMLA CASES

In a series of decisions, the Supreme Court has highlighted the rights of people accused of money laundering, even in the face of stringent provisions on arrest and bail under the Prevention of Money Laundering Act, 2002 (PMLA).

In *Vijay Madanlal Choudhary v. Union of India* (2022), a three-judge bench led by Justice A M Khanwilkar (retired) upheld all the challenged PMLA provisions, including the restrictive bail conditions and the wide powers of investigation and arrest granted to the Enforcement Directorate (ED). These powers have been recently reined in through smaller interventions.

On grounds of arrest

Section 19 of the PMLA gives the ED the power of arrest if the material it possesses gives it reason to believe an individual is guilty of money laundering. The accused must be informed of the grounds of arrest “as soon as may be”. In *Vijay Madanlal*, the court held that the ED is not bound to supply the accused with a copy of the Enforcement Case Information Report (similar to an FIR), and is only bound to inform them of the grounds for arrest.

The SC detailed the issue in *Pankaj Bansal v Union of India* (2023). It found that the grounds were informed orally in some cases and in writing in others. The court said an accused has a fundamental right to be informed of the grounds of arrest under Article 22 of the Constitution of India. Written grounds of arrest must be given “as a matter of course and without exception”, it held. Without this, the arrest would be illegal and invalid.

On bail for undertrials

Section 436A of the Code of Criminal Procedure, 1973, states that if a person has been detained for up to half the maximum period of imprisonment for that offence while the trial or investigation is underway, they shall be released on bail. In *Vijay Madanlal*, the bench held that this would apply to PMLA as well.

On May 16, the court affirmed this in *Ajay Ajit Peter Kerkar v Directorate of Enforcement*. Notably, Section 436A has since been replaced by Section 479 of the *Bharatiya Nagarik Suraksha Sanhita*, likely impacting PMLA cases. For example, a new explanation in the section states that if more than one offence or multiple cases are pending against someone — common in money laundering cases — the section on bail will not apply.

On ‘need and necessity to arrest’

On July 12, the apex court granted interim bail to Delhi Chief Minister Arvind Kejriwal in connection with the ED’s complaint in the Delhi excise policy case. Kejriwal argued that his arrest under Section 19 of the PMLA was illegal as there was no “necessity” to arrest him. He claimed that the material forming the basis of his arrest was available to the ED in July 2023, while the arrest only happened in March 2024.

As Section 19(1) provides that the ED must have “reason to believe” that the accused is “guilty”, the court stated that these reasons must meet a high threshold and effectively be in the form of “evidence admissible in court”.

The court also referred the issue of whether “need and necessity to arrest” is a valid ground for challenging an arrest under the PMLA to a five-judge bench.



On relaxing 'twin conditions'

On August 9, a bench comprising Justices B R Gavai and K V Viswanathan granted bail to former Delhi Deputy CM Manish Sisodia in the Delhi excise policy case.

Section 45 of the PMLA provides stringent "twin conditions" for bail, requiring an accused to prove that he has not committed an offence under the PMLA (reversing the standard burden of proof in criminal cases) and is not likely to commit any offence while on bail. However, the bench held that these conditions can be "relaxed" if the accused has undergone a long period of incarceration. Sisodia was incarcerated for around 17 months without trial commencing.

On bail exception for women

The court granted bail to BRS leader K Kavitha on August 27 in the excise policy case. It also held that Kavitha would benefit from the exception in Section 45, which states that a woman "may be released on bail, if the Special Court so directs".

The bench rejected the Delhi HC's reasoning for denying bail to Kavitha in July because she was "well educated" and could not be considered a "vulnerable woman" under the exception. It held the judge "totally misdirected herself" while denying the benefit.

On confession to ED officer

Section 50 of the PMLA allows the ED to summon "any person" and require them to make statements during an investigation. In Vijay Madanlal, the court held that this did not violate the right against self-incrimination under Article 20(3) of the Constitution.

Under Section 25 of the Evidence Act, 1872 (now Section 23 of the Bharatiya Sakshya Adhiniyam, 2023), confessions made to police officers are not admissible as evidence during trial.

In Prem Prakash v Union of India (2024), the bench comprising Justices Gavai and Viswanathan dealt with a case where an accused admitted guilt while in judicial custody. Justice Viswanathan reasoned that a person in custody is "not a person who can be considered as one operating with a free mind". He also relied on past SC judgments, which held that evidence through "compelled testimony", obtained through coercive methods, would violate the right against self-incrimination.

EXPRESS VIEW ON JUDICIAL DELAYS: TIME FOR REFORM

On August 20, 32 years after a case of blackmail and sexual abuse of hundreds of girls came to light in Ajmer, a POCSO court in Ajmer convicted and sentenced six persons to life imprisonment. On August 29, Delhi High Court allowed a complainant to withdraw a case after she spoke of the burden of repeatedly having to miss work due to court appearances — a situation the Bench described as "litigation fatigue". These two cases, in two different courts, illustrate the problem that President Droupadi Murmu sought to highlight in her address at the two-day National Conference of the District Judiciary. Calling it the "Black Coat Syndrome" she spoke of "poor people of the villages" being reluctant to go to court, fearing the financial and mental strain of a prolonged judicial process. She said, "How many days can it take? Thirty-two years, 12 years, 20 years, two years... One should think deeply about this."

With the President calling for a solution to fix the "culture of adjournments", it is about time that the longstanding problem of judicial delays got the urgent attention it deserves. It is the outcome of a system stretched to its limits, a conjunction of inadequate resources, especially manpower,



and a caseload that grows each year: According to information available on the National Judicial Data Grid, over five crore cases are pending across different levels of the system. Contributing to the challenge are structural issues, such as the large shortfall in the number of judges: At just 15 judges per 10 lakh people, the figure is far less than the 50 judges per 10 lakh recommended by the 120th report of the Law Commission in 1987. Also in short supply are support staff, who are essential to the timely and efficient function of courts. While there have been attempts to unclog the system, such as by the addition of more courtrooms, an updated e-filing system and strategies like pre-litigation dispute resolution, like the Lok Adalats, they have not made a dent.

If the faith of citizens in courts is to be reaffirmed, a long-term plan is required to comprehensively address the issues that keep cases hanging in limbo for years: One such plan, with three stages, was outlined by the CJI in his address at the same event. The demand for speedy justice has again gained traction following the rape and murder of a doctor in Kolkata and the sexual assault of two girls in Badlapur, with the PM himself calling for speedier disposal of cases of violence against women. Reform, however, means addressing the shortcomings of the system without compromising its integrity. A careful balance is needed between speed and due process, between ensuring that cases are cleared and that justice is done.

EXPLAINED: THE LAW AND THE GROUND REALITIES OF PASSIVE EUTHANASIA IN INDIA

Finding that 30-year-old Harish Rana was not being kept alive 'mechanically', the Delhi High Court and the Supreme Court recently rejected a plea by his parents for constituting a medical board to examine if this is a viable case for passive euthanasia.

The case has reignited the debate around the ethics and law that defines passive euthanasia — withdrawing life-supporting treatment to allow a person to die naturally.

2011: Aruna Shanbaug case in SC

In 2011, the Supreme Court for the first time recognised the legality of passive euthanasia in the case of Aruna Ramchandra Shanbaug v Union of India.

After being sexually assaulted by a ward attendant of Mumbai's KEM Hospital in 1973 and suffering a brain injury in the process, nurse Aruna Shanbaug was left in a 'persistent vegetative state' for decades, with no possibility of recovery. Journalist and author Pinki Virani, who wrote a book on Shanbaug, filed a petition at the Supreme Court in 2009 seeking an end to the life-supporting treatment the hospital was providing to Shanbaug, arguing that she should be allowed to die peacefully.

The court, while ruling out passive euthanasia in this case, held that Shanbaug was still alive as she did not require life support. However, the court recognised the legality of passive euthanasia, though it clarified that this could only be done with the approval of a High Court.

A roadmap

In 2018, the Supreme Court recognised the legality of 'passive euthanasia' for terminally-ill patients, holding that the 'right to die with dignity' forms a part of the right to life under Article 21 of the Constitution of India. The court also laid down detailed guidelines for passive euthanasia, both in cases where the patient left an 'advance directive' or a 'living will' stating that life support should be withdrawn if they fall terminally ill, and in cases where no such directive was left behind.



Among the guidelines was the condition that the living will must be signed in the presence of two witnesses and signed by a Judicial Magistrate. The guidelines also called for multiple approvals before the terminally ill patient's case is cleared – from the treating physician, a suitably qualified medical board, and another external medical board, with representation from the local administration.

In the case of patients without a living will, the family has to give their consent for withdrawal of life support. In 2019, the Indian Society of Critical Care Medicine filed an application for modifying these guidelines, stating that they were cumbersome and unworkable.

In 2023, another five-judge bench allowed the guidelines to be modified in a number of ways. This included introducing timelines for each board to make a decision, and limiting the involvement of the Judicial Magistrate.

The tough decisions

Though the Supreme Court dismissed the plea for passive euthanasia in Harish Rana's case on August 20, the bench was sympathetic to the plight of Rana's parents who had spent a significant portion of their own lives and savings caring for their son who will likely never recover.

Since his fall from the fourth floor of a building in 2013, Rana has been in a 'permanent vegetative state', suffering from quadriplegia with "100% disability in relation to his whole body", according to his hospital records.

According to medical experts, the financial implications are often drastic for patients in a vegetative state. Speaking of the tough decisions families are forced to make while caring for a terminally ill patient, Dr Bhavani Prasad Gudavalli, Head of the Critical Care Department at CARE Hospitals, Banjara Hills, Hyderabad, said, "It's not as if they (the families) don't have compassion, but when the finances come into play and you tell them that the financial implications are very high and the chance of recovery is very low, then the family will often want to withdraw treatment."

DEATH FOR RAPE

The cry for the death penalty after every heinous sexual crime, and governments yielding to it by issuing ordinances or passing Bills, have become fairly commonplace. The criminal laws were amended in 2013 after the brutal rape of a woman in Delhi; subsequently, States including Madhya Pradesh, Rajasthan, Haryana, Andhra Pradesh, Maharashtra and Arunachal Pradesh have sought amendments for enhanced punishment for sexual assault. On Tuesday, the West Bengal Assembly unanimously passed The Aparajita Women and Child (West Bengal Criminal Laws Amendment) Bill, 2024, by a voice vote, following the rape and murder of a doctor at a government hospital in Kolkata on August 9 and a persistent clamour for justice. The Bill introduces the death penalty or life-long imprisonment for rape by amending the relevant sections in the Bharatiya Nyaya Sanhita, the new penal code. In fact, death has been sought to be prescribed for five offences — rape; rape by police officer or public servant; rape causing death or sending victim to persistent vegetative state; gang rape, and being a repeat offender. It also amends the Bharatiya Nagarik Suraksha Sanhita to provide for special courts to try such offences in a time-bound manner, and the Protection of Children from Sexual Offences Act, 2012, to provide for death in cases of penetrative sexual assault and its aggravated form. The President's assent will be required for the State amendments.



There is little evidence that awarding the death penalty is a deterrent against sexual offences, but the call for more stringent laws after such crimes often evokes an official response. By stating that “rape is a curse against humanity and social reforms are required to prevent such crimes,” Chief Minister Mamata Banerjee herself put a question mark on the need for a Bill that leans on legal sanction rather than seeking a change in societal mindsets. The Justice J.S. Verma Committee had said it was not inclined to recommend the death penalty for rape even for the rarest of rare cases, arguing that “...seeking of [the] death penalty would be a regressive step in the field of sentencing and reformation”. However, death penalty was introduced subsequently for rape of girls under 12 and gangrape of those under 18; but women are far from feeling safer. It is also a tragedy that the cruel death in Bengal has become a political slugfest between the Centre and the State. The onus is on every government to ensure that laws are implemented effectively, and the police work without bias to prevent and punish sexual assault. Justice will be better served if barriers to women’s advancement are removed by first making workplaces and homes safe for them.

NOW, TELUGU FILM INDUSTRY WOMEN SEEK RELEASE OF 2022 REPORT ON HARASSMENT

Leading women actors, producers, and directors of Telugu films are pushing the Telangana government to release a two-year-old report on sexual harassment in the industry, as the first step toward creating a safe working environment.

The Movie Artistes Association and the Telugu Film Chamber of Commerce are also learnt to be discussing how to address this issue.

The Voice of Women (VoW), a support group for women in the Telugu film industry, issued a statement on Friday drawing parallels to the Hema Committee’s revelations of sexual exploitation in Malayalam cinema. The statement garnered attention when it was shared on social media by actor Samantha Ruth Prabhu, and others.

The 235-page Hema Committee report on the working conditions, discrimination and allegations of sexual exploitation in the Malayalam film industry has had a snowball effect. After the report was made public on August 19, several women actors came forward and shared their experiences. Since then, there have been discussions about the necessity for probe into other language film industries.

Can of worms

A similar study was conducted on the Telugu film industry in the wake of actor Sri Reddy’s allegations in 2018 and the #MeToo movement. However, the report submitted to the Telangana government in June 2022 is yet to see the light of day.

In 2018, Ms. Sri Reddy had alleged sexual harassment and staged a protest outside the Telugu Film Chamber of Commerce, which made everyone sit up and take notice. She was soon shamed and banned by the Movie Artistes Association.

Her allegations had, however, opened a can of worms about the rampant sexual harassment in the industry.

VoW was then formed as a support group, with a few prominent women producers, directors and actors stepping forward with an intent to clean up the system. “VoW did not emerge from a government mandate. It began as a collective support group for women in cinema, television, theatre and media. We had to do this because even today, no film union will take the initiative to



make the workplace safe for women,” says actor Jhansi, a founding member speaking on behalf of VoW.

Producers Supriya Yarlagadda, Swapna Dutt, C. Kalyan, Damodar Prasad, and director Nandini Reddy are among those who have been actively engaging with varied stakeholders in the industry on this issue since 2018.

VoW members began talking to production houses and unions to set up Internal Complaints Committees, but felt that more action was needed.

High-level committee

A public interest litigation petition filed by the Telangana Women’s Organisation joint action committee prompted the State government to set up a high-level committee (HLC) under the Department of Cinematography. It also included members from the Labour, Human Rights, and Women and Child Welfare departments, along with the State police.

Later, a sub-committee was formed with members of civil rights societies and voluntary organisations as well.

A. Suneetha, an independent researcher and member of the All India Feminist Alliance, who was part of the HLC sub-committee, says that several interviews and sessions were conducted between July 2019 and March 2020, and then again in 2021. After that, a report was finalised and submitted on June 1, 2022, to the then-Chief Secretary, Somesh Kumar.

Note:

Under the Prevention of Sexual Harassment (PoSH) Act, 2013, it is mandatory for every organisation to constitute an internal complaints committee (ICC) when there are 10 or more women employees working there. The PoSH Act, 2013 and the University Grants Commission (Prevention, Prohibition and Redressal of sexual harassment of women employees and Students in Higher Educational Institutions) Regulations, 2015, mandate the formation of an ICC or internal committee (IC) by an order in writing in every college.

ENSURE LGBTQIA+ COUPLES GET RATION CARDS, SAYS CENTRE

The Union government on Sunday said LGBTQIA+ couples will be considered part of the same household for the purpose of ration cards, an advisory for which was recently issued by the Department of Food and Public Distribution.

All States and Union Territories have also been directed to take measures necessary to ensure that LGBTQIA+ couples are not discriminated against in the issuance of ration cards.

The Union government added that the Health Ministry had also written to all States and Union Territories and relevant stakeholders about making a provision that allowed partners in such relationships to be able to claim each other’s body “when near relative/next of kin/family is not available”.

The Health Ministry has also framed guidelines on required medical interventions for intersex children or infants or “infants/children with disorders of sexual differentiation” so that they can “have a medically normal life without complications”, the government said. The Health Ministry is



also working on guidelines for addressing issues of mental health and well-being of persons from the LGBTQIA+ community.

The Social Justice and Empowerment Ministry said these were among the “interim measures” the government had taken in the past week in keeping with the directions of the Supreme Court in the marriage equality case in October 2023.

MARRIAGEABLE AGE FOR WOMEN

On August 27, the Himachal Pradesh Assembly passed a Bill raising the minimum marriageable age for women from 18 to 21 years. The Prohibition of Child Marriage (Himachal Pradesh Amendment) Bill, 2024, was passed on the first day of the two-week monsoon session. It seeks to amend the Prohibition of Child Marriage Act, 2006 (2006 Act) to advance gender equality.

What do experts have to say?

Author and activist Madhu Mera previously told The Hindu that raising the minimum marriage age for women to 21 years could upend young lives in a web of criminal prosecutions. “In our research at Partners for Law in Development, we looked at 10 years of use of the child marriage law. Overwhelmingly, the law was used by parents against eloping daughters. It has become a tool for parental control and for punishment of boys or men whom girls choose as their husbands. An increase in age to 21 years would mean persecution of girls right up till 21 years,” she said.

The 2008 Law Commission Report recommended setting a uniform age of marriage for both men and women at 18 years. The National Human Rights Commission in 2018 too proposed a similar reform.

OVER 80% OF IIT-BHUBANESWAR FACULTY MEMBERS BELONG TO GENERAL CATEGORY

Amid the ongoing debate surrounding the representation of Scheduled Tribes, Scheduled Castes, and Other Backward Classes (OBCs) in the job sector, it has emerged that over 80% of faculty members at the Indian Institute of Technology, Bhubaneswar are from the unreserved categories.

Responding to information sought by Gowd Kiran Kumar, president of All India OBC Students Association, under the Right to Information Act, the authorities said that there was 300 sanctioned posts of professor, associate professor, and assistant professor.

Currently, 213 positions have been filled across various departments. As per the reply, 95 posts are lying vacant. A total of 171 out of the 213 posts have been filled by candidates belonging to the general category.

Twenty-eight candidates from the OBC category, including a person with disabilities, teach in the institute. One faculty member is from a tribal community, while 12 are from the Scheduled Castes. One person is from the Economically Weaker Section.

Senior Congress leader Srikant Jena said, “It is mandatory for all Central institutes to adhere to the reservation policy. However, many fail to fill positions designated for reserved categories, often citing lack of suitable candidates as the reason. We will demand a thorough investigation into recruitment process followed by IIT, Bhubaneswar. If suitable candidates were not available, the institute should have made sincere efforts to scout for talents from reserved categories.”



Reservation to the SCs, STs, and OBCs in case of direct recruitment on an all- India basis by open competition is given at the rate of 15%, 7.5%, and 27%, respectively.

Despite efforts to reach out to the IIT, Bhubaneswar for comments, no one was available to clarify the institution's position.

NOT TALKING ABOUT CASTE

"There is a popular idea in some sections of Indian society that describing the caste system actually intensifies its effects and that if you don't talk about caste, it will, somehow, go away. The idea of not talking about caste as a strategy of addressing it has a relatively long history in the modern life of the nation." — If there is one thing Rahul Gandhi has learnt, it is that one can only afford to forget caste — and think yourself beyond it — if one does not suffer from any of its ill-effects.

— Those who do not think that caste is important are usually the ones whose life chances have not been affected by it. The ability to forget caste indicates privilege and not the absence of caste.

— Caste discrimination operates both formally and informally, visibly and invisibly. There is no such thing as a "caste-free" context in India and caste identity is fundamentally related to one's life chances.

— Informal discrimination (everyday attitudes, say) lead to low self-worth and formal ones (lack of material resources, for example) define the kinds of activities one is able to pursue and career choices that become available.

— Caste as aptitude, inclination and behaviour has a relatively long history. Some of this history

— such as that which relates to the nature of the so-called criminal castes and tribes — is of colonial origin.

— However, the key point is the manner in which it constitutes shared consciousness and cultural wealth among the privileged. Within this way of thinking, specific castes are "genetically" meritorious and inherently suited towards certain activities, while others lack the attributes of merit.

— Caste hierarchy creates a form of cultural wealth through inventing "meritorious" capacities for "people like us" and violent and uncivilised characteristics for others. It is this that forms the informal means of discrimination that Rahul Gandhi's comments about beauty pageants should direct us to.

— The absence of "lower castes" from such events results from the persistence of both informal and formal processes of caste discrimination about who can do what.

ARE LIE-DETECTOR TESTS LEGALLY VALID?

The story so far:

On August 26, the Central Bureau of Investigation (CBI) conducted a second round of polygraph tests on seven people, in connection with the rape and murder of a resident doctor at the R.G. Kar Medical College and Hospital in Kolkata. The tests were conducted on the former principal of the medical college Sandip Kumar Ghosh, four doctors who had dinner with the victim hours before

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



the crime, civic police volunteer Sanjay Roy who is the main accused, and another police volunteer believed to be close to him. Mr. Ghosh reportedly provided inconsistent responses during questioning over the last 10 days, leading authorities to administer an additional round of polygraph tests. The central agency, which has been investigating the crime since August 13 following a Calcutta High Court order, had obtained permission from a Kolkata court to conduct the polygraph tests. The Court also remanded the main accused to judicial custody for 14 days.

What are deception detection tests?

Deception detection tests (DDTs) are scientific procedures employed to detect probable deception during interrogation. These tests include narco-analysis, polygraph tests, and brain mapping. A polygraph test operates on the presumption that specific physiological responses are triggered when a person is lying. Typically, the test is administered by attaching instruments like cardio-cuffs or sensitive electrodes to the suspect to measure variables such as blood pressure, galvanic skin response (a proxy for sweat), breathing and pulse rate. As questions are posed, each physiological response is assigned a numerical value to determine whether the individual is telling the truth or being deceptive.

In contrast, narco-analysis involves the injection of a drug called sodium pentothal into the accused, inducing a hypnotic or sedated state. The assumption is that a subject in such a state is less inhibited and is more likely to divulge information. Because the drug is thought to weaken the subject's resolve to lie, it is often referred to as a "truth serum." The third method, brain mapping, measures a subject's neural activity — specifically brainwaves — using electrodes attached to the face and neck. It operates on the principle that the brain generates distinctive brainwaves when exposed to familiar stimuli, such as an image or a sound.

However, the efficacy of such tests remains contentious in the medical field. In a 2010 paper published in the Indian Journal of Medical Research, psychiatric expert Suresh Bada Math observed that lie-detection techniques have "faced a number of criticisms," and their effectiveness in revealing "concealed knowledge in applied real-world settings" remains uncertain. He also questioned the reliability of polygraph tests, pointing out that the test's underlying principle is flawed — parameters such as heart rate and blood pressure, which indicate a state of hyper-arousal, have not been proven to be uniquely indicative of lying. Similarly, a 2019 study conducted in the U.S. flagged high false positive rates and noted that individuals can train to beat a polygraph.

What was the norm before 2010?

Prior to 2010, Indian courts were strongly in favour of these tests, even deeming consent from the accused as irrelevant before administering them. In *Rojo George vs. Deputy Superintendent of Police* (2006), the Kerala High Court noted that the techniques used for the commission of crimes have become "very sophisticated and modern," making the use of these scientific tests essential for effective investigations. "When such tests are conducted under strict supervision of the expert, it cannot be said that there is any violation of the fundamental rights guaranteed to a citizen of India," it underscored. Similarly, in *Dinesh Dalmia vs. State* (2006), the Madras High Court observed that reliance on these tests by agencies did not constitute "testimonial compulsion." The Court also pitched these "scientific methods of investigation" as a safer alternative to custodial violence often used to extract information.

In 2008, the Delhi High Court in *Sh. Shailender Sharma vs. State & Another*, asserted that in light of rising crimes against society, it is necessary to keep in mind the "need of a thorough and proper investigation as against individual rights while ensuring that constitutional rights are not



infringed.” Adding that narco-analysis tests “do not suffer from any constitutional infirmity” and are a “step in aid of investigation”, the Court allowed the administration of the test.

What happened in 2010?

In a watershed moment, the Supreme Court in 2010 in the case of Selvi vs. State of Karnataka ruled that no lie detector tests should be administered “except on the basis of consent of the accused” in accordance with the fundamental right against self-incrimination as enshrined under Article 20(3) of the Constitution. A Bench comprising former Chief Justice of India (CJI) K.G. Balakrishnan and Justices R.V. Raveendran and J.M. Panchal further elucidated that a person’s right to make a statement or remain silent is integral to their right to privacy. Thus, they underscored, compelling an individual to make a statement would also constitute a violation of Article 21 of the Constitution.

The Court also noted that little empirical evidence is present to bolster the argument that these tests provide reliable leads for investigators. It accordingly cautioned that the results of these tests cannot be regarded as “confessions.” However, if any information or material is subsequently discovered “with the help of voluntarily administered test results,” such evidence can be admitted in court. For instance, if an accused discloses the location of a murder weapon during the test, and the investigating agency later finds the weapon at that location, the accused’s statement itself will not be admitted as evidence, but the weapon will be.

The Court further mandated that individuals volunteering for such tests must have access to a lawyer and be apprised of the physical, emotional, and legal implications of undergoing the test. Additionally, it required that the subject’s consent be formally recorded before a judicial magistrate and that the guidelines set out by the National Human Rights Commission in 2000 for administering these tests be strictly adhered to.

What next?

Despite the top Court’s cautionary stance, the administration of DDTs continue to be prevalent in India in sharp contrast to their dwindling appeal worldwide. In the recent past, such tests have been employed in several high-profile cases including the 2020 gang rape of a Dalit woman in Hathras, the 2012 disappearance of Sheena Bora, and the 2022 Shraddha Walker murder case.

In the book, *The Truth Machines: Policing, Violence, and Scientific Interrogations in India*, Jinee Lokaneeta underscores the highly invasive nature of polygraphs and other allied tests, questioning whether informed and free consent can ever be obtained in police custody. She also documents instances, such as in the case of the exonerees in the 2007 Mecca Masjid blasts case and the accused in the 2006 Mumbai blasts case, where narco-analysis was forcibly administered, accompanied by physical abuse, to extract false confessions.

Echoing similar concerns, senior advocate Rebecca John told *The Caravan* that such lie-detector tests “masquerade” as scientific evaluations. She also highlighted how the prosecution often uses a person’s unwillingness to undergo these tests to cast a judgment on their character before the court. “The fact that you have used your constitutional right is used against you to suggest mala fide conduct,” she said.



DEMOLITION SQUAD

In raising questions about the legality of the demolition of houses belonging to alleged offenders, the Supreme Court of India has articulated a valid and widespread concern about the use of the bulldozer as a form of retribution. The targeted demolition of Muslim houses has become part of the governance model in BJP-ruled States and if the Court can end the impunity with which these extra-legal measures are used by those in power, it would be a wholesome intervention. As Justice B.R. Gavai, heading a Division Bench with Justice K.V. Viswanathan, remarked, the law indeed does not permit anyone's home to be demolished just because they are accused in a case, and it cannot happen even in the case of a convict. The judiciary cannot be oblivious to the political symbolism that the bulldozer has acquired as an instrument of collective punishment inflicted on those the authorities label as rioters. There are instances of the houses of named suspects being demolished, without regard to the fact that the rest of the family may have nothing to do with the offence. However, considering that local laws do permit removal of encroachments and unauthorised constructions, the Bench has articulated its intention to lay down uniform guidelines on a pan-India basis to streamline the procedure for action against such structures. Observations by Justice Viswanathan indicate that these may involve the manner in which unauthorised structures are to be identified, notices issued to those concerned and a fair hearing given to them before any action.

It is here that the Court should tread carefully. The laying down of guidelines should not send out a message that the obvious correlation between incidents of communal violence, and the demolitions that follow them, can be blurred by administrative trickery. In many cases backdated eviction notices are produced to justify these demolitions, even as obvious gloating over the inhabitants' plight betrays the political and communal motive. The idea of digitalising eviction notices may address the problem of backdated notices, but it may not be possible to make the transition in all parts of the country. The real question that the Court should grapple with is whether the claim that only encroachments are being demolished is enough to justify the egregious violation of the rule of law and absence of due process in several recent instances in Uttar Pradesh, Madhya Pradesh, Haryana and Delhi. It ought to be clear by now that the ruling party in these States seeks to gain political mileage by giving the impression that the regime is acting sternly against anti-social elements, even while thinly masking the blatantly communal action by passing it off as an anti-encroachment drive.

ANOTHER ESCALATION

In a significant deterioration of an already fraught situation in Manipur, two persons were killed and at least nine were injured in a bomb attack using drones in villages in the Meitei-majority Imphal West district. The perpetrators are believed to be Kuki-Zo militants. Kuki-Zo groups and partisans have claimed that the attacks were in retaliation to an attempt by Meitei vigilante and insurgent groups to "ambush" Kuki-zo people in the area. While this claim remains unproven, the use of drones — a tactic employed by pro-democracy insurgents in Myanmar against the junta — points to a dangerous escalation of the ethnic conflict in the State. Coming in the wake of Chief Minister N. Biren Singh's assertion that a peace resolution will be achieved in six months, the dastardly attacks could indicate that they are either a deliberate ploy to heighten tensions or just another reminder that ethnic hostilities remain entrenched. That insurgents could use sophisticated drones to attack civilians also suggests a glaring intelligence failure and the inability of the security forces to ensure that the militants are contained. The government has ordered police combing operations but this will not be enough. Unless there is a strong measure to disarm the various groups in the valley and the hills, the situation could exacerbate further.



For nearly 16 months, both the Union and State governments have been content with using security forces to maintain law and order through the creation of buffer zones between the hills and the valley and for the political status quo to remain intact. Repeated violence and the inability of both governments led by the ruling Bharatiya Janata Party (BJP) to work out any breakthrough that will allow for even a dialogue between civil society representatives from these communities suggest that this policy is a failed one. There is little doubt left any more that the hardening of ethnic identities among the Meitei and Kuki-Zo communities is a consequence of the failure of the policies pursued by the Union and State governments. Neither Prime Minister Narendra Modi nor Mr. Singh has changed tack since the setback faced by the BJP in the 2024 general election, when it lost both the Lok Sabha constituencies in the State. The Centre continues to ignore critiques of its lackadaisical approach, while Mr. Singh is hell-bent on remaining in power despite his incompetence and a distinct lack of confidence evinced by both communities. While the fresh attacks call for security forces to calibrate a strong response, a concomitant change in approach and leadership in the State is a must for a chance to be given to peace.

MAOIST SETBACK

With 159 Maoist cadres having been killed in anti-Naxalite operations led by security forces in 2024, the year so far has been one of major setbacks to the long-standing, left-wing extremist movement in India. After suffering major casualties in ambushes in April 2021 and April 2023, paramilitary and police forces are coordinating better and firming up a no-holds-barred approach towards the militants. This has resulted in the Maoists experiencing blow after blow in what is perhaps their only remaining bastion — south Chhattisgarh — even though they retain a presence in other forested districts in Jharkhand, Bihar, Odisha and Maharashtra. The success in taking on the Maoists is also a consequence of the weakening base of support for the insurgents as intelligence is a vital component of the operations. This should not come as any surprise. Notwithstanding grievances against the Indian state among tribals in one of India's most forested and under-developed regions, there were always going to be fewer takers for the idea of a "protracted" war as espoused by the Maoists. The insurgency and the counter-operations have taken a huge toll on the tribal population, bringing in more fatigue for them. That most of the dead among the Maoist cadres are tribal youth points to the tragedy that has befallen one of India's poorest States.

The no-holds barred approach of what the Chhattisgarh government calls "Operation Prahar" might have succeeded in eliminating scores of Maoist cadres, effected surrenders and arrests, but it has also targeted peaceful activists fighting for tribal rights. Civil society organisations have complained that the attacks on the Maoists have coincided with repression against activists and tribals. Chhattisgarh and the Union Home Ministry must be mindful of these grievances as such actions could also increase disenchantment and play into the hands of the Maoists. That streams of the Maoist/Naxalite current have lasted for more than five decades shows that left extremism is still resilient in regions where governance by the Indian state is either absent or seen as detrimental to the marginalised sections. Yet, despite its resilience, the Maoist movement — as experiences of similar currents across the world show — remains an anachronistic one. Far from reaching any of its lofty goals, the Indian Maoist movement has only brought misery for those whom the insurgents claim to fight for. The earlier they realise the futility of their ideology and work towards using spaces in the Indian democratic system to articulate concerns, the better it would be for the tribals who are caught in this never-ending crossfire between security forces and the Maoists.



CENTRE, TRIPURA SIGN PEACE PACT WITH TWO INSURGENT GROUP

Over 328 cadres of the National Liberation Front of Tripura (NLFT) and the All Tripura Tiger Force (ATTF) will give up arms after the banned insurgent outfits **signed a memorandum of settlement** with the Central and Tripura Governments in New Delhi on Wednesday.

— “Today’s settlement is the 12th settlement for the Northeast and the third related to Tripura. As of now, 10,000 insurgents have surrendered, shunned their arms and returned to the mainstream,” said Amit Shah, adding that the Central Government has sanctioned a Rs 250-crore package to support the rebels’ transition.

— Shah also cited the agreement signed with Bru migrants in 2020: “Thousands of Brus are living in nice houses and their children are going to school. They are thinking of employment. They also have access to over 300 centrally sponsored schemes,” he said.

— Although armed struggle in Tripura dates back to 1967, when a small outfit called Sengkrak took up arms, the thick of insurgency came in the late ’80s, when a series of insurgent groups including the NLFT and the ATTF rose. While most of these have largely been defunct, a small faction of the NLFT is said to be active in Bangladesh.

— Insurgency largely came down during the Left Front government’s rule when lucrative offers of an instant grant of Rs 1.5 lakh, vocational training and a Rs 2,000 stipend prompted insurgents to give up arms.

— The previous agreements Union Home Minister Amit Shah referred to include the 2019 NLFT peace accord, the agreement for Bru migrants’ permanent resettlement in Tripura, the 2020 Boro Accord in Assam in 2020, the 2021 Karbi Peace Accord in Assam, Adivasi Accord, the 2022 Assam-Meghalaya interstate boundary agreement, the Assam-Arunachal Pradesh interstate boundary agreement, the Dimas peace accord, the UNLF accord and the 2023 ULFA Accord.

FILE NOTING OF ORDER LIFTING BAN ON GOVT. OFFICIALS JOINING RSS ACTIVITIES ‘CLASSIFIED’: DOPT

After displaying an official memorandum lifting restrictions on ties of government officials with the RSS on its website for “public knowledge”, the Department of Personnel and Training (DoPT) has said that the file noting related to the decision is “classified” and cannot be disclosed. The response was in reply to a Right to Information Act application filed by a Delhi resident.

On July 9, the DoPT issued an order referring to earlier memoranda issued on November 30, 1966, July 25, 1970 and October 28, 1980 stating that instructions were reviewed, and it was decided to remove the mention of “Rashtriya Swayam Sewak Sangh (R.S.S.)” from the impugned memoranda.

The memoranda pertained to “ban on participation in certain organisations like R.S.S., Jamat-e-Islami, Anand Marg and CPM(L) etc.”

The DoPT amended the order following a direction by the Madhya Pradesh High Court while hearing a writ petition filed by Purushottam Gupta, a retired Central government employee who had approached the court in 2023 against the ban. He had challenged the constitutional validity and legality of various provisions of the Central Civil Service (Conduct) Rules, 1964 which mentioned the ban on RSS.



The RTI applicant (name withheld on request) sought to know the “relevant noting” from the file where a decision has been taken with regard to participation of government servants in the activities of the RSS.

Responding to the application, the DoPT said on July 30, “...File No. 34013/1(s)/2016-Estt. (B) is classified in nature, hence, cannot be disclosed.”

It further added that as per the RTI Act, 2005, “CPIO is required to provide information as available with him in the form of O.M., Notifications, rules, regulations, orders, letters and circulars etc. Under the RTI Act, only such information can be supplied which already exists and is held by the Public Authority or held under the control of the Public ‘Authority. Queries/ clarifications interpretation of information is outside the purview of the Right to Information Act, 2005. The instructions issued by DoPT are applicable on Central Civil Services/ posts.”

HECTIC NEGOTIATIONS ON FOR CONTROL OF HOUSE PANELS

Nearly three months into the 18th Lok Sabha, the Department-related Parliamentary Standing Committees have not been constituted because of disagreements between the Union government and the Opposition, on control of these panels.

There are 24 Department-related Parliamentary Standing Committees. Sixteen of them fall under the ambit of the Lok Sabha and are chaired by Lok Sabha MPs, while eight are under the Rajya Sabha.

The Congress, according to its numerical strength, is entitled to chair four committees — three in the Lok Sabha and one in the Rajya Sabha. According to sources, the Congress was keen to chair committees on External Affairs, Finance, and Defence, but the government outrightly rejected the demand. The Congress later conveyed it would settle for at least one of these, but the government rejected this proposal too. Instead, it offered Rural Development; Housing and Urban Affairs; and Labour, Textiles, and Skill Development.

Rajya Sabha panels

Among the eight panels headed by Rajya Sabha members, the Congress has demanded the committee on Home Ministry. The government instead is offering Science and Technology, Environment and Forests, which Congress leader Jairam Ramesh headed in the last term.

Among other Opposition parties, the Trinamool Congress, the Samajwadi Party, and the Dravida Munnetra Kazhagam (DMK) will get to head one committee each. The Trinamool has been silent on its choice, claiming that it never negotiates on the issue. Trinamool’s Parliamentary Party Leader in the Rajya Sabha, Derek O’Brien, said that he had not received a response to two letters he wrote to the government seeking clarity on the issue. “The BJP wants to turn Parliament into a deep, dark chamber. It’s been exactly three months since the election results. No signs of committee being formed,” Mr. O’Brien told The Hindu.

Sources said the Samajwadi Party, which has 37 members in the Lok Sabha, had requested to chair a panel that comes under the Rajya Sabha’s ambit. “Most of our members are first-timers in Lok Sabha and do not have the necessary Parliamentary experience to head a committee,” a senior member argued. The move is aimed at allowing Rajya Sabha MP and senior party leader Ramgopal Yadav to head the panel. In the last Lok Sabha, he headed the Standing Committee on Health.



WHAT IS THE LAW COMMISSION: ITS ROLE, MEMBERS, & RECOMMENDATIONS

The Union government has notified the constitution of the 23rd Law Commission of India with effect from September 1. The commission, which was notified on September 2, will have a three-year term. The tenure of the previous Law Commission chaired by former Karnataka High Court Chief Justice Ritu Raj Awasthi ended on August 31.

The commission has been notified at a time when some key items on the BJP's agenda, including the implementation of a Uniform Civil Code and holding simultaneous elections to Lok Sabha and state Assemblies, were given a fresh push by Prime Minister Narendra Modi during his Independence Day address.

The Law Commission and importance

The Law Commission is a non-statutory commission (not created by a law of Parliament) formed by the Union Ministry of Law and Justice through a gazette notification to help the government review functioning of laws, suggest repealing of obsolete legislation, and make recommendations on matters referred to it by the government.

The commission is usually chaired by a retired judge of the Supreme Court or a High Court, and has legal scholars as members. Serving judges can also be appointed to the commission, according to the notification on the appointment of the new panel.

The 22 Law Commissions appointed since Independence have submitted a total 289 reports to the government. The government is under no obligation to accept the reports; however, the commissions' recommendations have over the decades led to the enactment of important legislation including the Code of Criminal Procedure, 1973 (CrPC), and the Right of Children to Free and Compulsory Education Act, 2009 (RTE Act).

The process of scrapping more than 1,500 obsolete central laws was taken up by the government after recommendations for their "immediate repeal" in reports submitted by the 20th Law Commission.

Constitution of the 23rd panel

The September 2 notification issued by the Law Ministry's Legal Affairs Department says the panel will have a full-time chairperson, four full-time members including a member-secretary, not more than five part-time members, and the secretaries of the Legal Affairs and Legislative departments as ex officio members. The commission's term will be until August 31, 2027.

The chairperson and four full-time members can be serving SC or HC judges or "other category of persons", who can in theory be any expert chosen by the government. The notifications of the 2020 (22nd) and 2015 (21st) commissions also said this, but the two commissions were headed by Justice Awasthi and former Supreme Court judge Justice B S Chauhan respectively.

The chairperson and members of the 23rd Law Commission are yet to be named. The decision will be taken by the Appointments Committee of Cabinet chaired by the Prime Minister, government sources said. The chairperson and members of the 22nd Law Commission were named only in November 2022, which was effectively when the commission's work started.

A serving judge, if appointed to the commission, serves until retirement or expiry of the panel's term, whichever is earlier, and gets no additional remuneration apart from the usual judge's



salary. In the “other” category, a chairperson is entitled to Rs.2.50 lakh as monthly salary and a member, Rs.2.25 lakh. The member-secretary must be an officer of the Indian Legal Service of the rank of Secretary.

Terms of reference of panel

The terms of reference of the 23rd Law Commission are broadly the same as those of the past few commissions. The first three terms are: “Identify laws which are no longer needed or relevant and can be immediately repealed; Creating a Standard Operating Procedure (SoP) for periodic review of existing laws inter alia for the undertaking of simplification of language and processes; Identify laws which are not in harmony with the economic needs of the times and require amendments.”

Like the 22nd and 21st commissions, the 23rd Law Commission too, has been asked to examine “the existing laws in the light of Directive Principles of State Policy and to suggest ways of improvement and reform and also to suggest such legislations as might be necessary to implement the Directive Principles and to attain the objectives set out in the Preamble of the Constitution”.

The Prime Minister’s call last month for a “secular civil code” reflects the Directive Principle that the “state shall endeavour to secure for the citizens a uniform civil code throughout the territory of India”. The 22nd Law Commission also looked into this question; but, its views are not known — the chairperson assumed office as a member of the Lokpal in March, before the Law Commission could submit its report to the government.

The 23rd Law Commission is also mandated to examine laws that affect the poor, carry out a post-enactment audit for socio-economic legislation, and review judicial administration to make it more responsive to the needs of current times.

What 22nd panel said

The 22nd Law Commission presented 11 reports, including one in April 2023 that recommended that Section 124A of the Indian Penal Code, the widely criticised law against sedition, should be retained. The commission cited threats to internal security, including from Maoists, militancy in the Northeast, terrorism in Jammu & Kashmir and the Khalistan movement to back its recommendation. However, the commission did recommend certain amendments to “bring about greater clarity regarding the usage of the provision”.

This March, the commission presented a report recommending a new law to protect trade secrets. It also worked on a report on simultaneous elections, but this report, like that on the Uniform Civil Code, was not presented to the government.

EXPRESS VIEW ON CASE AGAINST THE ACCUSED OF DELHI 1984: LEST WE FORGET

The 1984 anti-Sikh violence remains one of the darkest episodes in independent India’s history. According to official records, more than 2,700 people were killed in the capital alone — civil society groups maintain this is a conservative estimate — in the bloodletting that erupted in the aftermath of the assassination of former Prime Minister Indira Gandhi. Homes were burnt down, livelihoods destroyed, places of worship desecrated. Several commissions, SITs and reports found damning evidence against senior Congress members. Yet, the wheels of justice have moved at an excruciatingly slow pace in the past 40 years, deepening the anguish and trauma of the brutalised families. The conviction of Congress leader Sajjan Kumar in 2018 brought a rare moment of closure. However, other than Kumar, very few people have been punished. Now, on Friday last



week, a Delhi Court has ordered the CBI to frame charges against another high-profile Congress leader, Jagdish Tytler, in a case in which three people were killed and the Pul Bangash Gurdwara in Delhi was torched.

Immediately after the terrible mass violence, fingers were pointed at Tytler, among others. Then, in 2005, the G T Nanavati Commission, set up by the Atal Bihari Vajpayee-led NDA government to probe the killings, referred to eyewitness accounts that Tytler “led the mob” at Pul Bangash. That the four-time Congress MP continued, for long, to fight elections and hold ministerial portfolios in the Rajiv Gandhi, P V Narasimha Rao and Manmohan Singh cabinets, despite the serious accusations against him, speaks of several abdications. The CBI did register a case against the Delhi Sadar MP, nine months after the Nanavati Commission submitted its report but in less than two years, the agency concluded that there were no grounds to prosecute him. That investigation was questioned for its failure to examine all eyewitnesses, and a Delhi Sessions Court ordered the agency to probe the matter again, only for Tytler to be given a clean chit twice — in 2009 and then in 2014. Both times the Court refused to accept the CBI’s report. Last year, in its chargesheet filed in May, the CBI accused him of “inciting, instigating and provoking the mob” that had assembled near the Pul Bangash Gurdwara at Azad Market, Bara Hindu Rao, on November 1, 1984.

In pronouncing the life sentence on Sajjan Kumar in 2018, the Delhi High Court called out the “abject failure” of investigating agencies, and observed that the “perpetrators of anti-Sikh riots enjoyed political patronage”. 1984 is a blot on the country’s law enforcement system, and indeed its democratic polity. The tortuous trajectory of the Tytler case is a larger symbol of a continuing lack of justice and closure.

OVER 80% INDIANS WANT A PM WHO SHARES THEIR RELIGIOUS VIEWS

As many as 81% of Indian adults said it is important for their Prime Minister to have religious beliefs that are the same as their own, according to the results of a recent survey conducted by the Pew Research Centre (PEW). A similar share also said that it is important to have a Prime Minister who stood up for people who share their religious beliefs. PEW had conducted the survey across 35 countries between January and May 2024 among 53,000 respondents.

In general, the share of respondents who shared similar views was highest in certain South Asian, Southeast Asian, and African countries. It was lowest in North America and Europe. South America was in the middle. Even within Asia, the share of respondents who held similar views was much lower in economically advanced countries such as Japan, South Korea, and Singapore.

It is important to note that in this (to have a leader of their country who has strong religious beliefs, even if those are different from their own) measure, the share of those who answered “yes, it’s important/somewhat important” was not very low even among advanced western countries. For instance, in the U.S., close to half of the respondents (48%) said their President should have strong religious beliefs, even if those are different from their own. In Singapore, the corresponding figure was 45%.

However, when asked whether it was important for their leader to have beliefs that are the same as their own, there was a notable drop among respondents in western countries and economically stronger Asian countries who answered that it was “important/somewhat important”. The share of respondents who said so in the U.S. was lower at 37%. In Singapore, the corresponding share was 36%.



Among countries that were relatively weaker economically in Southeast Asia and South Asia, such as India, Bangladesh, Sri Lanka, Indonesia, Philippines, Malaysia and Thailand, the share of those who said it was important/somewhat important that their leader should have strong religious beliefs, even if those are different from their own, was much higher than the share in the west. Moreover, the share of those who said that their leader should have beliefs that are the same as their own was even higher. So, not only do Asians in countries that are relatively weaker economically want their leader to have religious beliefs, but a higher share of them want the leader to share their beliefs, which is in contrast to western nations.

When asked whether their leader should stand up for people with their religious beliefs, the share of respondents who said it was important/somewhat important increased in western countries. About 64% of respondents in the U.S. said they want their leader to stand up for people who share their religious beliefs and 50% said the same in Singapore. The only outliers were France, Japan and South Korea, where less than 30% each shared similar views.

PEW also asked people who were not affiliated with any religion whether they want their leader to have religious beliefs that are the same as their own. Understandably, very few of them said that it was a “very/somewhat important” criteria. As the sample of such respondents in India was too low, they were not plotted.

PEW conducted the survey in India face-to-face among 3,559 people, across most States, except some in the Northeast and in some Union Territories.

SHARED OWNERSHIP OF PROTECTED MONUMENTS WITH WAQF BOARD CAUSES CONFLICT, SAYS ASI

Quoting the examples of Fatehpur Sikri in Agra and Atala Masjid in Jaunpur, the Archaeological Survey of India (ASI) told a Parliamentary panel that having protected monuments which are also notified as Waqf property gives rise to conflicts and administrative issues. The ASI made this argument during its submission to a joint committee holding consultations on the Waqf (Amendment) Bill, 2024.

Contesting this claim, Opposition members of the committee argued that no monument is arbitrarily appropriated by the Waqf Board without historical evidence supporting its ownership, noting that the ASI's own governing legislation — the Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act) — equips the organisation to deal with such cases.

The ASI shared a list of 53 protected monuments, which have also been declared as Waqf property by the Waqf Board, using the Waqf Act, 1995. Such “dual authorities” create conflict, ASI officials said. They underlined that many of these properties have been categorised as Waqf only after they were declared as protected sites.

According to sources, the ASI complained that its staff have been restricted from carrying out “conservation” work in such monuments. They also accused the Board of carrying out “several additions and alterations” to the original structure of these protected monuments, hampering the “authenticity and integrity” of such structures. They listed the examples of the Atala Masjid in Jaunpur where shops were built into the enclosure, and Mecca Masjid in Ahmednagar, where fittings and fixtures were installed without the ASI's permission. They also cited the case of Fatehpur Sikri, where officials claimed that the Waqf is directly appointing tour guides, replacing the ASI-certified guides.



These ASI charges were contested by a number of Opposition members. All India Majlis-e-Ittehadul Muslimeen (AIMIM) MP Asadduddin Owaisi, it is learnt, pointed out that the ASI is deliberately ignoring the very framework of laws that it operates under. The AMASR Act, he argued, provides for balancing private property rights to protected monuments with the public purpose of preservation.

Other members countered that no property could be declared as a Waqf arbitrarily without historical evidence of “Waqf by user”. The new law, they said, is trying to do away with this very clause of “Waqf by user” which will throw open all Waqf properties for multiple claims.

ASI officials were also cornered by the ruling BJP’s MPs, who asked them why the organisation had failed to act in instances listed by them where the Waqf status allegedly threatened the integrity and authenticity of the protected structures.

WHY INDIA CELEBRATES TEACHERS’ DAY ON SEPTEMBER 5

India celebrates Teachers’ Day annually on September 5, the birth anniversary of former President Sarvepalli Radhakrishnan (1888-1975). Here is why.

S Radhakrishnan: A Philosopher of Hinduism

One of India’s most recognised and influential thinkers of the 20th century, Radhakrishnan’s life and work was dedicated to defining, defending, and disseminating the Hindu religion. He is seen in philosophy circles as a bridge-builder between India and the West, and credited for his role in shaping the West’s understanding of Hinduism.

Radhakrishnan was among the foremost proponents of the non-dualist Advaita Vedanta tradition in the 20th century, and re-interpreted Adi Shankara’s philosophy for modern times. In doing so, he defended Hinduism against what he said was “uninformed Western criticism”.

Respected teacher

By the 1920s, Radhakrishnan had established himself as one of India’s most respected academics. He held the prestigious King George V Chair at the Calcutta University from 1921 to 1932, was the second vice-chancellor of Andhra University from 1931 to 1936, and the fourth vice-chancellor of Banaras Hindu University from 1939 to 1948. He also held the Spalding Chair of Eastern Religion and Ethics at University of Oxford from 1936 to 1952. Radhakrishnan was knighted in 1931.

Radhakrishnan was also a brilliant teacher, who developed deep personal bonds with students. He thought highly of the profession of teaching, and is recorded as having said several times that “teachers should be the best minds in the country”.

He became the first Vice President (1952-62), and the second President of India (1962-67). In 1962, after he became president, some old students expressed their wish to celebrate his birthday. Radhakrishnan refused a personal celebration, and instead requested his students to honour teachers across the country on his birth anniversary.

Thus began the tradition of celebrating Teachers’ Day on September 5.



AFTER PUNJAB, DELHI RELENTS UNDER SCHOOL FUND FREEZE, AGREES TO IMPLEMENT PM-SHRI

After Punjab, the AAP government in Delhi has also relented under financial pressure and agreed to sign a Memorandum of Understanding (MoU) with the Centre to implement the Pradhan Mantri Schools for Rising India (PM-SHRI) scheme in the Capital.

— The PM-SHRI scheme, with a budget of over `27,000 crore for the next five years — the Centre is supposed to shoulder 60% of the financial burden and the states 40% — aims to upgrade at least 14,500 government schools into “exemplar” institutions to showcase the implementation of the National Education Policy (NEP) 2020. States must confirm their participation by signing a Memorandum of Understanding (MoU) with the Education Ministry.

— Five states — Tamil Nadu, Kerala, Delhi, Punjab and West Bengal — are yet to sign the MoU. While Tamil Nadu and Kerala have indicated their willingness, Delhi, Punjab and West Bengal had earlier refused, ostensibly prompting the Centre to stop their SSA funds.

— The SSA is funded in a 60:40 ratio by the Centre and the States. SSA funds cover salaries for a section of teachers and staff, help provide uniforms and textbooks to students in government schools along with support for differently abled children, and reimbursement to private schools for admission of children belonging to the economically weaker section and disadvantaged groups category.

For Your Information:

— Approved in 2022, the PM Shri scheme is for existing elementary, secondary, and senior secondary schools run by the central government and state and local governments around the country.

— A centrally sponsored scheme is one in which the cost of implementation is mostly split in a 60:40 ratio between the Union government and the states/UTs. The mid-day meal scheme (now PM Poshan) or the PM Awas Yojana are examples of centrally sponsored schemes.

SUPREME COURT PULLED UP AYUSH MINISTRY OVER RULE 170 OF DRUGS ACT. HERE'S WHAT IT SAYS

Justices Hima Kohli and Sandeep Mehta, while hearing the ongoing Supreme Court case against Patanjali Ayurved, pulled up the AYUSH ministry for its July 1 notification asking state licensing authorities “not to initiate/take any action under” Rule 170 of the Drugs and Cosmetics Act.

The rule, introduced in 2018, is designed to prevent misleading advertisements of AYUSH products. The AYUSH ministry's July 1 notification reiterated its position made in a previous letter, dated August 29, 2023.

What is Rule 170?

In 2018, the government brought in Rule 170 to govern the manufacture, storage, and sale of medicines in the country, “specifically for controlling inappropriate advertisements of Ayurvedic, Siddha and Unani medicines”.



The rule prohibits AYUSH drug manufacturers from advertising their products without approval and allotment of a unique identification number from the state licensing authority. The manufacturers have to submit details such as textual references and rationale for the medicine from authoritative books, indication for use, evidence of safety, effectiveness, and quality of drugs.

The rule states that the application will be rejected if the manufacturer does not provide their contact details, if the contents of the advertisement are obscene or vulgar, products for enhancement of male or female sexual organs, depicts photographs or testimonials from celebrities or government officials, refers to any government organisation, gives false impression or makes misleading or exaggerated claims.

The rule was introduced after a parliamentary standing committee highlighted the problem of misleading claims, and the need for the AYUSH ministry to proactively pursue the issue.

What are challenges to regulate AYUSH drugs?

Like allopathic medicines, manufacturers of AYUSH drugs also have to seek a license from the drug controller. As per the Drugs and Cosmetics Act, phase I, II, and III trials for approval of new allopathic medicines or equivalence studies for generic versions have to be conducted before a drug is cleared for marketing.

However, such trials are not necessary for AYUSH drugs. According to the aforementioned act, most AYUSH drugs can be approved simply based on the rationale provided in authoritative texts of that particular stream. Safety trials have to be conducted only for formulations that use around 60 specific ingredients listed in the act, such as snake venom, snake head, heavy metals such as arsenic and mercury, and compounds such as copper sulphate.

For licensing of drugs containing these ingredients and traditional drugs used for new indications, proof of effectiveness has to be provided as per the Act.

Why did AYUSH ministry direct licensing authorities to ignore the rule?

The Ayurvedic, Siddha and Unani Drugs Technical Advisory Board (ASUDTAB), an expert body that recommends actions relating to regulation of AYUSH drugs, in a meeting in May 2023 said that Rule 170 could be omitted as amendments in Drugs and Magic Remedies Act — another law to govern such misleading advertisements — were also being taken up by the health and AYUSH ministries.

It is in this context that the AYUSH ministry made its recommendation to ignore the rule.

‘MINDFULNESS THERAPY’ CAN TACKLE INTERNET GAMING ADDICTION, FINDS NIMHANS STUDY

Rohan (name changed), a 19-year-old medical student from Mumbai, took up Internet gaming to unwind after long hours of studying. But what started as a hobby quickly spiralled out of control. Soon, he found himself prioritising gaming over his studies, skipping meals, and withdrawing from social interactions.

His grades plummeted, and he began experiencing severe anxiety. It was only after his parents intervened that he sought medical help.



His experience highlights the need for effective interventions, say researchers from the Department of Clinical Psychology, NIMHANS, who have initiated a study on the use of mindfulness-based interventions (MBIs) to help individuals manage Internet gaming disorder (IGD).

Paulomi M. Sudhir, professor and consultant at the Behavioural Medicine Unit of the Department of Clinical Psychology, said emerging evidence suggests that MBIs such as mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) can help individuals like Rohan manage IGD. "These interventions have already proven effective in treating conditions such as depression and anxiety," she said.

Regulating emotions

Manoj Kumar Sharma, Professor, Department of Clinical Psychology, who also heads the SHUT Clinic at NIMHANS, said mindfulness worked by promoting "focused, non-judgmental awareness of the present moment". This practice can help IGD-affected in several key ways such as attention and emotion regulation, self-awareness and acceptance. "By helping individuals regain control over their attention, emotions and behaviour, mindfulness can play a crucial role in reversing the tide of this growing problem," he said.

Mindfulness helped individuals become more aware of their attention patterns, breaking the cycle of compulsive gaming, say the two professors, who are guiding Syed Yaseen Ahmed, a clinical psychologist and Ph.D. scholar in the Behavioural Medicine unit and SHUT Clinic, in his doctoral studies on the use of MBIs in managing IGD.

Mr. Yaseen said those who enrol for MBIs learn to avoid using gaming as an emotional escape, by recognising and accepting negative emotions.

NATUROPATHY, YOGA TRAINING MANDATED FOR EMPLOYEES AT SAFDARJUNG HOSPITAL, VMMC

In a new order from the Ministry of Health and Family Welfare, employees at Safdarjung Hospital and Vardhman Mahavir Medical College (VMMC) have been asked to undergo training programmes in several aspects of naturopathy and yoga. This includes training for doctors, nurses, and other staff.

Completion of these courses will be recorded in the Annual Performance Assessment Report (APAR) of the employees. The training will cover overall diseases, genetic, environmental, and lifestyle factors, and how naturopathy can treat them. It includes attending a 30-minute video on naturopathy followed by a question and answer session after which a certificate is provided.

Naturopathy, or naturopathic medicine, is a form of alternative medicine that involves treating illnesses using natural foods, massages, and various other techniques instead of artificial drugs.

A senior doctor at Safdarjung Hospital, requesting anonymity, said they have no other option but to follow the instructions since this has been linked to their performance reports. "This training is not required for doctors as they are practitioners of allopathy and modern science," said the doctor.



Another doctor said they cannot prescribe naturopathy treatments so this does not make sense: “We suggest to our patients to practice yoga but we can’t prescribe naturopathy. However, as the training programme will reflect on our APAR, we don’t have much of a choice.”

Another senior doctor, however, praised the move, saying the programme will bring a holistic approach to patient care.

The Indian Express reached out to the Union Health ministry for a comment but received no response.

The training programme has been introduced under “Mission Karmayogi” launched by the government to promote role-based capacity building of civil servants. Details of completion of the courses will be uploaded on the iGOT platform by the Ministry.

UNDOING THE UNDOING

Education lays the path for progress, but not everything that passes for education is a universal good. Immediate corrective measures are needed when it strays from its path, and the government’s decision to withdraw the Competency-Based Medical Education Curriculum guidelines published by the National Medical Commission (NMC) rich with blundering interpretations, jerks a retrograde move back within law, and reason. Published on August 31, the curriculum specified that sodomy and lesbianism were “unnatural sexual offences”, including them under the category ‘sexual offences’. It also slotted transvestism or cross-dressing under the category of sexual perversion. The mandatory seven hours of disability competencies that students earlier had to undergo were excluded from the foundation course too. In doing so, the NMC did not merely attempt to take medical students back centuries, but it did so in violation of at least a couple of laws of the land, and overlooked the guidelines it had set earlier. In mentioning sodomy, lesbianism and transvestism as offences/perversions, the NMC was in violation of the Transgender persons (Protection of Rights) Act, 2019. Notably, following admonition by the Madras and Kerala High Courts, the NMC, in October 2021, instructed all medical universities to not approve unscientific, derogatory and discriminatory information on the LGBTQIA+ community. With the removal of mandatory disability competencies from the foundation course, the NMC violated the Rights of Persons with Disabilities Act, 2016. It mandates the inclusion of the rights of persons with disabilities in the curriculum of universities, colleges and schools and further requires the integration of disability as a component in all educational courses for university teachers, doctors, nurses, and paramedical personnel. Again, it was the NMC that introduced the competencies in 2019, as a response to years of advocacy. The competencies would provide students a rights-based approach to removing barriers to health care, and ensuring equitable access to quality care.

Naturally, transgender and disability rights groups protested vehemently against the revised curriculum. Incensed by this regressive move, that erased all the progress achieved in the curriculum after decades of advocacy, they said they would write to the World Federation for Medical Education to temporarily suspend the NMC’s recognition status if the errors were not immediately rectified. While the crisis is past for the moment, the incident has eroded the faith of the public, and marginalised groups, that the government always has their best interests at heart. Progress, particularly in changing perceptions and pre-conceived notions, is hard-won in incremental doses. For an arm of the government itself to undermine these small advances is a shameful act. The withdrawal is a matter of great relief.



'SPIRITUAL' EVENT: HEADS OF 2 TAMIL NADU GOVT. SCHOOLS TRANSFERRED

The principals of the Government Higher Secondary Schools at Ashok Nagar and Saidapet in Chennai were transferred on Friday following outrage over the humiliation of a visually challenged teacher at the Saidapet school when he challenged a guest speaker for preaching alleged unscientific thoughts to students.

Tamil Nadu Chief Minister M.K. Stalin, who is in the U.S., said he ordered formulation of fresh guidelines to streamline the conduct of events at schools. The aim was to teach progressive ideas to students and encourage a scientific temper among them, Mr. Stalin said.

State School Education Minister Anbil Mahesh Poyyamozhi, who felicitated the teacher, said action would be taken against the guest speaker too.

'Motivational talk'

Sources said the two schools had invited guest speaker Mahavishnu through an NGO for delivering a motivational talk on August 28 when the first mid-term examination was to be held. But he delivered a 'spiritual' talk.

He addressed the students of the Ashok Nagar school in the morning and those of the Saidapet school in the evening.

In a now-viral video taken at the Saidapet school, Mahavishnu is purportedly heard telling students of Classes X, XI, and XII that people in the present life were "bad" or "different" because of their deeds in their past life.

GENOME MAPPING OF CHANDIPURA VIRUS: WHAT RESEARCHERS FOUND

The Gujarat Biotechnology Research Centre (GBRC) in Gandhinagar has published the only fully mapped genome of the Chandipura Vesiculovirus (CHPV) — the viral infection that caused at least a third of the encephalitis or brain swelling cases in Gujarat during the outbreak in July-August.

What is Chandipura?

Chandipura is a viral infection that can lead to outbreaks of Acute Encephalitis Syndrome (AES) or brain swelling. It is known to cause fever, headache, and encephalitis leading to convulsions, coma, and death, usually within a few days of the symptoms showing up. The disease's rapid progression is one of its defining features.

Children who tested positive and died of Chandipura during this year's outbreak reported high grade fever, severe rashes from sandfly bites, convulsions, brain swelling, liver problems, and multi-organ failure usually within 72 hours of symptoms showing up.

First isolated in Maharashtra in 1965, the Chandipura virus most severely affects children below the age of 15. It can be transmitted by sandflies, ticks, as well as the *Aedes aegypti* mosquito which also transmits infections such as dengue and chikungunya. Sandflies were responsible for spreading the virus during the current outbreak, researchers found.

With no specific treatment, mortality due to the virus can be as high as 56 to 75 per cent, as seen in Andhra Pradesh and Gujarat in 2003 during India's worst ever Chandipura outbreak that killed



322 children. The case fatality ratio stood at about 45 per cent during the current outbreak, according to data till August 16.

What is genome mapping? Why is it important?

In simple words, genome mapping refers to the process of determining the location of genes on an organism's chromosomes. Scientists at the GBRC undertook this process to better understand the virus which was afflicting so many children in the state.

Genome mapping provides important clues on where a virus comes from, how it is changing, and whether it has any mutations that are likely to make it more transmissible or deadly. Sequencing viral genomes helps researchers keep an eye on viruses that may lead to outbreaks in the future.

Moreover, the genetic sequence of a virus — especially the specific sequence of one that is currently in circulation — is important to help researchers develop testing kits, vaccines, and therapeutics for any infection that could lead to an outbreak or pandemic. During the Covid-19 pandemic, the genetic sequence of the Sars-CoV-2 virus was released by China very early on, which was crucial for developing diagnostic tests, and eventually vaccines.

What did researchers at the GBRC find?

The genome mapping yielded a few important findings.

01 No major change in genetic makeup, no 'selection pressure to escape immunity'

A major finding was that the virus had not changed much since the 2003-04 outbreak. "The CHPV virus isolated now from patients in Gujarat has differences only in the glycoproteins as compared to the 2003-04 virus isolates. The virus remains similar to the 2012 sample, which means that the virus did not require to evolve significantly over the last 12 years," the GBRC report stated.

When compared to the 2003-04 sample, there were four significant mutations in the glycoprotein gene — one of the five types of proteins that make the structure of the virus. That said, the glycoprotein gene is the most important one for the virus, with it being responsible for binding to human cell receptors and eliciting an immune response — just like the spike protein for Sars-CoV-2.

Significantly, there was only one amino acid change in glycoprotein-B between 2012 and 2024, the researchers found. For comparison, new variants and sub-variants of Covid-19 detected every few months would have 20 or 30 mutations compared to their predecessor.

"The current virus is highly similar to the isolate from 2012, with just a single amino acid substitution, suggesting that the virus has not been under selection pressure to escape immunity," the report says.

This is possibly because a significant proportion of the population did not develop antibodies against Chandipura, unlike say a fast-spreading virus like Covid-19, which by now has infected a majority of the global population. The other selection pressure comes from antibodies developed against a vaccine. CHPV does not yet have a vaccine, unlike Covid-19.

Researchers said that it is difficult to assess the level of antibodies against CHPV in the population due to the absence of seroprevalence studies.

02 Low viral load, but nonetheless deadly

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The Cycle Threshold (or Ct value) for the samples tested was high, a major clinical finding according to the researchers.

In an RT-PCR test, the Ct value is the number of times the genetic material of the sample has to be amplified in order to detect the pathogen. A high Ct value implies that the viral load — the amount of virus in the sample — is quite low.

“The Ct value of most of the patients was high. This means that the viral load was very less. But even this was enough to cause severe symptoms,” the researchers said. This value could not be compared with previous outbreaks due to unavailability of data.

03 Not imported from abroad

When the researchers traced the genome sequence on the 27-strain family tree of the virus, they found it to be related to the virus isolated during previous outbreaks in India.

The researchers said that even with the variations, the virus isolated during the current outbreak still closely resembled those isolated during 2003-04 and 2007 outbreaks. The current isolate is very different from strains isolated from Europe and Africa.

“This means that the virus that infected patients in this outbreak was the one circulating in India and was not imported from other countries,” a health department official said.

SWACHH BHARAT HELPED AVERT 60,000 INFANT DEATHS PER YEAR: STUDY

Access to toilets and better sanitation services under the government’s Swachh Bharat Mission may have averted around 60,000 to 70,000 infant deaths annually between 2014 and 2020, a study published in the journal Nature has found.

— Launched on October 2, 2014, over 11 crore household toilets were built under Swachh Bharat Mission-Grameen as of 2020, and over six lakh villages were declared Open Defecation Free, according to government data. Under Swachh Bharat Mission-Urban, over 63 lakh individual household toilets and 6.36 lakh community public toilets have been built.

— Establishing an inverse relation between access to toilets and infant mortality, the study stated that even districts with 30 per cent toilet coverage had managed to reduce the infant mortality rate by a substantial number. In absolute numbers, it amounted to averting 60,000-70,000 deaths annually across the country.

— In 2012, the infant deaths reported was 40 per 1,000 live births per district which fell to about 33 in 2016 and further dropped below 30 by 2019. Likewise, the deaths of children under the age of five in 2012 was about 44 per 1,000 live births per district. It dropped to below 40 in 2014, 35 in 2016 and in 2019, it was below 30.

For Your Information:

— The launch of the Swachh Bharat Mission (SBM) by the Prime Minister on October 2, 2014,

— The second phase of the project, which commenced in 2020 and is expected to run till 2025, has set even more ambitious targets — sustaining the achievements of phase 1 and ensuring that treatment of both liquid and solid waste is achieved through the help of technology and private sector engagement.



HARNESSING BIOTECHNOLOGY FOR ECONOMIC DEVELOPMENT

The Centre unveiled its BioE3 (Biotechnology for Economy, Environment and Employment) policy last week. On the face of it, the policy appears to be a routine attempt to create incentives and opportunities to energise growth in the biotech sector.

— The policy seeks to achieve this by harnessing the power of biotechnology, and developing new manufacturing methods that replicate, or mimic, processes found in natural biological systems. Government officials are calling it the first step towards the industrialisation of biology, which can have profound impacts on the economy.

— Biotechnology, the science of manipulating biological organisms and processes to develop desired products or applications, is a vast and diverse field. It includes areas such as genomics, genetic engineering, synthetic biology, bioinformatics, gene therapy, etc.

— Traditional products such as synthetic clothes, plastics, meat or milk, and fuel can have more environment-friendly alternatives, produced using modern biology. Similarly, several chemical processes in the industry can be replaced by organic and less polluting biological processes.

— For example, animal-free milk, which is the same in taste, texture, and nutritional benefits as natural milk, can be produced using a process called precision fermentation... Micro-organisms such as some kinds of bacteria and algae can also be used for capturing carbon dioxide from the atmosphere, a critical bioprocess in times of climate change.

— The BioE3 policy is thus an attempt to prepare India for the future. The policy is unlikely to yield any economic dividend in the near term. But the idea is to build competencies, promote research... so that India can be well-placed to derive benefits when the technologies become mature.

— The BioE3 policy envisages the setting up of several biomanufacturing hubs across India...

The hubs will focus on six areas — bio-based chemicals and enzymes, functional foods and smart proteins, precision biotherapeutics, climate resilient agriculture, carbon capture and utilisation, and futuristic marine and space research.

For Your Information:

— The Union Cabinet has decided to merge several existing science promotion programmes being run by the Department of Science and Technology (DST) under a new initiative called **Vigyan Dhara** that, it hopes, would result in better fund utilisation, and improve efficiency.

— Official sources said the overall objective of initiatives was to focus scientific energies on some specific areas that were key to India's sustainable growth and development in the coming decades.

— **Vigyan Dhara** has three broad components — human and institutional capacity building, research and development, innovation and technology development, and also deployment.

A MATTER OF FOOD SAFETY

As the trade of agricultural and processed food products grows, food safety management is becoming increasingly important. Many developed economies have stringent food safety regulations and practices, including for imports.



— To address the issues of food safety and security, in line with India's commitment to the Sustainable Development Goals, the Union budget for 2024-25 has allocated funds to set up 50 multi-product food irradiation units in the MSME sector.

— Food irradiation technology extends the shelf life of agrifood products, ensuring they reach consumers in optimal condition while reducing food losses along the production and supply chain.

— Irradiation involves exposing food, whether packaged or in bulk, to ionising radiation in a controlled environment. This method reduces the risk of food-borne illnesses by eliminating harmful microorganisms.

— It also prevents spoilage by slowing down the process of decay and minimises food loss by delaying premature ripening, germination, or sprouting. It also reduces the need for chemical preservatives, contributing to a more sustainable food supply chain.

— While the concept of using radiation for food preservation is not new... modern interest in food irradiation technology surged after the Codex Alimentarius Commission, part of the Joint Food Standard Programme of the Food and Agricultural Organisation (FAO) of the United Nations, established global standards.

— Food irradiation, much like cooking, is a safe and effective method to ensure food safety. It has been widely adopted, especially in countries with advanced safety standards such as the US, Japan, Australia, Canada and in the EU, where it is extensively used for domestic and export markets.

— However, widespread commissioning of food irradiation facilities is constrained by high capital costs. Establishing an irradiation facility with a 1 MCi Cobalt 60 source requires an investment of approximately Rs 25 to 30 crores, excluding land and additional infrastructure costs... The MoFPI also offers financial assistance of up to Rs 10 crore per project for setting up food irradiation units.

For Your Information:

— The Union government is planning to significantly scale up the irradiation of onions this financial year to increase the shelf life of its buffer stock, a senior official said. (March, 2024)

— Onion is perishable and storing it for a long period is a challenge. During storage, sprouting of onions takes place, which causes losses. As per some estimates, the post-harvest losses in onions can be up to 40 per cent. This is the reason the government is increasing its use of irradiation.

— In India, irradiated food is regulated in accordance with the Atomic Energy (Control of Irradiation of Food) Rules, 1996. The irradiation costs may range from `0.5 to 1.0 per kg for low-dose applications, such as sprout inhibition in onions.

HOW NAVIGATION SATELLITE-BASED TOLLING, LIVE MONITORING OF PLAZAS CAN LOWER WAIT TIMES

After the announcement for the implementation of Global Navigation Satellite System (GNSS) based Electronic Toll collection in India, Ministry of Road Transport & Highways (MoRTH) said that it has developed a GIS based software for Real-time monitoring' of the waiting time at the Toll Plazas. The system, the Ministry said Monday (September 2), will help the NHAI officials to check the congestion at specific lane level to ensure free flow of traffic.



This new software has been developed by Indian Highways Management Company Limited (IHMCL), a company promoted by National Highway Authority of India (NHAI). Initially, this new technology will be implemented at 100 toll plazas, which has been identified by NHAI, for live monitoring. These toll plazas have been selected on the basis of the congestion feedback received through National Highway helpline number i.e 1033.

How will it work?

The GIS-based software will provide the name and location of the toll plaza to the officials.

“It will also provide congestion alert and lane distribution recommendation, if the queue of vehicles at a toll plaza is more than the prescribed limit,” said MoRTH in an statement.

The ministry also said that as the toll plazas have been mapped across the country at respective NHAI field offices, the software will help the officials to get comparative traffic condition analysis on hourly, daily, weekly and monthly basis for the traffic queue & congestion.

Apart from this, the software will provide updates of current weather condition and information about local festivals. “This will help NHAI officials to take pre-emptive measures to manage the traffic load and decongest the toll plazas,” said MoRTH.

As of now, the software is being implemented at the 100 toll plazas. The Ministry said that this GIS-based software will be extended to more toll plazas in a phased manner.

What is satellite based tolling system?

MoRTH is currently working on Global Navigation Satellite System (GNSS) based tolling system, which is expected to replace the current FASTag toll collection system and provide a long-term solution for congestion at tolling booths. It will also provide distance-based tolling where users will pay only for the stretch they have travelled on a National Highway and free flow of Vehicles at High Speed.

On July 02, 2024, Indian Highways Management Company Limited (IHMCL) issued a tender for the construction of free flow GNSS Lanes at toll plazas to implement GNSS based Electronic toll collection.

How will GNSS work?

According to IHMCL, the GNSS-based Electronic Toll Collection (ETC) system will be implemented with the existing FASTag ecosystem. It will be initially used as a hybrid model where both FASTag and GNSS will operate simultaneously.

To implement the scheme, a dedicated GNSS lanes will be available at toll plazas to allow vehicles using GNSS-based ETC to pass through freely. After GNSS-based ETC will become more widespread, all lanes will eventually be converted to GNSS lanes. It will have advance reading/identification/enforcement equipment for vehicles so that valid vehicles gets a free flow pass.

When a vehicle passes through the toll gates, the toll charger will receive pings (distance and time stamp) of GNSS vehicles through On Board Unit or OBUs fitted in the GNSS vehicles. The OBUs of GNSS vehicles will be onboarded with the toll charger through Fintechs, similar to the issuer banks concept under the current FASTag System. The payment mechanism shall be similar to the



existing FASTag ecosystem, but would involve automatic debit and obviate the need for the boom barriers at toll plazas.

How will it help the users?

The introduction of the ETC system will remove all kinds of time lag that currently people face while passing through the toll plazas. Under the FASTag system, it has been observed that there are still considerable delays in reading the bar code and opening of the boom barrier. These delays sometimes lasts for up to a minute and causes vehicle pile ups. Due to this, many cases of arguments and fights with toll employees have also come to light.

However, the GNSS tolling system will remove all these kinds of obstructions as there will be no requirement of reader and boom barrier while passing through the toll Plaza. Also, people will be able to pass through the plaza at high speed and the money will be deducted automatically according to the distance travelled on National Highway.

How does present system work?

Currently, the Electronic Toll Collection in India is done through Radio Frequency Identification (RFID) technology, commonly known as FASTag. It was launched in India in 2015 and Since February 2021, FASTag has been made mandatory for the payment of user fees at National Highway toll plazas, with a provision for a 100% penalty for cash or non-FASTag payments.

According to MoRTH, as of March 2024, more than 98% of user fee payments are made through FASTag at Toll Plazas.

The National Highway Authority of India is responsible for the development, maintenance and management of the National Highways. Currently, out of about 1.50 lakh km of National Highways declared by MoRTH, about 70,000 kilometers are managed by NHAI. Apart from this, NHAI collect tolls on these highways as per National Highway Fee (Determination of Rates and Collection) Rules, 2008. According to MoRTH, at present toll is collected for approximately 45,000 kilometers of National Highways and Expressways through 1200 toll plazas maintained by NHAI or Concessionaires.

HOW OLA'S DESI STRATEGY RUFFLED THE FEATHERS OF MAPMYINDIA

Ola's co-founder and CEO Bhavish Aggarwal seems to have been stung by the nationalist bug lately. And the bug encounter could not have happened at a more opportune time than when the ride-hailing firm was looking to buttress its position ahead of its stock market listing. Post listing, Ola Electric Mobility shares soared, performing far better than analysts and investors' expectations. The share price jump was a result of something more than the underlying electric vehicle business itself.

Mr. Aggarwal began his mission to proselytise Indian startups to go the 'swadeshi' way last year. In December, he announced AI startup Krutrim, and two months later, raised a funding round that valued the company at \$1 billion.

A desi chatbot

In February, the firm unveiled a large language model (LLM) that was trained on a set of Indic languages. Mr. Aggarwal said that Krutrim stays true to "Indian cultural ethos and solves real Indian problems."



Early users of the chatbot pointed out several flaws in its responses. Some alleged that the chatbot was a wrapper on the ubiquitous ChatGPT. One user screen recorded their interaction with the chatbot and posted it on Reddit. In that video, they queried the bot asking whether it was using a ChatGPT API. The bot replied 'yes' before auto-correcting to a standard chatbot response that it was built to assist users. Promotional posts from the company about the AI chatbot on social media platforms received comments from Ola's electric scooter buyers who complained of poor vehicle quality and lack of customer support, asking the CEO to focus on fixing the scooters and providing a decent customer experience in existing businesses before launching new products.

Such criticisms, however, did not deter Mr. Aggarwal from launching his next desi salvo against foreign firms. This time, his target was cloud service players like Microsoft, AWS, and Google.

A cloud, a map and ensuing backlash

Complaining that Microsoft-owned LinkedIn removed his post as it was centred on 'wokeness', the ride-hailing company co-founder said he was quitting Microsoft's Azure cloud and moving Ola's services to Krutrim cloud. He urged Indian businesses to move to the Ola-owned cloud platform.

In a clarion call, in May, Mr. Aggarwal offered Krutrim cloud service to startups for free for an year. While some developers saw his stance against hyper-scalers ambitious, others sought more details on the specifics, as cost was just one of the many other factors startups consider before picking their cloud vendor.

Hyperscalers like Microsoft's Azure, Amazon Web Service and Google Cloud provide a whole host of features to customers that Krutrim's cloud will find difficult to build in such a short period. On the cost factor, some developers point out that the cost of electricity in India is quite high. This, in essence, will translate to higher price, making Krutrim charge more once the free period ends.

As Ola mooched its ways through the cloud ecosystem, the ride-hailing company launched its third desi salvo before getting listed. This time, the company's target was Google Maps.

Mr. Aggarwal posted on X platform that "After ExitAzure, it's time for Indian developers to ExitGoogleMaps! 1 YEAR FREE access to all developers to Ola Maps on Krutrim cloud, more than ₹100 crore in free credit!" He further noted that the company's maps service outperformed competitors on location accuracy and several other key metrics.

However, with the maps boast, Ola wasn't fighting a swadeshi battle anymore. It was entering a civil war zone against another home grown company, CE Info Systems. The parent of MapmyIndia filed a lawsuit against Ola for allegedly copying the company's data and breaching licensing agreements while building its own maps service. The complaint accused Ola of copying data to reverse engineer a licensed product.

While Ola has called MapmyIndia's complaint false and baseless, it is important to understand how the digital maps tapestry was woven over the past several decades.

How digital mapping works

Digital maps-based navigation systems are a result of painstaking tasks of computerising the physical world with the help of an army of cars, equipped with cameras and sensors, roaming every street like digital explorers. They capture images, measure distances, and note every turn and landmark.



Complementing the work of this vast ground force, an array of satellites high above beam down precise coordinates as local knowledge is crowd-sourced from users who act as modern-day cartographers, updating and refining the map in real-time, solving an important optimisation problem.

At the heart of the mapping systems lies a complex web of algorithms that aim to solve the “Travelling Salesman Problem” millions of times a day. The problem is one where the algorithm must help find the optimal route through a labyrinth of possibilities by factoring in real-time traffic data, roadblocks, and even personal preferences to chart the optimal route to get from one point to another. While we are used to thinking that navigation apps are limited to smartphones, these systems have spread their use cases far and wide. They are used in a range of tasks from guiding self-driving cars to charting courses through the skies.

As their use cases grew, the business models surrounding maps-based services boomed. Enterprises and marketers saw a goldmine in the data this platform created, which could be used for location-based advertising as well as integration into other services.

Platforms like Ola, Uber, Zomato and Swiggy found a strong use case in connecting their delivery persons or cab drivers to customers through the in-built maps feature in their apps.

Global navigation systems

In India, there are largely three major vendors who sell licensed maps products. The biggest and most up-to-date product is Google Maps. With over a billion users, the Alphabet-owned company’s product stands out for providing real-time granular data on traffic and roadways.

MapMyIndia, established in 1995, comes next. The platform provides geospatial landscape information in India, offering mapping data along with APIs, SDKs and various other analytical geospatial products. Their maps are updated every six months.

OpenStreetMaps, which was established in 2004 as a community project that relies on users for updates on location, takes the third position. While both Google Maps and MapmyIndia are paid services (based on the number of users), OpenStreetMaps is a free and open-source product.

These platforms use global navigation systems to provide geospatial services to their customers. Currently, there are four major Global Navigation Satellite Systems (GNSS) — the U.S. Global Positioning System (GPS); Russia’s Global Navigation Satellite System (GLOSNASS); China’s BeiDou Navigation System (BDS); and EU’s Galileo. These navigation systems provide autonomous satellite-based geo-positioning, and cover the entire globe. These systems provide global coverage through a constellation of satellites orbiting the earth. These satellite-based systems are complemented by a data-based system to provide granular-level details.

The Geospatial Information System (GIS) captures, stores and analyses data that is associated with a specific location. A GIS application can generate detailed contour maps based on the data in a digital format. So, in a sense, Google Maps is a GIS that uses GNSS.

What next?

Given the amount of time and effort it takes to build this kind of mapping system, it is arduous for any company, let alone Ola, to build a navigation system that is on par with other state-of-the-art maps services.



Also, MapmyIndia has another grievance against Ola. The ride-hailing company signed a licence agreement with MapmyIndia in 2015 to use the latter's map data. And now, the home grown maps company has accused Ola of plagiarising the company's data to build Ola Maps service.

While Ola, according to a August 23 PTI report, said the company has sent a legal notice to MapmyIndia and is awaiting their response, the ride-hailing company's CEO is, for the first time, sailing in uncharted territory, battling against another swadeshi company that has a time-tested product. And now that the IPO business is done and dusted, it will be good idea for Ola to focus on building a quality product.

MONSOON COMFORT

A good southwest monsoon — India has received 7.5 per cent above-long period average rainfall in the current season from June, with 9 per cent and 15.3 per cent surplus for July and August respectively — has led the Narendra Modi government to loosen anti-inflationary restrictions on food commodities.

— On August 29, the ban on sugar mills to produce ethanol directly from cane juice, syrup or intermediate-stage "B-heavy" molasses, imposed last December, was lifted. Mills/distilleries have also been allowed to use up to 2.3 million tonnes (mt) of rice from the Food Corporation of India's stocks for ethanol production, after they were barred, since July 2023, from purchasing these in the latter's open market sale auctions.

— The moves reflect the government's comfort vis-à-vis the domestic availability of sugar and rice for human consumption as well as bio-fuel production. This comes amid expectations of bountiful monsoon-enabled bumper crops of paddy and sugarcane to be marketed/crushed from October-November.

— But much more needs to be done. The Minister for Consumer Affairs and Food Pralhad Joshi has said that the government is "thinking" of relaxing the prohibition on white non-basmati rice exports, also effective since July 2023.

— The government must, in fact, even dispense with the 20 per cent duty on parboiled non-basmati and \$950/tonne minimum export price restrictions on basmati shipments. It should, likewise, permit the resumption of sugar exports. Not removing export curbs now would cause unmanageable problems of plenty in rice and sugar down the line.

— Shifting gears in anticipation of evolving supply situations is something the government is least adept at, with its trade policy skewed in favour of consumers and biased against producers. It results in periods of low supply with high prices being followed by that of high supply with low prices — the familiar "cobweb model", whose effects are accentuated by the clamping of export and stock controls during the former and no action in the latter event.

— While food inflation remains a concern, the government should be equally watchful of price collapses, whether in soyabean or moong. India cannot afford farmers losing interest in cultivating oilseeds and pulses.

THE DISASTER MANAGEMENT (AMENDMENT) BILL IS KNOTTY

On August 1, 2024, the central government introduced the Disaster Management (Amendment) Bill in the Lok Sabha. Brought in the wake of climate-induced disasters, the Bill shows much

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evidence of a further centralisation of an already heavily-centralised Disaster Management Act, 2005. This Act, in its current form, already mandates the creation of many authorities and committees at the national, State and district levels. The proposed Bill further provides statutory status to pre-act organisations such as the National Crisis Management Committee and a High Level Committee, complicating the chain of action to be followed in case of disasters. A repercussion of this top-down approach is seen when there is a delayed response to disasters, antithetical to the intent and purpose of the Act.

The Bill claims to strengthen the working of the National Disaster Management Authority and the State Disaster Management Authorities to prepare State and national level plans. It also establishes an 'Urban Disaster Management Authority' for State capitals and cities with municipal corporations. However, this intended decentralisation of functions without the necessary financial devolution creates more problems than it solves.

Centralisation as a concern

The amendment Bill goes on to dilute the wording of the National Disaster Response Fund by removing the purposes for which the fund shall be used. One of the major concerns of the Disaster Management Act has been the excess centralisation of decision making on funds, especially in situations where the disaster is severe. The severity of the disaster must necessitate a prompt response by the central government, currently absent in the Act. A similarly delayed response was witnessed when the disaster relief funds from the NDRF were denied to Tamil Nadu and disbursed much later to Karnataka.

In the backdrop of a looming climate crisis, there is a need to revisit the very idea of disasters under the Disaster Management Act, 2005.

Restricted definition of 'disaster'

On July 25, 2024, the Minister of State of Science, Technology and Earth Sciences, in response to questions posed in the Lok Sabha, said that the government is currently not planning to classify heatwaves as a notified disaster under the Disaster Management Act, 2005. This statement concurs with the observations of the 15th Finance Commission which did not find merit in expanding the scope of notified disasters. The notified list of disasters eligible for assistance under the National Disaster Response Fund/State Disaster Response Fund are cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack, frost and cold wave.

This strict iteration of what constitutes a "disaster" in the times of climate change marks a sharp departure from the global narrative. Globally, there is enough consensus to classify heatwaves as climate-related disasters, given their ramifications on ecosystems and human health. According to the India Meteorological Department data, India had 536 heatwave days which is the highest number of heatwave days in almost 14 years. Rising heatwave days along with 10,635 human deaths due to heat or sunstroke in 2013-2022 portends a larger disaster in the making for the country.

The Disaster Management Act, 2005 and the proposed Bill fall short as the definition of a disaster (although wide enough to cover the idea of climate-induced disasters) remains restricted and static. This is because the notified list of disasters under the Act restricts the inclusion of climate-induced disasters such as heatwaves which display regional variability and gradation specific to a geographical area. For example, a normal summer temperature of 40° C in several north Indian



States may classify as heatwave conditions in the Himalayas. The definition however, is also not inclusive enough to be able to interpret a prolonged heatwave episode to be considered as a natural disaster even if its impacts are akin to an actual disaster such as floods in terms of the loss of human life. This poses a problem as the very nature of climate-induced disasters is incongruous to the idea of a traditional disaster under the Disaster Management Act, 2005 and the proposed Bill. The incongruity is exacerbated by the localised nature and impact of climate-induced disasters.

Relevant issues

However, some questions are still valid. Is the proposed Bill adept to tackle contemporary challenges arising due to the disproportionate power dynamics between the central and State governments? Do States have to largely depend on the central government for the disbursement of funds? If the Bill claims to be an improvised version of the Disaster Management Act, 2005, it does very little in learning from the failures encountered during the implementation of the Act while dealing with past disasters. There is a need to re-visit the Centre's efforts in addressing the issue of financial preparedness when it comes to the management of and response to disasters. The conversation should not revolve around whether the Centre or State is responsible for the loss of lives in Wayanad, Kerala, but what is it that can be done to manage disasters and predict their future occurrence. After all, a blame game will only move away from realising the true spirit of cooperative federalism.

CAN KERALA ACCESS FUNDS FROM THE LOSS AND DAMAGE FUND?

The story so far:

In the wake of the devastating landslides that recently struck Kerala's Wayanad district, a crucial conversation has emerged around whether subnational entities can seek compensation through the United Nations Framework Convention on Climate Change (UNFCCC)'s Loss and Damage Fund (LDF). While this demand is justifiable, accessing climate funds is far more complex than it appears.

What is the Loss and Damage Fund?

The Loss and Damage Fund (LDF) was established at the 2022 UNFCCC Conference (COP27) in Egypt to provide financial support to regions suffering both economic and non-economic losses caused by climate change. These include extreme weather events and slow-onset processes, such as rising sea levels. The LDF is overseen by a Governing Board that determines the Fund's resources are disbursed, with the World Bank serving as the interim trustee. The Board is currently developing mechanisms to facilitate access to the Fund's resources, including direct access, small grants, and rapid disbursement options. Despite its intended purpose, concerns persist that climate funds are often too slow to be accessible immediately after a disaster, particularly for local communities at the sub-national level. It is anticipated that the LDF may face similar challenges.

What has been India's role?

India has suffered over \$56 billion in damages from weather-related disasters between 2019 and 2023. Despite this, India has prioritised mitigation activities over adaptation in its National Climate Action Policy and budgets. This focus has led to a subdued participation in Loss and



Damage dialogues at COP meetings. With certain regions in India being highly vulnerable to climate change, active engagement in these dialogues could bring substantial benefits.

Within India, there is an urgent need for a clear legal and policy framework to streamline climate finance, particularly for adaptation and loss and damage, in line with the principles of locally led adaptation, which are crucial for vulnerable communities. The introduction of a climate finance taxonomy in the Union Budget 2024 has raised expectations for increased international climate finance. However, without clear guidelines on accessing loss and damage funds within India, frontline communities will continue to be vulnerable. In international climate change negotiations, India should advocate for more decentralised methods of fund disbursement from the LDF, as opposed to the centralised systems used for other climate funds.

What have been State interventions?

Adaptation and loss and damage needs are more acutely felt at the ground level by State governments. For instance, in Kerala, it is the State government that bore most of the financial burden for disaster recovery. A notable example is the Rebuild Kerala Development Programme, launched in the aftermath of the August 2018 floods. This initiative was funded through loans from the World Bank and the KfW Development Bank, a German institution, illustrating the critical role of international climate finance in post-disaster recovery. The program focused on reconstructing the State's infrastructure, including roads and bridges, all of which had been severely damaged by the floods.

However, the absence of a standardised method for conducting comprehensive assessments of disaster-related damages, particularly those from slow-onset events, means that significant loss and damage needs that could qualify for assistance from the LDF may go unassessed. This lack of a structured assessment process could impede India's ability to access the LDF in the future. The situation in Wayanad district underscores the broader challenges India faces in accessing and managing climate finance, particularly for loss and damage. By establishing a more explicit domestic policy framework that focuses on locally led adaptation and clearer guidelines for accessing loss and damage funds, India can better protect itself from the impacts of climate change.

STUDY: 85% INDIAN DISTRICTS EXPOSED TO EXTREME CLIMATE EVENTS, TO AFFECT 1.47 BN PEOPLE BY 2036

About 85 per cent of India's districts are exposed to extreme climate events while 45 per cent are witnessing a "swapping" trend, where districts once prone to floods are now facing droughts and vice versa, a study released on Friday found.

— The study, by IPE Global and Esri India, also mapped the extreme climate events between 1973 and 2023 and found that the frequency, intensity and unpredictability of these climate extremes have increased fourfold in recent decades.

— The study suggests that more than 1.47 billion people will be at risk owing to extreme climate events by 2036 and that a hyper-granular risk assessment is necessary to protect the country's economic interests and sensitive sectors such as agriculture, industry and large-scale infrastructure.

— In terms of the kind of extreme events, eastern districts were found to be more flood-prone, closely followed by the north-eastern and southern zones of India, the study said. "More than 90



per cent districts of Assam, 87 per cent districts in Bihar, 75 per cent districts in Odisha and 93 per cent districts in Andhra Pradesh and Telangana are exposed to extreme floods,” the study stated.

— The study also found that over the last decade, there has been a fivefold increase in cyclone events in the western districts and an overall 1.5-fold rise in such events.

— The geospatial and climatological analysis offered evidence of the swapping trend where districts prone to one kind of extreme climate event are experiencing the exact opposite extreme event.

For Your Information:

— The average global temperature on Earth has increased by at least 1.1 degree Celsius since 1850, primarily due to human activities that have released unprecedented levels of greenhouse gases into the atmosphere.

— The spike in the temperatures has resulted in more frequent and more intense extreme weather events across the world. These events include heat waves, droughts, floods, hurricanes, and wildfires.

FIRST JOINT COMMANDERS' CONFERENCE TO SEE PUSH FOR THEATRE COMMANDS

The detailed modalities prepared by the Services for the creation of Integrated Theatre Commands will be presented to Defence Minister Rajnath Singh at the first Joint Commanders Conference (JCC) scheduled to be held in Lucknow on Wednesday and Thursday. The meeting is expected to see extensive deliberations on the issue, officials in the know said.

While those discussions continue, plans to set up four more Joint Logistics Nodes (JLNs) are in advanced stages, sources said. The new JLNs to come up at Leh, Siliguri, Sullur and Prayagraj will add to the three existing nodes at Mumbai, Guwahati, and Port Blair, two sources independently confirmed.

The broad consensus among Services is for the creation of three theatre commands — two land commands focusing on western and northern borders, and a maritime command to oversee the country's vast coastline. The other and more pertinent recommendation, confirmed by multiple sources, is that all the three commanders of the theatre commands as well the Vice-Chief of Defence Staff should be four-star officers akin to the three Service chiefs and the Chief of the Defence Staff (CDS).

The first JCC is set to take place at the Headquarters-Central Command in Lucknow with the theme “Sashakt aur Surakshit Bharat: Transforming the Armed Forces” and will serve as the pivotal platform for undertaking “internal process reforms” within the Services, the Defence Ministry said in a statement. General Anil Chauhan, the current CDS, will inaugurate the convocation.

“The JLNs have proved to be successful in providing integrated logistics to all Services with optimal resource utilisation. The jointness in logistics is being enhanced further with new locations having been identified for establishment of JLN in future,” a defence source said. Noting that cross-staffing and training between the three Services will enable full integration and jointness in approach, the source added, “Cross-posting of officers in the units of three Services have already commenced. Posting them to headquarters and training establishments is also under



way.” Officials said that cross-posting of a small number of officers at Headquarters and Command-levels has commenced.

WHAT DO WE KNOW ABOUT ANIIDCO?

The story so far:

The Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO) is the project proponent for the NITI Aayog-promoted ₹72,000 crore mega infrastructure project in Great Nicobar, the southernmost island in the Andaman and Nicobar archipelago. The project entails the construction of a trans-shipment port, a greenfield airport, a tourism and township project and a solar and gas based power plant in Great Nicobar. ANIIDCO which has been granted permission for the mega project is a little known quasi-government agency based in Port Blair.

What do we know about ANIIDCO?

ANIIDCO was incorporated on June 28, 1988 under the Companies Act. Its objective is “to develop and commercially exploit natural resources for the balanced and environment friendly development of the territory.” Its main activities, according to its website, include trading of petroleum products, Indian made foreign liquor and milk, managing tourism resorts and infrastructure development for tourism and fisheries. The company’s average annual turnover and profit over the last three financial years has been ₹370 crore and ₹35 crore, respectively. The corporation’s mandate, history, its structure and capabilities raise serious concerns about the process and possible outcomes of making them responsible for such a high profile, high investment and high risk project as the one in Great Nicobar. The 910 sq km island is not just a biodiversity hotspot but also home to indigenous communities with special rights and is also located in one of the most tectonically active zones.

When the Andaman and Nicobar administration appointed ANIIDCO as project proponent in July 2020, ANIIDCO neither had an environment policy nor an environment cell. It did not even have the human resources needed to oversee, let alone implement and monitor the project it was tasked to implement. It was only in late 2022 more than two years after it was made the project proponent did it start a process for recruiting people with relevant expertise such as urban planners, environmental planners, architects, infrastructure specialists, and legal and financial experts.

In May, 2021, the Expert Appraisal Committee (EAC) under the Union environment ministry had asked ANIIDCO a number of important questions about its internal environmental governance system. The EAC asked if ANIIDCO had a corporate environment policy approved by its board of directors, an administrative system to ensure compliance with environmental clearance conditions and if there was a prescribed standard operating procedure to deal with environmental and forest violations. ANIIDCO admitted later in August that it did not have an environment policy. The EAC, nevertheless, went ahead and granted environmental clearance to ANIIDCO more than a year later in November 2022.

What are other conflicts of interests?

In 2022, the Mumbai based Conservation Action Trust had filed a petition before the National Green Tribunal challenging the Stage 1 forest clearance granted by the Union Environment Ministry. It had pointed out that at the time forest clearance was granted to ANIIDCO, the



corporation's managing director was the same person who was also the Commissioner cum Secretary (Environment and Forests) of the island.

It is clear, the petition noted, that this is "a case of the project proponent certifying itself." Further, it added that the responsibility to assess compliance with the Stage I forest clearance conditions vests with the same authority that has a responsibility to ensure compliance with the conditions. This same pattern was repeated when the Chief Secretary of the islands, who is also the chairman of the board of directors of ANIIDCO, was made a key member of the high powered committee set up by the NGT to look into complaints against the project. ANIIDCO was being allowed to evaluate its own actions again. Numerous persons employed at ANIIDCO in various capacities are currently civil servants with the Andaman and Nicobar administration in charge of environmental and tribal welfare issues. We sent questionnaires to both ANIIDCO and the chairman and secretary of the EAC. None responded.

What have past administrators said?

Lt Gen A.K. Singh, Lieutenant Governor of the islands from 2013-16, said that ANIIDCO would be better suited than any other department or organisation in the A&N administration to handle this mega project, though a project of this dimension would require expert agencies from outside the islands to execute it.

Sanat Kaul, chief secretary of the islands in the early 90s, had critiqued ANIIDCO's tourism operations in a book he wrote in 2015. On the current project, he said "I don't think ANIIDCO can at all manage a ₹72,000 crore project unless its upgraded vastly with much better quality staff. If the idea of the government is to use ANIIDCO because it is an existing company fully owned by the government, it will need a full revamp from what it was when I was there."

Pankaj Sekhsaria is an author/editor with his recent work being The Great Nicobar Betrayal. Rishika Pardikar is a freelance environment reporter.

THANJAVUR TUNES ITS WOOD STOCK

Thanjavur in Tamil Nadu is famed for being the hub of making veena, an ancient musical instrument.

Considered to be an abode of the arts, the temple town is famed as the land where the veena is handcrafted, with several artisans and their families involved in perfecting the instrument generation after generation.

The Thanjavur veena is the first musical instrument in the country to get the Geographical Indication (GI) tag.

There are four types of veena. While Rudra veena and Vichitra veena are popular in Hindustani classical music, Saraswati veena and Chitra veena are used in Carnatic classical music.

Thanjavur is the only place where Saraswati veena is made. Saraswathi, the goddess of learning and arts, is portrayed with a veena.

The production of veena, handcrafted with skill and perfection, requires dedication, time and devotion.



At present, only a handful of families are engaged in making Saraswati veena and the younger generation tends to avoid joining the trade as it is not profitable and offers the artisans a meagre sustenance.

To fashion out a veena with good tonal quality and clean and crisp notes requires immense craftsmanship.

The making of a veena is not just carving wood but it is more of an art, which requires complete attention to detail.

The work involves making the resonator (kudam), the neck (dandi) and a tuning box — the three integral parts of a veena. The process starts with ensuring that the sizing of the wood is accurate.

Jackfruit wood is used to make veena and the process involves a laborious task, taking up to 15-20 days, to get the finished product.

The wood gets cut, intricately carved, shaped, and assembled.

In the case of ottu veena, the parts are made separately and assembled.

In the case of ekantha veena, it gets carved out of one whole piece of wood.

ATTACKS AND DEATHS IN BAHRAICH: WHY AND WHEN WOLVES TURN ON HUMANS

Since March, seven deaths in Uttar Pradesh's Bahraich district have been blamed on attacks by wolves. At least two other deaths are under investigation for suspected involvement of wolf packs.

Local health officials have claimed wolves have injured as many as 34 people during this period. The administration, led by the state forest department, has one by one captured four wolves. A combing operation for at least two other animals that are believed to be active in the area is currently ongoing.

In mythology and literature

In the Mahabharata, Bhim's ravenous appetite was established as Vrikodara (vrik is Sanskrit for wolf and udar, stomach) with reference to a voracious wolf. The English language has figures of speech such as "hungry as a wolf", and "wolfing down (food)".

Western folklore imagines the werewolf and the Big Bad Wolf but equally, the animals are associated with the Greek god Apollo and the Roman god Mars. A she-wolf raised Romulus and Remus, mythical founders of Rome, and in Rudyard Kipling's Jungle Book, the Seeonee wolf pack led by the noble Akela is the hero while the tiger Shere Khan is the villain.

During the Raj, killers & killed

In the second half of the 19th century, wolves killed as many people as tigers did in India, show records kept by officials of the British Raj. Captain B Rogers of the erstwhile Bengal Army recorded that wolves and tigers killed 4,287 and 4,218 people in lower Bengal alone in 1866.

A decade later, Surgeon General Joseph Fayrer recorded that tigers killed 828 people and wolves 1,018, primarily in North India, in 1875.



Surprisingly, British records also show that human fatalities due to wolf attacks were rare in Punjab, Rajasthan, Gujarat, and the Deccan plateau, even though the species was abundant in these regions and the loss of livestock to wolves was commonplace.

Nevertheless, government-sponsored bounty hunting killed an estimated 1 lakh wolves, mostly in the North-West Provinces and Awadh (later United Provinces), between 1871 and 1916, the records show.

The resilient Indian wolf survived the onslaught — in parts due to their elusive nature and the absence of any commercial interest in their rather plain hide. And yet, the oldest wolf lineage in the world has conceded a lot of ground — not more than an estimated 3,000 survive today in low densities in parts of its erstwhile range in India.

A police barricade at Sisayya village in Uttar Pradesh's Bahraich district on August 31. A police barricade at Sisayya village in Uttar Pradesh's Bahraich district on August 31. (Express photo by Manish Sahu)

Wolves that 'eat people'

All large predators can potentially prey on people, and wolves are no exception. But they do so rarely, and only under exceptional circumstances. Such situations arise almost exclusively when humans compete with predators for natural resources — by converting wild habitats to farmland, cutting forests for timber, or hunting wild herbivores for bush meat, etc.

Experts feel that these factors are likely to be at play behind the current attacks as well. In India, historically, wolf attacks on people have been reported primarily in northern India — in UP, Bihar, Madhya Pradesh, and Bengal — where widespread poverty probably fuelled and sustained such inter-species competition for natural resources.

There are other triggers such as wild predators being incentivised by the ease of hunting humans after an accidental kill — the classical explanation for an old or injured carnivore turning on humans who can't outrun it, claw, or bite back.

Some experts have also suggested the possibility of domesticated and subsequently abandoned wolf-dog hybrids becoming "man-eaters" because they, as pets, lose the fear of people. But that would also make such animals approachable and easier to catch, which is often not the experience of those trying to capture wolves following attacks on people.

Lessons from past attacks

In the winter of 1985-86, a pack of four adult wolves killed 17 children in Astha, Madhya Pradesh. While a single wolf was blamed initially, all four — two males and two females — were subsequently killed, and local tribals adopted two cubs.

The killings triggered mass hysteria as many villagers imagined the killer as an incarnation of the devil. Former civil servant Ajay Singh Yadav's *Man Eating Wolves of Astha* (2000) documented this episode.

According to researcher K S Rajpurohit's paper 'Child Lifting: Wolves in Hazaribagh' (1999), five wolf packs were blamed for the death of 60 children in the Hazaribagh West, Koderma, and Latehar forest divisions of undivided Bihar between April 1993 and April 1995.



Another 20 children survived wolf attacks that occurred primarily between March and August during those years. The author suggested that the loss of natural prey and rise of wolf-dog hybrids should be studied to take appropriate mitigation measures.

In 1996, researchers Y V Jhala and D K Sharma, both from the Dehradun-based Wildlife Institute of India, studied wolf attacks on 76 children in Pratapgarh, Sultanpur, and Jaunpur in eastern UP. After analysing the time and place of the attacks, animal signs, and feeding patterns, they ruled out the involvement of multiple packs and zeroed in on a single alpha male or his pack.

Jhala and Sharma's 1997 paper also pointed to the loss of wild prey due to hunting, the presence of too many unescorted children who were more vulnerable to attacks than well-protected livestock, multiple false claims for compensation, and the fanning of mass hysteria to feed the myth of manai (werewolf).

A major spate of attacks was reported from Balrampur district adjoining Bahraich, where 10 children died in wolf attacks during February-August 2003. Not only did all these attacks occur in the northern Indian landscape of Bihar-UP-MP where hunting wild herbivores for cheap meat is a common practice, most killing sprees began in or around March when Indian wolf cubs are weaned from milk and the pack must hunt to feed them meat.

Clinical approach to problem

Every time serial attacks take place, they create conditions for some to settle personal scores, make false claims for compensation, and fan hysteria about animal attacks. Also, once a wild species is targeted for a few attacks in an area, attacks by other wild species in the vicinity are often blamed on it.

DNA testing of saliva samples collected from wounds of victims can conclusively determine the species involved in an attack. Injury patterns (a wolf pack will bite at and feed from multiple points), animal tracks around the attack sites, location of feeding (leopards typically prefer sugarcane fields while wolves like open grounds), survey of local dens for cubs etc., can offer vital information.

Whatever the trigger, an animal habituated to attack people has to be removed, experts say. But instead of multiple trial-and-error operations, proper identification and targeted removal with baits can benefit both the wild species and the potential human victims.

In the long run, such attacks will stop only when the wolf is either exterminated or given its fair share of natural space and prey.

WHY UNION MINISTER DHARMENDRA PRADHAN WANTS TO CHANGE NAME OF HISTORIC RAVENSHAW COLLEGE IN CUTTACK

— Recently, Union Education Minister Dharmendra Pradhan has said that he “personally” believes that the name of the prestigious 156-year-old Ravenshaw University in Cuttack should be changed.

— Ravenshaw University was established in 1868, starting as a small school. It became a college in 1876 and was originally called Cuttack College, later renamed Ravenshaw College in honor of T.E. Ravenshaw (1878).



- T.E. Ravenshaw played a pivotal role in the establishment of educational institutes in the region. He also advocated for women's education in Odisha.
- The 1866 famine in Odisha led to severe drought in eastern India, causing deaths and destruction. In the aftermath of this, a commission was established under the Chairmanship of George Campbell to investigate the causes of famine.
- In the background of this, T. E. Ravenshaw submitted a memorandum asking for establishing a degree college in Orissa.

SHORT NEWS

RASHTRIYA POSHAN MAAH

- The 7th Rashtriya Poshan Maan was launched by the Union Minister for Women and Child Development in Gandhinagar, Gujarat.
- It is a month-long (September 1-30) campaign that aims to intensify efforts to combat malnutrition and promote holistic well-being across the nation.

BUDAMERU RIVULET

- The overnight rain in Vijayawada, Andhra Pradesh has caused the Budameru Rivulet to overflow, flooding low-lying areas such as Singh Nagar and Nandamuri Nagar.
- The rivulet originates in the Khammam district.

TYPHOON YAGI

- Super Typhoon Yagi, the most powerful storm in Asia this year, made landfall in northern Vietnam on September 7, 2024, causing widespread destruction.

NATIONAL CONFERENCE OF DISTRICT JUDICIARY

- The National Conference of District Judiciary was inaugurated by Prime Minister Modi at Bharat Mandapam in New Delhi.
- The PM unveiled the stamp and coin commemorating 75 years of the establishment of the Supreme Court of India.
- President Droupadi Murmu unveiled the flag and insignia of the Supreme Court. In her address, she mentions the 'Black Coat Syndrome' highlighting the huge pendency of cases in the judiciary.

TARANG SHAKTI 2024

- The second phase of Tarang Shakti 2024 is ongoing in Jodhpur, Rajasthan.
- It is the largest-ever multilateral exercise of the Indian Air Force (IAF) conducted for the first time.



— The exercise comprises two phases. The First phase of ‘Tarang Shakti’ was held at Suler in Tamil Nadu from August 6-14, and the second phase is ongoing from August 29-September 14 in Rajasthan’s Jodhpur.

K J BABY

— K J Baby was the writer and social activist who worked for the upliftment of tribals in Wayanad died on September 1 at the age of 70.

— He is known for an unconventional school ‘Kanav’, which he had established in 1991 for tribal students.

— His major literary contributions include ‘Nadugadhika’, ‘Mavelimantram’, ‘Bespurkkana’, and ‘Goodbye Malabar’. Mavelimantram, which bagged the Kerala Sahitya Akademi award in 1994, is reckoned as a milestone in Malayalam Dalit literature.

MICHEL BARNIER

— Michel Barnier has been appointed as the new French Prime Minister by President Emmanuel Macron.

— Barnier is a member of The Republicans, France’s main conservative party.

ARUNA VASUDEV

— Veteran film critic, curator, and author Aruna Vasudev — fondly known as “the mother of Asian cinema” died at the age of 88.

— In 1988, she founded the Delhi-based film magazine Cinemaya: The Asian Film Quarterly to cover Asian films. Three years later, she established the Network for the Promotion of Asian Cinema (NETPAC). In 1999, she also launched the Asian Cinefan Film Festival in Delhi.

BREIDAMERKURJOKULL GLACIER

— At least one person died after the ice cave partially collapsed on the tourists visiting the Breidamerkurjokull glacier in Iceland.

— Iceland is experiencing a surge of tourists who want to see glaciers before they melt.

— In 2019, the Okjokull glacier became the first Icelandic glacier lost due to climate change.

GOVT PLANS SPV TO PREPARE ROADMAP, PUSH DEVELOPMENT AND MANUFACTURING OF COMMERCIAL AIRCRAFT

The government plans to set up a special purpose vehicle (SPV) to devise and build a roadmap for development and manufacturing of an indigenous commercial aircraft in India, and is looking to involve multiple stakeholders including large original equipment manufacturers (OEMs) like Airbus and Boeing, Civil Aviation Minister K Ram Mohan Naidu said Wednesday.



BUSINESS & ECONOMICS

INDIA'S EXPORT-LINKED JOBS DECLINED AS IT MISSED OUT ON POST-CHINA OPPORTUNITY: WORLD BANK

Jobs in India generated directly and indirectly connected to international trade have declined over the last decade, the World Bank said, adding that the country has missed out on the export opportunity presented by China's withdrawal from labour-intensive manufacturing sectors.

— World Bank economists noted that India's share in global exports of labour-intensive sectors such as apparel, leather, textiles, and footwear has declined. Meanwhile, countries like Bangladesh, Vietnam, Poland, Germany, and France have managed to increase their global export share in major job-creating sectors by up to 2 per cent between 2015 to 2022.

— India's textile and garment exports have remained stagnant at around \$35 billion, while Vietnam and Bangladesh have gained market share, bolstered by free trade agreements (FTAs) and Least Developed Country (LDC) status, which provide a 10-15 per cent duty concession in the Western countries.

— The Bank observed that while India is the fastest-growing major economy, with an 8.2 per cent growth rate in the last fiscal year, urban youth unemployment remains high at 17 per cent. The Bank suggested that to create more trade-related jobs, India should integrate more deeply into global value chains, which would also create opportunities for innovation and productivity growth.

— "India could further leverage Global Value Chains (GVCs) to their full potential, generating more jobs and enhancing productivity," the Bank said in its statement.

— The Bank noted that Indian firms could benefit significantly from integrating into GVCs; however, India's share in GVCs has declined due to "policy barriers and other limitations."

INDIAN MSMES LOSING GROUND AS CHINESE GOODS FLOOD MARKET: GTRI

Indian small businesses operating in various product categories such as umbrellas, glassware, cutlery, handbags, and cosmetics are facing stiff competition in the domestic market due to the influx of Chinese goods, according to a report by the think tank Global Trade Research Initiative (GTRI) on Sunday.

INCOME INEQUALITY

The ILO's World Employment and Social Outlook study (September) has definitively linked declining trends in labour's income share of total income within nations to technological advances — mainly automation and artificial intelligence. In an analysis of the past two decades, it mentions a 1.6% drop in the global labour income share between 2004-24. More ominously, almost 40% of this decline was in the pandemic years of 2019-22 — a drop that has not been recouped in the past couple of years. Labour income share is a measure widely used to assess income inequalities within economies. The 1.6% drop might seem insignificant, but it amounts to \$2.4 trillion in lost wages at constant purchasing power parity, in relation to what workers would have earned had the labour income share been stable since 2004. \$2.4 trillion lost globally is more than half of India's nominal GDP forecast for FY2023-24. The study also highlights the gendered aspect of this

4TH FLOOR SHATABDI TOWER, SAKCHI, JAMSHEDPUR



inequality. In 2024, almost a third of the world's young women (28.2%) are not in employment, education or training, it estimates, which is double that of young men (13.1%). This is alarming for developing nations with growing working age populations, as it highlights challenges in job creation. In fact, another ILO report on the status of employment in India estimates that 83% of its unemployed are youth. This coupled with the government's recent prescriptions to the private sector to invest in labour intensive employment points to a crisis in jobs growth and rising inequality, even as output and labour productivity rise.

Several countries have been mooted the idea of a universal basic income (UBI), or a floor to stand on, as economists have called it. A referendum in Switzerland on UBI was defeated in 2016, while Democratic candidate and American tech investor Andrew Yang, in his aborted 2020 bid to the White House, mainstreamed a 'Freedom Dividend' of \$1,000 a month for every American adult. Congress leader Rahul Gandhi too made a proposal of ₹12,000 a month for every family, during his 2019 election campaign, calling it a "final assault on poverty". Several industry reports point to high-paying job creation due to automation and AI, to counter the jobless growth theory. But again, this only highlights an acceleration in income-inequality trends. Indeed, with the apparent advantages of automation and AI being irreversible, perhaps a global goal towards a universal basic income could address Sustainable Development Goal 10, or reduced inequality within and among countries. It is perhaps time that developing nations such as India consider the reintroduction of an inheritance tax as a measure to redress wealth inequality.

TRADING UP

In its latest India Development Update, the World Bank has raised its 2024-25 GDP growth forecast for the economy to 7%, from 6.6% estimated earlier this year. The projection is now in sync with predictions from the International Monetary Fund and Asian Development Bank, but a tad lower than the 7.2% uptick projected by the RBI and Fitch Ratings. Earlier growth hopes for India were slightly modest, partly due to its strong 8.2% growth last year, and prospects of the global economy staying weak due to restrictive monetary policies and persistent geopolitical tensions. The World Bank estimates global growth to be the same as last year's 2.6% pace, way below pre-pandemic levels. Despite this subdued external environment and the dissipation of post-COVID-19 rebound effects, the Bank's economists now expect India's growth to remain strong this year at 7%. However, external risks could cloud this, including pressures on supply chains and commodity prices, and a resurgence of inflation that could compel central banks to hold interest rates 'higher for longer'.

The Bank expects private consumption to rise 5.7% and the farm sector to grow 4.1% this year, from last year's anaemic trends. A recovery in farms could offset a slight moderation in industrial growth, and revive weak rural demand and help bolster private investment in the medium term, with GDP growth expected to hover in the 6.5%-6.7% range in coming years. On India's imperative to generate non-farm jobs, the Bank acknowledged ideas such as the Production Linked Incentive schemes to support private manufacturing investments, and the new Employment-Linked Incentives. But these may not be able to generate the scale of activity India needs to engage its young workforce. The Bank has emphasised the need for a rethink on India's approach to a critical growth engine — trade. India's global trade share does not match its economy's size, and it is yet to capitalise on the opportunity presented by China's withdrawal from labour-intensive production or the much-vaunted 'China plus one' global reset. A concern is a decline in export-related jobs over the past decade, flagged by the Bank, coinciding with a shift towards capital- and skill-intensive exports. While trade facilitation steps and the pursuit of free trade agreements are



commendable, some like the one with EFTA have limited potential, it noted. Progress has been hampered by new barriers to goods, services and investments, and it has called for a new strategic trade plan that reduces tariffs, non-tariff barriers as well as FDI curbs, and a rethink of the reluctance towards multilateral/ plurilateral pacts such as the RCEP. Policymakers must heed this prescription in earnest, and urgently.

WHAT IS THE UNIFIED LENDING INTERFACE BY THE RBI?

The story so far:

The Reserve Bank of India (RBI), as part of its strategy to create digital public infrastructure in the country, has announced that a new technology platform called the Unified Lending Interface (ULI) would be introduced by the Reserve Bank Innovation Hub, Bengaluru which will enable frictionless credit to farmers and MSME borrowers to begin with.

What is ULI?

ULI is a platform that facilitates the seamless flow of a customer's digitised financial and non-financial data from multiple data service providers to lenders, making credit underwriting seamless and customer journeys frictionless for a diverse range of borrowers, according to Rajesh Bansal, CEO, Reserve Bank Innovation Hub. This platform facilitates seamless and consent based flow of digital information, including even land records of various States. This will also bring down the time taken for credit appraisal, especially for smaller and rural borrowers without any credit history. The ULI architecture has common and standardised Application Programming Interfaces (APIs) designed for a 'plug and play' approach to ensure digital access to information from diverse sources. This will reduce the complexity of multiple technical integrations besides enabling borrowers to get the benefit of seamless delivery of credit and quicker turnaround time without requiring extensive and time-consuming documentation.

Lenders would gain access to customer data from various silos, including government databases (for example, land records) and satellite imagery through standardised APIs. And FinTechs can gain access to a variety of lenders on one platform and unlock opportunities to provide deeper customer insights.

How will it work?

For first time loan seekers without any credit history or required documentation, availing a bank loan is near impossible. Now with ULI, digital credit information can be made available through a single platform which provides access to data providers and lenders to serve the needs of perspective borrowers.

While ULI facilitates access to data about the loan applicant's economic activities, it also allows financial sector players to access the data by connecting to the platform through a 'plug and play' model. Therefore, the loan applicants need not have to spend weeks to search and secure the documents. Instead the bank, the NBFC or the FinTech would fetch data about the applicant from sources available on the ULI platform.

For a dairy farmer seeking a loan, the lender can find data from the milk cooperative to know about cash flows; land ownership status from land records of States; and insights into his financial condition through farming patterns. So what was once a blind spot for the lender would turn into a visible customer to do business with. With the help of ULI, the lenders can immediately know



the income of the loan applicant and credit eligibility. Thus decision making would be automated and loans could be sanctioned and disbursed within minutes.

Tenant farmers who often find it difficult to access agricultural credit for inputs and raw materials as they do not have the land title to submit to the banks can also avail loans. By programming the end use for purchase of agricultural inputs, the ULI platform can give the required comfort to banks and thus establish the identity of a farmer not through his land holding but through the end use of funds being disbursed.

How did it start?

The RBI had on August 10, 2023 announced the setting up of a Public Tech Platform for Frictionless Credit which is now branded as the ULI. The central bank was of the view that with rapid progress in digitalisation, data required for credit appraisal must be available at a single point for digital credit delivery.

To address this situation, a pilot project for the digitalisation of Kisan Credit Card (KCC) loans of less than ₹1.6 lakh began in September 2022. The initial results of the KCC pilot, which got underway in select districts of Madhya Pradesh, Tamil Nadu, Karnataka, U.P., Maharashtra, were encouraging. According to the RBI, the pilot enabled doorstep disbursement of loans in assisted or self-service mode without any paperwork.

For Your Information:

- Unified Payments Interface or UPI is a real-time payment system launched in India in April 2016 by the National Payments Corporation of India (NPCI).
- It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.
- UPI also caters to the “Peer to Peer” collection request which can be scheduled and paid as per requirement and convenience.
- UPI has played a significant role in the growth of retail digital payments in the country. While initial participants on the UPI platform were banks, non-bank third-party app providers and use of QR (quick-response) codes have all combined in popularising UPI.

WHAT IS VERTICAL FISCAL IMBALANCE?

The financial relationship between the Union government and the States in India is asymmetrical, as in many other countries with a federal constitutional framework. As the 15th Finance Commission noted, States incur 61% of the revenue expenditure but collect only 38% of the revenue receipts. In short, the ability of the States to incur expenditures is dependent on transfers from the Union government. Consequently, there is the problem of Vertical Fiscal Imbalance (VFI) in Indian fiscal federalism where expenditure decentralisation overwhelms the revenue raising powers of the States.

Why should VFI be reduced?

Constitutionally, the financial duties of the Union government and the States are divided. On the revenue front, to maximise the efficiency of tax collection, the Personal Income Tax, the



Corporation Tax and a part of indirect taxes are best collected by the Union government. But on the expenditure front, to maximise the efficiency of spending, publicly provided goods and services are best supplied by the tier of the government closest to its users. It is in this context that the extent of VFI merits attention.

The 15th Finance Commission had noted that India has had a larger, and rising, vertical imbalance than most other federations. These imbalances were further magnified during periods of crises, such as the COVID-19 pandemic, which drove a large wedge between one's own revenues and expenditure responsibilities at the sub-national level.

The problem of VFI falls under the purview of the Finance Commission, and it deals with broadly two questions. The first question is how to distribute the taxes collected by the Union government to the States as a whole. These transfers are made as a prescribed share of the "Net Proceeds" (Gross Tax Revenue of the Union less surcharges, cesses and costs of collection). The second question is how to distribute taxes across States. The matter of VFI arises as part of the first question.

Apart from devolving taxes, the Finance Commissions also recommend grants to States in need of assistance under Article 275 of the Constitution. But these are generally for short periods and for specific purposes. There are also transfers to the States that fall outside the Finance Commission's ambit. For example, the Union government spends substantial amounts — under Article 282 of the Constitution — on subjects falling in the State and Concurrent lists through centrally sponsored schemes and central sector schemes. But such grants are tied transfers that include conditionalities. In sum, the devolution of taxes from the net proceeds is the only transfer to the States that is untied or unconditional.

Calculating VFI in India

Here we try to estimate the VFI in India after the devolution of taxes to the States. We measure VFI at the level of "all States", and not separately for each State. For this, we use a globally accepted method. We first estimate a ratio where the numerator is the sum of the Own Revenue Receipts (ORR) and the tax devolution from the Union government for all States. The denominator is the Own Revenue Expenditure (ORE) for all States. If this ratio is less than 1, it implies that the sum of own revenue receipts and tax devolution of the States is inadequate to meet the ORE of the States. If we subtract this ratio from 1, we get the deficit in receipts. It is this deficit that we use as a proxy for VFI after devolution.

We can then ask the simple question: how much should tax devolution rise over and above that recommended by the past Finance Commissions to equalise the ratio to 1? Equating the ratio to 1 would eliminate VFI. The average share of net proceeds devolved to the States between 2015-16 and 2022-23 should have been 48.94% to eliminate the VFI. But the shares of tax devolution recommended by the 14th and 15th Finance Commissions were only 42% and 41%, respectively, of the net proceeds.

Raising tax devolution

Many States have raised the demand that the share of tax devolution from the net proceeds must be fixed at 50% by the 16th Finance Commission. They add force to this demand by pointing to the exclusion from the net proceeds of the substantial amounts of cesses and surcharges, which truncates the net proceeds within the gross tax revenue.



Our analysis in this article lends empirical support to this demand. Here, we have assumed the present levels of expenditures of the States as a given. At the aggregate level, these actually incurred expenditures have not only conformed to but also underutilised the borrowing limits specified in the fiscal responsibility legalisations. Even then, we find that the share of net proceeds devolved to the States must rise to about 49% to eliminate VFI. Such an increase in devolution would place more untied resources in the hands of the States to spend on their citizens. It would also ensure that States' expenditures better respond to jurisdictional needs and priorities, and that the efficiency of expenditures is enhanced. Overall, it will be a move towards a healthy system of cooperative fiscal federalism.

WHY DID THE CENTRE ALTER ITS PENSION PLAN?

The story so far:

Last weekend, the Union Cabinet signed off on a major shift in the approach to provide old age income security to Central government employees, with a new Unified Pension Scheme (UPS) to be launched on April 1, 2025. About 23 lakh Central government employees are expected to benefit from the scheme, while employees who are part of an ongoing pension scheme called the National Pension System will have the option to switch to the UPS. States can also bring their employees under the UPS but will need to work out funding from their own resources.

What are the key components of UPS?

There are five major components within UPS benefits, starting with the assurance that government employees will get half their average basic pay over the final 12 months of service prior to retirement, as a monthly pension for life after a minimum service of 25 years. The benefits will be proportionately lower for those with less than 25 years of service, with a minimum pension of ₹10,000 for those who work for at least 10 years. A family pension equivalent to 60% of a worker's pension at the time of her or his demise, is offered to support dependents. To hedge against inflation, these pension incomes will be raised in line with the consumer price trends for industrial workers — akin to the dearness relief offered to serving government employees. Separately, a lumpsum superannuation payout is promised in addition to gratuity benefits at the time of retirement. This will amount to 1/10th of an employee's monthly emoluments as on the date of superannuation for every six months of service.

How is it different from the current system?

Government employees who joined service prior to January 1, 2004, are covered by what has come to be known as the Old Pension Scheme (OPS), and was replaced by the NPS for employees who joined in or after 2004.

The OPS offered employees an assured pension at 50% of last drawn salary, with dearness allowance hikes added along the way, an assured family pension of 60% of the last drawn pension, and a minimum pension of ₹9,000 plus dearness allowance. At retirement, employees could commute 40% of the pension as a lumpsum. Moreover, for pensioners or family pensioners crossing 80 years of age, monthly payouts are hiked 20% followed by more hikes every five years. Pensions are also revised in line with salary updates mooted by the Pay Commission. The last such salary upgrade kicked in from 2016. A critical difference between the OPS and NPS as well as the UPS, is that its promises were paid straight from the exchequer's till every passing month. So these liabilities were "unfunded", with no contributions made by employees/employer, as is the case for



private sector employees whose retirement savings are governed by the Employees' Provident Fund Organisation.

The NPS, launched by the Atal Bihari Vajpayee government after years of debate about the unsustainability of civil servants' pension bills, did away with the 'defined benefits' system of the OPS and switched to a funded 'defined contribution' pension regime. 10% of employees' salaries with a matching contribution from the employer (the Centre, or States as almost all of them switched to the NPS), were pooled and deployed in market-linked securities, with the option of equity investments, by professional fund managers. At the time of retirement, employees were to buy an annuity (that provides a monthly income) with 40% of their accumulated NPS corpus. The Centre had raised its contribution to the NPS to 14% in 2019, but there was no element of certainty offered on pension incomes, like the OPS did.

The UPS combines the defined benefits of the OPS with the defined contribution of the NPS mechanism. While employees' contributions will be limited to 10% of salary, the government will contribute a higher 18.5% of salary with room for revising this rate over time. The Centre will bear any gap between the eventual earnings on these contributions, and its pension promises. It is not clear if the UPS will factor in future Pay Commissions or offer higher pensions for those over 80 years of age, like the OPS.

Why did the government opt for a change?

Prior to, and after, its launch, the NPS regime had faced a strong pushback from government employees over the loss of assurance about pension incomes, and the contrast in fortunes for post-2004 workers vis-à-vis their predecessors. The clamour against it mounted in recent years, as some NPS entrants with fewer years of service started to retire with relatively lower pension benefits. This restiveness eventually became an electoral issue, with Opposition parties such as the Congress promising a return to the OPS for State employees ahead of some Assembly polls, and effecting the switch after gaining power in a few. The Centre, through the Narendra Modi government's second innings, pushed back against this reversal, terming it fiscally irresponsible. However, in March 2023, Finance Minister Nirmala Sitharaman announced a committee to review the NPS for government employees in a way that balances "their aspirations with fiscal prudence". This panel was headed by former Finance Secretary T.V. Somanathan, and although its report has not been made public yet, the switch to the UPS has been informed by its parleys. If there was any doubt that UPS' bouquet of benefits is linked to political considerations ahead of several State polls, Information and Broadcasting Minister Ashwini Vaishnaw laid it to rest. While announcing the UPS, he emphasised that Congress-ruled States which announced a return to the OPS were yet to implement it, while Prime Minister Modi had ensured an outcome that will ensure "inter-generational equity".

How have employees and States reacted?

Central government employees have broadly welcomed the UPS provisions as an acknowledgement of the NPS' problems, but there are still reservations about the contributory aspects of the UPS and the lack of a commutation option like the OPS. Like employee representatives, economists also await more details on the UPS' contours and math. UPS contributions, including arrears for some, are expected to cost an additional ₹7,050 crore this year. Dearness hikes over time will warrant additional funding too. "Assured pensions will add to the government committed expenditure in the future, while reducing the uncertainty for



employees. This will have to be built into the fiscal consolidation roadmap going ahead,” remarked Aditi Nayar, ICRA’s chief economist.

While the immediate impact will only be the additional 4.5% contribution towards the UPS, future payouts will be higher but can be absorbed by higher revenue growth, reckoned Bank of Baroda chief economist Madan Sabnavis. “We can look at this as being equivalent to Pay Commission revisions which are absorbed by the system,” he averred.

CPPS GETS GREEN LIGHT; PENSIONERS TO GET PAYMENTS VIA ANY BANK, BRANCH

The Union Labour Ministry has cleared a proposal for Centralised Pension Payment System (CPPS) for about 78 lakh pensioners under the Employees’ Pension Scheme, 1995. The new system enables pension disbursement through any bank, any branch across the country.

Union Minister of Labour and Employment, and Chairperson, Central Board of Trustees, Employees Provident Fund Organisation (EPFO), Mansukh Mandaviya, said the approval of the new payment system was a significant milestone in the modernisation of the EPFO.

The CPPS would ensure disbursement of pension throughout India without any need for transfer of Pension Payment Orders from one office to another even when the pensioner moves from one location to another, or changes the bank or branch.

‘Great relief’

“This will be a great relief to pensioners who move to their hometown after retirement,” the Labour Ministry said.

This facility will be launched as part of EPFO’s ongoing IT modernisation project Centralised IT Enabled System (CITES 2.01) from January 1, 2025.

In the next phase, CPPS will enable a smooth transition to Aadhaar-based payment system. There will be no need for pensioners to visit the branch for any verification at the time of commencement of pension, and the pension shall be immediately credited upon release, the government said. The EPFO expects a significant cost reduction in pension disbursement in the new system.

AS BANKS FACE SLOWDOWN IN DEPOSIT GROWTH, WHAT THEY ARE DOING TO REVERSE TREND

The banking sector has been struggling with slower growth in deposits compared to credit over the past few months. Latest data from the Reserve Bank of India (RBI) showed that while deposits grew at 11.7 per cent in the quarter ending in June 2024, bank credit rose at 15 per cent.

— As the gap increases between deposits (which customers keep with the bank and get interest for) and credit (which the bank lends to customers at an interest rate charged from them), it creates an asset-liability mismatch for lenders.

— The **widening gap** has concerned the government and the RBI, who have asked lenders to focus more on deposit mobilisation through innovative products.

— The outflow of household savings from banks to capital markets is one of the major reasons for a slower growth in deposits in the banking system.



— After the Covid-19 pandemic, the Indian capital markets have seen a surge in retail activity through direct (direct trading) and indirect (using mutual fund route) channels. Higher returns, robust digital infrastructure which has eased the investment process and rapid smartphone penetration have facilitated the entry of more retail investors into capital markets.

SEBI NEEDS TO PUT ITS HOUSE IN ORDER

The stock market regulator continues to be at the centre of controversy. Reportedly, around 500 officials from Sebi, in a letter to the government, have attacked the regulator's leadership for creating a "toxic work culture" — "shouting, scolding and public humiliation have become a norm in meetings", they said. In its response, the market regulator has said that the allegations are "misplaced", that the officers have been "misguided", possibly by "external elements", and that this may be an attempt to "target" the "credibility" of the regulator and its leadership. Unfortunately, however, this is not the only occasion in the recent past when Sebi has found itself in the dock.

A few days ago, the Congress party alleged that SEBI chairperson, Madhabi Puri Buch, was "holding an office of profit at ICICI bank", and had received Rs 16.8 crore as income after becoming a whole-timer of SEBI in 2017. In response, ICICI bank, in a statement to the stock exchange, said that it has "not paid any salary or granted any ESOPs" to Buch after her retirement, other than her retiral benefits. A few weeks before that, Hindenburg Research had sought to draw a link between Buch's investments and what it saw as inaction on the Adani investigation by Sebi. It claimed that Buch and her husband "had hidden stakes in the exact same obscure offshore Bermuda and Mauritius funds, found in the same complex nested structure, used by Vinod Adani". During the time Buch was a Sebi whole-time member, it alleged, she had a financial interest in Agora, an offshore Singapore consulting firm, and that she only transferred her shares to her husband after being appointed Sebi chairperson. Buch has responded by saying that "all disclosures as required have already been furnished to SEBI".

Clearly, the stock market regulator needs to put its house in order. From matters concerning conflict of interest to lack of disclosure and employee dissatisfaction rising to the surface — in the face of these, simply issuing blunt denials or brushing off allegations is unlikely to work. Issues such as these, central to the working of the regulator, need to be carefully investigated and addressed in a transparent manner. Coming at a time when there has been a sharp surge in stock market investors, the primary objective of all stakeholders should be to strengthen the regulator, safeguard its autonomy and independence, and protect the integrity of the markets. At the same time, however, this dismal saga should not be used to stymie the entry of private personnel into top positions in either the regulatory or governmental apparatus. The growing complexity of the economy requires that such positions are open to the best possible candidates, drawn from a large pool of individuals with the required expertise, whether from the private sector or the bureaucracy.

HOUSE PANEL INCLUDES SEBI REVIEW IN AGENDA, LIKELY TO SUMMON BUCH

The Public Accounts Committee (PAC), the parliamentary watchdog for government spending, has decided to include in its agenda for the year a review of the performance of the Securities and Exchange Board of India (SEBI) whose chairperson Madhabi Puri Buch is at the centre of a political firestorm following allegations levelled against her by US-based Hindenburg Research.



— The PAC, headed by Congress senior leader K C Venugopal, took the unusual step to include a suo motu subject – performance review of regulatory bodies established by Act of Parliament – at its last meeting on August 29. The agenda for the year was notified earlier this week.

— The 22-member PAC has 15 MPs from Lok Sabha and seven from Rajya Sabha. Other than Venugopal, it has senior BJP leaders Ravi Shankar Prasad, Nishikant Dubey, K Laxman, Anurag Thakur, Jagdambika Pal and Sudhanshu Trivedi as its members.

— The PAC, one of the most significant parliamentary panels that audits the revenue and expenditure of the government, usually makes a selection of Audit Paragraphs included in the various reports of CAG for in-depth examination. In addition, the Committee can also select one or more suo motu subjects for in-depth examination during the year.

For Your Information:

— Parliamentary Committees have their origins in the British Parliament. They draw their authority from Article 105, which deals with the privileges of MPs, and Article 118, which gives Parliament authority to make rules to regulate its procedure and conduct of business.

— Broadly, Parliamentary Committees can be classified into Financial Committees, Departmentally Related Standing Committees, Other Parliamentary Standing Committees, and Ad hoc Committees.

— The Financial Committees include the Estimates Committee, Public Accounts Committee, and the Committee on Public Undertakings. These committees were constituted in 1950.

DID CORPORATE TAX CUTS INCREASE WAGES?

In the years prior to the pandemic, two of the largest economies in the world — the U.S. and India — cut corporate tax rates in an attempt to stimulate growth. While the pandemic caused an unprecedented shock to the economy, enough time has passed for us to evaluate the effects of these tax cuts.

The effects of tax cuts in the U.S.

The Tax Cuts and Jobs Act was signed into law by former President Donald Trump on December 22, 2017, and went into effect from January 1, 2018.

While the act affected personal and corporate taxes, one of the most significant provisions was the reduction of the top tax rate on corporate income from 35 to 21%. Proponents of the measure held that the move would ensure that companies invest more, leading to an increase in growth and employment. The new investment would also cause an upgradation in technology and productivity, leading to an increase in wages as well.

In a recent publication titled 'Lessons from the Biggest Business Tax Cut in U.S. History' (published in the Summer 2024 edition of the Journal of Economic Perspectives), economists Gabriel Chodorow-Reich, Owen Zidar and Eric Zwick examine the effects of the tax cut. They find that the cuts did have a positive impact on investment, with a range of studies estimating an increase in investment of around 8 to 14%. Furthermore, studies suggest that based on investment trends, there would likely have been a fall in investment if the tax cuts were not passed.



This is not to say that the tax cuts were an unambiguously positive outcome. This is a relatively small increase in investment, implying a long-run increase in GDP of only 0.9%, and an increase in annual wages of less than \$1,000 per worker. This is in stark contrast to the claims of an increase in wages of around \$4,000 to \$9,000 dollars advanced by the Council of Economic Advisors in favour of the move. Furthermore, the reduction in tax rates imply a long-run reduction in tax revenue of almost 41%. The fiscal health of the U.S. economy has been impaired at the cost of higher profits and a marginal increase in wages.

On tax cuts in India

Tax rates for corporates were cut in September 2019 in India, with the rate for existing companies reducing from 30 to 22%, and that of new companies from 25 to 15%. This resulted in a tax revenue loss of around 1 lakh crore in 2020-21. This tax could nevertheless prove to be of net benefit to the economy if it resulted in an increase in employment and investment.

The pandemic led to severe dislocations in the labour market, leading to high unemployment. Unemployment has reduced since then, with labour force participation rates rising, particularly that of women. However, the corporate sector has had little to do with this increase. Much of the increase in employment has come in the form of insecure work, with unpaid family work showing significant increases in the rural sector. According to the PLFS, the share of workers with regular wage employment at the all-India level has fallen from 22.8% in 2017-18 to 20.9% in 2022-23. Furthermore, when comparing the periods July-September 2017 and July-September 2022, the average nominal monthly earnings of rural and urban regular wage workers displays a CAGR (compounded annual growth rate) of 4.53% and 5.75% respectively, which is barely above the rate of inflation. In real terms, rural wages for regular employment have reduced, with relative stagnation for urban wages.

This is not to say that there has been no growth; corporate tax collections have shown healthy growth since the pandemic. However, it has had little to no effect on employment or wages. Tech companies in India have recently made the news for laying off workers, rather than expanding hiring.

Furthermore, tax cuts have led to a shifting of the burden of tax collections from corporates to individuals.

In 2017-18, corporate taxes were almost 32% of gross tax revenues. It has fallen since then while the share of income taxes rose. According to the budget estimates of 2024-25, the share of corporate taxes has fallen to 26.5%, below that of GST (27.65%) and income taxes (30.91%).

This may explain the move of the Centre to remove indexation benefits and tax long-term capital gains, as it tries to find new sources of revenue to offset the falling share of corporate taxes.

What next?

Tax cuts would not necessarily boost investment if capital believes that the prospect of future profits are uncertain. In an economy recovering from the pandemic and from supply-related disruptions, tax cuts have exercised only marginal effects on private investment.

Tax cuts on profits do have immediate effects on income distribution. A reduction in profit taxes boosts the profits on already invested capital without increasing future investment, thus benefiting private capital while showing little to no benefits for wage-earners (who would gain only if investment raised employment, productivity and wages sufficiently).



Chodorow-Reich et al make the point that a suitable policy strategy would be to have high taxes on existing profits and increased incentives promoting future investment. These tax cuts have shown the difficulty of policy-making in an uncertain world.

INDIA PLANS \$15 BILLION SECOND PUSH FOR CHIPMAKING. HERE'S WHAT TO KNOW

The government plans to increase the funding outlay for the second phase of its chip manufacturing incentive policy to \$15 billion from the \$10 billion it had committed for the first phase.

Tata is building India's first commercial fabrication plant along with its Taiwanese partner Powerchip Semiconductor Manufacturing Corporation (PSMC) for a cost of more than Rs 91,000 crore. The government has also approved three assembly and testing plants, which are called ATMP and OSAT in chip parlance.

The assembly and testing plants are less complex than the semiconductor fabrication plant. The first of these three plants was approved in June 2023, and is being built by US-based Micron Technology. Tata is building an assembly plant in Assam to cater to specific clients. The third facility is being built by C G Power and Industrial Solutions of the Murugappa Group, in partnership with Renesas Electronics of Japan.

The govt's commitment of money

The four projects will together cost more than Rs 1.48 lakh crore, and the central government will spend almost Rs 59,000 crore in capex subsidies. Here is a breakdown of how much each plant will cost, and the subsidy commitments made by the central government. State governments have sought to sweeten the deal by offering land and electricity to the plants at cheaper rates.

Why chipmaking prowess matters

India currently has virtually no footprint in manufacturing semiconductor chips. The bulk of the global chip production happens in countries like Taiwan and the United States. The US has a chip incentive scheme with an outlay of around \$50 billion, several times that of India's. The European Union too is wooing chip manufacturers and has announced an incentive scheme of size similar to that of the US's.

Domestic fabrication plants will boost India's economic and strategic imperatives, given that chips are used in practically all downstream industries from rockets to power steering in cars to kitchen toasters.

In a global climate of geopolitical tensions, with the relationship between the US and China, two of the world's most influential countries in the technology value chain, at an all-time low, India hopes to seek out opportunities to boost the local industry with help from government-funded schemes.

It is important to take a realistic view

It is important to note that the Tata-PSMC fab will not produce cutting-edge nodes, which requires a level of technology that is not available with either of these companies.

The entry barriers to chip manufacturing are quite high, as China, which has poured a lot of money into its Semiconductor Manufacturing International Corporation (SMIC), has discovered. An



enormous amount of technological innovation is needed to manufacture chips of smaller node sizes, which is an area in which companies such as the Taiwan Semiconductor Manufacturing Company Ltd (TSMC) have a massive advantage.

CABINET OKS RS 3,300 CRORE CHIP ASSEMBLY PLANT IN GUJARAT

The Union Cabinet Monday cleared a semiconductor assembly and testing plant being set up by Kaynes Semicon at a cost of Rs 3,300 crore. This is the fifth semiconductor unit, and the fourth assembly unit, to receive Cabinet approval under India's ambitious Rs 76,000 crore chip manufacturing incentive scheme.

— The plant will be constructed in Sanand, Gujarat. It is understood that the plant was initially to come up in Telangana, but was moved to Gujarat after the government indicated that Sanand was coming up as a cluster for chip assembly plants.

— India has ambitions to become a major chip hub on the lines of the United States, Taiwan and South Korea, and has been courting foreign companies to set up operations in the country.

— Currently, there are more proposals to set up semiconductor units with the government. This includes a Rs 78,000 crore fabrication plant proposed by Israel's Tower Semiconductor, and a Rs 4,000 crore assembly plant by Zoho.

— Under the new scheme, the government could also offer capital equipment and ecosystem support such as gases, chemicals, and raw materials needed at assembly and testing plants. It could also look at incentivising fabrication of micro-LED displays.

EXEMPTED EXPORT-ORIENTED GREEN HYDROGEN PROJECTS FROM SOLAR MODULE SHORTLIST TO LOWER COSTS: MNRE SEC

The Ministry of New and Renewable Energy (MNRE) has exempted export-oriented green hydrogen projects from its solar module shortlist of domestic manufacturers to enable them to lower costs to the level of grey hydrogen, MNRE Secretary Bhupinder S Bhalla said. Setting up renewable energy capacity, like solar, to power electrolyzers is essential for the production of green hydrogen and contributes significantly to project costs.

— The exemption for green hydrogen projects set up in special economic zones (SEZs) or export oriented units (EOUs) by 2030 from MNRE's Approved List of Models and Manufacturers (ALMM), a list of domestic solar PV module manufacturers, was granted in May earlier this year. With the ability to use imported modules, which are cheaper than domestic modules, such projects can substantially reduce production costs.

— A major hurdle in the widespread adoption of green hydrogen in India and globally is its cost competitiveness against grey hydrogen. Grey hydrogen, produced from natural gas through carbon-intensive processes, is used in hard-to-decarbonize industries such as steel manufacturing and fuel refining due to its lower production costs.

— "We also have sufficient demand for solar modules in India. Our domestic demand is growing so fast that we do not foresee that giving an exemption only for green hydrogen will impact (domestic industry)," MNRE Secretary Bhupinder S Bhalla added.



— Currently, India consumes 5 MMT of grey hydrogen and expects most of the domestic demand by 2030 to be met by green hydrogen.

— In addition to bidding out electrolyser manufacturing and green hydrogen capacities under its Strategic Interventions for Green Hydrogen Transition (SIGHT) programme, which has been allocated Rs 17,490 crore, MNRE has taken additional measures to incentivise investments and boost production.

For Your Information:

What is the difference between green, grey and blue hydrogen?

— Green hydrogen is an end-to-end green fuel. Electricity generated from renewable sources such as wind or solar is used to electrolyse water, and its byproducts are water or water vapour.

— Grey hydrogen constitutes the bulk of India's production currently. It is extracted from hydrocarbons (fossil fuels and natural gas), and carbon dioxide is the byproduct of consumption.

— Blue hydrogen is sourced from fossil fuels, but byproducts such as carbon monoxide are captured and stored, so it is better than grey hydrogen.

CENTRE PLANS TO BOOST '2G ETHANOL' PRODUCTION, SET UP ENZYME-MANUFACTURING FACILITIES TO REDUCE IMPORTS

Days after the Centre unveiled its BioE3 policy to boost bio-technology-centric manufacturing in India, the Department of Biotechnology is contemplating setting up enzyme-manufacturing facilities to bolster ethanol production, according to scientists and officials with the department.

The first such plant may come up in Manesar, Haryana and will likely be a supplier to proposed 2G bio-ethanol plants in Mathura (Uttar Pradesh), Bhatinda (Punjab) and an existing plant in Panipat. Among other things, the BioE3 (Biotechnology for Economy, Environment and Employment) policy cleared by the Union Cabinet last week aims to set up 'bio-foundries' that will produce biotechnology-developed feedstock and catalysts.

The NITI Aayog estimates that India will need about 13.5 billion litres of ethanol annually by 2025-26. Of this, about 10.16 billion litres will go towards meeting the fuel-blending mandate of E20. '2G' or second generation bioethanol is ethanol that is produced from rice-straw as opposed to the conventional method of sourcing it from molasses (sugar cane).

In 2022, the Indian Oil Corporation set up a first-of-its-kind 2G ethanol plant in Panipat that uses rice stubble — the burning of which spikes pollution in North India — as feedstock. The plant, theoretically capable of producing one lakh litres of ethanol a day runs at 30% capacity and needs 1.5 lakh to 2 lakh tonnes of rice straw per year, which is generated at the end of the sowing period in September- October.

Critical ingredients

However a critical ingredient to convert stubble into ethanol are enzymes and an appropriate treatment process. As of today, these enzymes are imported and constitute a significant component of the cost of the 2G-ethanol production process, said Ramesh Sonthi, Director, International Centre for Genetic Engineering and Biotechnology (ICGEB). "We have developed enzymes that are as good, if not better, than the ones currently used for the production of ethanol



at Panipat. We have been able to show its efficacy in producing up to 15,000 litres of ethanol and are looking at scaling up,” Dr. Sonthi said.

The Maharashtra-based Praj Industries, an industrial biotechnology company, is the technology licensor (of enzymes from Danish Biotechnology company, Novozymes).

The enzymes in question are derived from tweaking a fungus that belongs to a broader family of fungi called *Penicillium funiculosum*. However, it is only through several steps of genetic engineering that the fungus can be tweaked to produce the necessary enzymes in sufficient quantity that can then act as an efficient hydrolyser of organic refuse such as rice stubble.

“It is a cell-free system with enzymes available now to digest the biomass. So eventually what you have after digestion is a free sugar, which can be fermented not only for ethanol but to make cosmetics, active pharmaceutical ingredients,” Mr. Yazdani said.

He estimates that if India’s future ethanol needs — government policy currently mandates all petrol to be blended 20% with ethanol by 2025 — were to rely on locally developed enzymes it could mean a roughly two-thirds reduction cost in procuring the enzymes.

A report by the NITI Aayog on India’s ethanol blending programme estimates that a litre of ethanol requires 2.3 kg of rice, 2.6 kg of maize or 50 kg of sugar cane. Because these are key food crops, relying on them for fuel means using land for food for fuel. Secondly these crops are extremely water-guzzling. The recommendation thus is to rely on agriculture biomass, and further municipal solid waste, to serve as the feedstock for ethanol. Additionally, use agriculture residue as fuel sources, also translates to an alternative use of stubble that is otherwise burned by farmers to clear the land for cropping. This year Punjab alone is estimated to produce 20 million tonnes of rice stubble. A plant, even like the one at Panipat, can process at its maximum 2,00,000 tonnes.

IN INDIA, CHANGES IN FOOD CONSUMPTION PATTERNS CAPTURE IMPORTANT TRENDS

A new working paper by the Economic Advisory Council to the Prime Minister that analyses the Household Consumption Expenditure Survey 2022-23 and compares it to results of the 2011-12 survey has found “striking changes in food consumption patterns over the last ten years.” The most significant finding is that for the “first time in modern India (post-independence) ... average household spending on food is less than half the overall monthly spending of households”. In other words, Indian families are allocating less than half of their monthly budget towards food items. The paper calls it “a marker of significant progress”.

This decline has been broad-based — occurring across states and Union Territories as well as both urban and rural areas. Within food items, the share of expenditure on cereals has declined significantly; what’s more, the decline in expenditure on cereals is “more substantial for the bottom 20 per cent of the households” both in rural and urban areas. “In all likelihood, this reflects the effectiveness of the government’s food security policies, which provide free foodgrain to large numbers of beneficiaries across all states of the country, with a particular focus on the vulnerable bottom 20 per cent of households,” the paper says. Arguably, with cereals being provided by the government, households could diversify their diets with increased spending on other items such as milk, eggs and meat. The paper notes that this trend also underscores the improvement in overall infrastructure, transportation, storage etc. that has allowed increased access of such food items to all socio-economic classes across the country.



While crossing the 50 per cent threshold is a marker of sorts, the fact is that this is a long-term trend: As family incomes and expenditures have risen, the proportion spent on food has been coming down. What is more noteworthy are some of the other findings, and the related policy implications. For instance, if diets are getting diversified across India then it may require government policies to further promote diverse crops. This has implications for the debate around Minimum Support Prices (or MSPs), which overwhelmingly target cereal production. Similarly, there's a "significant increase" in the share of household expenditure on "served and packaged processed food" even as there is "significant decline" in cereals' average per capita consumption (amount in kg) across the country. These trends, that affect the health outcomes of Indians, need to be studied to improve public health policies.

BIG PLANS FOR FARMS: WHAT IS IN THE RS 2,800-CRORE DIGITAL AGRICULTURE MISSION?

The Union Cabinet on Monday (September 2) approved the Rs 2,817-crore Digital Agriculture Mission for the creation of Digital Public Infrastructure (DPI) in the farm sector.

— The mission to create Digital Public Infrastructure in the agriculture sector is similar to the government's flagship e-governance initiatives in other sectors, which have over the years resulted in digital solutions such as the Aadhaar unique ID, the DigiLocker document folder, the eSign electronic signature service, the unified payments interface (UPI) instant money transfer protocol, and electronic health records.

— Three major components of DPI are envisaged under the Digital Agriculture Mission: AgriStack, Krishi Decision Support System (DSS), and Soil Profile Maps. Each of these DPI components will provide solutions that will allow farmers to access and avail of various services.

— The mission also aims to create a tech-based ecosystem, the Digital General Crop Estimation Survey (DGCES), which will provide accurate estimates of agricultural production.

— A budgetary allocation of Rs 2,817 crore has been made for the Mission, of which Rs 1,940 crore will be provided by the Centre, and the rest by the states and Union Territories (UTs). The Mission will be rolled out across the country over the next two years (until 2025-26).

— Three Pillars of Mission

(i) AgriStack: The farmer-centric DPI AgriStack consists of three foundational agri-sector registries or databases: Farmers' Registry, Geo-referenced Village Maps, and Crop Sown Registry, all of which will be created and maintained by state/ UT governments.

(ii) Krishi DSS: The Krishi Decision Support System, which was unveiled recently, will create a comprehensive geospatial system to unify remote sensing-based information on crops, soil, weather, and water resources, etc.

(iii) Soil Profile Maps: Under the Mission, detailed Soil Profile Maps (on a 1:10,000 scale) of about 142 million hectares of agricultural land are envisaged to be prepared.

— **Digital General Crop Estimation Survey (DGCES):** This will be a major push to improve the existing crop yield estimation system, and to make the data more robust, addressing concerns that are sometimes raised about the accuracy of India's agriculture production estimates.



WHY RICE-WHEAT NEED TO BE DE-HYPHENATED

Most economics commentators and policymakers tend to club wheat and rice, treating them as part of a “cereal surplus” and “mono-cropping/lack of diversification” problem. But today, the situations in the two crops are very different.

— Rice is grown both during the *kharif* (southwest monsoon) and *rabi* (winter-spring) seasons. Moreover, it is cultivated across a wide geography.

— Wheat, by contrast, has a single *rabi* cropping season and only eight states producing 2 mt-plus each, all concentrated in northern, central and western India. The big four alone (UP, MP, Punjab and Haryana) account for over 76 per cent of India’s output. Wheat is, thus, a temporally as well as geographically more constrained crop than rice. This is what makes its production relatively more volatile.

— In rice, the main limiting factor is water availability. Wheat, on the other hand, has become vulnerable to winters getting shorter, warmer and less predictable — perhaps due to climate change. Mercury spikes in March (when the crop is in grain formation and filling stage), or above-average November-December temperatures (during the sowing and vegetative growth period) have taken a toll on production in the last three years, reflected in depleted government stocks.

— While India’s wheat production is facing structural challenges — from temporal, geographical and climate-induced factors — consumption is growing.

— Given a scenario of rising consumption and geography/climate-imposed production challenges, one can well imagine India turning into an importer of wheat. “That’s inevitable in the short term. For the long term, the government needs to focus on boosting per-acre yields, and breeding climate-smart varieties,” Kumar said.

— It is the opposite with rice, where domestic consumption is not keeping pace with production. Either way, the time has come to de-hyphenate rice-wheat, and not conflate one with the other. The two cereals are grains apart in terms of issues faced, both current and for the future.

WHY HARYANA’S AGRICULTURE IS DIFFERENT FROM PUNJAB’S

Both Haryana and Punjab are seen to embody the best and the worst of the Green Revolution—they helped India turn self-sufficient, if not surplus, in rice and wheat, but also imposed steep environmental costs through the monocropping of rice-wheat. But like the grains of wheat and rice are apart, field realities in Punjab are very different from those in Haryana.

— Rice-wheat monoculture — farmers growing just the two crops during the *kharif* (monsoon) and *rabi* (winter-spring) seasons respectively, year after year — is an apt description for Punjab’s agriculture.

— Punjab ranks third in both wheat and rice output. But India has only eight major wheat-producing states, as against 16 for rice. Rice is also a water-intensive crop, requiring about 25 irrigations compared to 4-5 for wheat. The problem of too much production — also reflected in the fiscal cost of procuring and stocking surplus grain — and depleting groundwater tables in Punjab, thus, stems more from rice than wheat.



— Haryana presents a far less of a monoculture cropping pattern... Rice accounts for less than half of the state's kharif crop area. Wheat, too, has just over three-fourths share of the overall rabi season acreage. Haryana farmers cultivate a fairly varied crop mix that includes cotton, bajra (pearl millet) and guar (cluster bean) in kharif, and rapeseed-mustard, chana (chickpea) and sunflower in rabi.

— Even within rice, 56.2 per cent of the average area in Haryana during 2019-20 to 2023-24 was planted to basmati varieties. Basmati paddy also consumes less water.

— Basmati paddy, unlike regular non-basmati varieties, is not procured at a fixed minimum support price (MSP) by government agencies. This rice is largely exported or sold at a premium in the domestic market. There is no “surplus” problem from growing basmati — and that is what is predominantly planted in Haryana.

— Haryana's more diversified cropping profile, extending to the rice varieties being cultivated, has a lot to do with agro-ecological factors. The state's extensive canal network of 1,594 channels having a length of 14,814 km...

— Haryana, in recent times, has sought to promote crop diversification through MSP procurement and price deficiency payments under a Bhavantar Bharpai Yojana (BBY) scheme.

For Your Information:

— Ashok Gulati , Reena Singh write: “The Centre and Punjab government deserve compliments for starting a new scheme to diversify agriculture and help farmers shift away from paddy. It gives them an incentive of Rs 17,500 per hectare to shift to less water-guzzling crops in the kharif season.”

— “The benefits of diversifying away from paddy in this belt are well-known. It will save their soil from degrading, save groundwater depletion, reduce greenhouse gas (GHG) emissions, and promote much-needed crop biodiversity.”

DreamIAS



LIFE & SCIENCE

WILL AN EXTENDED SPACE STAY AFFECT ASTRONAUTS?

The story so far:

On August 24, NASA announced that Boeing's Starliner crew capsule that took astronauts Sunita Williams and Barry Wilmore to the International Space Station (ISS), as part of its first crewed test flight, wasn't safe enough to transport them back. Instead, NASA extended Williams's and Wilmore's stay onboard the ISS until February 2025, when they will return in a SpaceX crew capsule to be launched in September 2024.

How does space affect the body?

While hundreds of astronauts have flown to space (100 km above mean sea level and experiencing microgravity conditions), they don't make up a cohort large enough for researchers to study and reliably elucidate all the effects of spaceflight on their bodies. They have also spent different amounts of time there and reported different symptoms after different trips. Nonetheless, some broad trends have emerged centred on the body's bones, digestion, eyes, heart, muscles and nerves. For example, in microgravity, bones become weaker. Food may move more slowly through the gut and lead to weight gain. Around 70% of astronauts involved in long-duration spaceflight develop a condition called spaceflight associated neuro-ocular syndrome (SANS): more fluids enter the head and build up at the back of the eye, affecting eyesight.

Further, because of the body's weightless experience, the heart is required to do less work and could shrink. Similarly, other parts of the musculature could shed muscle mass and strength. The blood loses more red blood cells per day than it does on the ground (a 2022 study in *Nature Medicine* quantified the loss rate but couldn't discern the cause), which means astronauts' diets need to be adjusted to deliver more energy for their bodies to make more of these cells. The signals from the body the brain uses to help maintain balance and a sense of place could also be disrupted in space.

What causes these symptoms?

Researchers have identified some important causes, including radiation exposure, confined environments, and gravitation.

Time is also an important factor. The longer astronauts spend in space, the more pronounced the symptoms. The average range of time an astronaut spends in space has increased from one minute to one month in the 1960s to 10 minutes to six months in the 2020s. Each expedition to the ISS can also be up to six months long. By January 31, 2025, Williams and Wilmore will have spent 240 days in space. Whether a mission is short or long, space agencies require their astronauts to adhere to a strict exercise regime and maintain predictable routines while in orbit in order to work the body without incurring stress. Agencies have also developed communication and work-management protocols that keep astronauts engaged as well as relaxed.

How much do we not know?

Our understanding of the effects of spaceflight on humans has many uncertainties. A June 2024 paper in *Nature Communications* said researchers still need to understand which effects of spaceflight are of "health-related importance", avoid over-interpreting data "given the small



sample sizes and the small number of studies”, establish “suitable ground controls”, and find alternative ways to replicate their findings. There are some specific results, however. Researchers are studying whether various nutrients and drugs are metabolised differently in space. They have already identified some changes in metabolic pathways involved in DNA and amino acid synthesis, and a condition in which excess iron in the body presents along with low urinary magnesium.

In a 2022 report, a group at NASA suggested developing a more portable optical coherence tomography machine to check for SANS onboard spacecraft. If it is present, the group recommended studying countermeasures including applying “lower body negative pressure”, exposure to artificial gravity through “human centrifugation”, and taking drugs that lower the intracranial pressure.

What is “space omics”?

“Space omics” is a set of studies involved in understanding all the ways in which the body can be affected by the space environment. A famous example is NASA’s Twins Study, where scientists examined differences in the bodies of two identical twins — astronauts Mark Kelly and Scott Kelly — after the latter spent a year in space. They found around 8,600 genes were expressed differently between them.

Scientists from around the world, including India, are part of the International Standards for Space Omics Processing to develop research and ethics guidelines for space omics.

SATURN’S RINGS WILL BRIEFLY ‘DISAPPEAR’ IN MARCH 2025. HERE’S WHY

There are few sights in the Solar System as majestic as the rings of Saturn. But in March 2025, these rings will “disappear” — though only briefly. Here is why.

An optical illusion

It is not as if the rings will cease to exist. Their “disappearance” — when viewed from Earth — will be an optical illusion.

Saturn, which is tilted at an angle of 26.73 degrees, takes about 29.4 Earth years to complete a single orbit of the Sun. This means that for half of a Saturn year (roughly 15 years), the gas giant is tilted towards the Sun, and for the other half it is tilted away from it. Its rings too are tilted at the same angle, and as the planet revolves, they appear to change their orientation when viewed from Earth.

Every 13 to 15 years, the edge of Saturn’s rings aligns directly with Earth. This is what will happen in March 2025 when only the edges of the ring will be visible from our planet. Since Saturn’s rings are very thin — just tens of metres thick in most places — at this position, they will reflect very little light, essentially making them invisible. (Imagine viewing the edge of a thin sheet of paper from a great distance.) But as Saturn continues to go around the Sun, its rings will gradually reappear.

This phenomenon last occurred in 2009.

But rings won’t last forever

NASA confirmed in 2018 that Saturn will indeed lose its rings for good. In fact Saturn’s rings are constantly being pulled towards the planet because of its gravity and magnetic field.



“We estimate that this ‘ring rain’ drains an amount of water products that could fill an Olympic-sized swimming pool from Saturn’s rings in half an hour,” NASA scientist James O’Donoghue said in 2018. At this rate, Saturn will completely lose its rings in the next 300 million years — or perhaps sooner.

Data from NASA’s Cassini spacecraft revealed that Saturn’s rings are made of billions of chunks of ice and rock, whose size varies from as small as grains of dust to as large as mountains. According to current consensus, the rings evolved just a 100 million years ago due to the collision of two icy moons. The debris from this event created Saturn’s signature rings.

It is possible that other gas giants like Jupiter, Uranus, and Neptune too had rings once. Today they have only thin ringlets, hard to capture even with a telescope.

Saturn, on the other hand, possesses rings that span a massive distance — nearly five times the diameter of Earth. There are seven major ring divisions, each possessing a complex structure.

FACTS ALONE FALL SHORT IN CORRECTING SCIENCE MISINFORMATION

Just the facts may not be enough to overcome misinformation, a recent study indicates. In an experiment, 152 college students, who had been exposed to misinformation, read one of two articles intended to give them the correct, scientifically backed information. Those who read an expository article which had “just the facts” retained more misconceptions than those who read an article with a refutation — meaning it specifically called out the false claims before presenting the facts.

The study published in *Journal of Research in Science Teaching* adds evidence that a refutation approach may be a better way to combat misinformation than traditional methods of communicating science.

For this study, researchers first tested what the student participants knew about putting fluoride in water.

The students then read two articles: one with false information saying that fluoridation is harmful and another presenting the scientific consensus that fluoridation is safe and prevents dental disease.

The participants all read the same misinformation text, but different groups read an article with the correct information either in a traditional “just the facts” style or one that first refuted the misinformation. The study also tested the effects of having the participants read the correct article before, or after, the misinformation.

Sorting facts

A post-test revealed that the students still learned under all four conditions — but the group that performed the worst had seen the misinformation first, followed by a “just the facts” type text. Those who had read the refutation article either before, or after, the misinformation had fewer misconceptions. They also had more positive emotions toward the subject.

With a profusion of information easily available on the internet, it can be hard for many people to sort fact from falsehood. This can cause a problem researchers call “conceptual contamination” — when learning incorrect information interferes with learning the correct information.



The researchers chose fluoridation for this experiment because it is less politically charged than other scientific topics like climate change or evolution. However, Danielson and his colleagues recently did a meta-analysis published in the journal Educational Psychologist of 76 other educational studies.

They found the refutational approach works well for a wide range of topics from noncontroversial issues in physics and chemistry to highly controversial ones including climate change and evolution as well as genetically modified foods and vaccines.

WHY IS GOOGLE ACCUSED OF BEING AN ILLEGAL MONOPOLY?

The story so far:

Google, the leading American technology company best known for its popular search engine, has lost a Court case filed against it by the U.S. Department of Justice in 2020 accusing the company of being an illegal monopoly. A U.S. District judge ruled earlier this month that the company indeed misused its dominant position in the market to block competitors from freely offering their services in the market.

Why was Google accused?

Google comes set up as the default search engine in most new phones, laptops and other electronic devices in the market. The company even pays billions of dollars each year, as a share from its advertisement revenues, to device manufacturers such as Apple, Samsung etc. to be featured as the default search engine in their devices. In fact, Google paid as much as \$20 billion in 2022 to Apple to be featured as the default search on Safari, Apple's default browser. Google has also paid web browser providers such as Mozilla to be featured as the default search engine in their browsers. This practice is advantageous to Google and unfair towards other search engine providers as users could end up sticking to the default search engine in their new devices rather than make the effort required to try out better search engines.

Is Google really a monopoly?

The sheer size of Google, which is the leading search engine in the world with a market share of over 90%, has led many to argue that the company is a monopoly that abuses its dominant market power. Such a dominant position, it is believed, allows Google to dictate terms when it deals with people who want to do business with it or even use its services. Some also note that a big technology company like Google would have far more influence on regulators and the law in general than smaller companies.

Others, including interestingly the judge who ruled against Google in this case, however, have argued that a large market share alone does not make a company a harmful or illegal monopoly. They note that even though it may be very hard to compete against a behemoth like Google due to certain advantages the company naturally enjoys as the market leader, the fact remains that there are still no legal barriers against entry into the market of competitors who want to compete against Google by offering a better product. Further, there is also no guarantee that Google's absolute dominance of the search engine market will last forever. Microsoft's significant dominance of the search engine market came to an end with the advent of Google. The same thing could happen to Google if a competitor offers a better product, they argue. It is also believed that the threat of entry of competitors with better products will keep Google on its toes and limit the extent to which the company can abuse its market power.



Supporters of Google also note that there is nothing wrong with Google sharing ad revenues with device manufacturers such as Apple and Samsung. In their view, the practice of paying to be featured as the default search engine is no different from a company buying key real estate space to gain better visibility. Further, Google's competitors are also free to pay for such privileges. Finally, Google itself has argued that its position as the market leader is not simply due to its ability to pay to be the default search engine but rather due to the superiority of its service.

What lies ahead?

Court proceedings on action against Google are expected to begin next month. The Court could order Google to stop sharing ad revenues with companies like Apple to be featured as the default search engine on their devices. It may also mandate that users should be given the choice to pick the default search engine in their browsers. Another possible action by the Court could be to force Google to share information that it holds about user searches, which is believed to be a major reason for Google's superior performance, helping competitors catch up. And while the chances are remote, the Court may also order that Google be broken up into multiple companies so that there is no single dominant player in the market. Finally, Google may decide to appeal against the Court's order.

WHAT IS THE SIGNIFICANCE OF FIRST GLOBAL 'LEGALLY BINDING' PACT ON USE OF AI

The United States, the European Union, and the United Kingdom (UK) are expected to sign the Council of Europe's convention on artificial intelligence (AI), the first "legally binding" international treaty on the use of the revolutionary new technology, on Thursday (September 5).

— The treaty, which prioritises human rights in its approach to the regulation of public and private-sector AI systems is seen as the first real agreement among the key players in the development of AI, amid concerns that disparate regulations proposed by individual countries could hinder the evolution of this technology.

— The treaty, officially known as the Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law, was opened for signature during a conference of Council of Europe Ministers of Justice in Vilnius, Lithuania, on Thursday.

— The treaty that was drafted over the past 24 months by more than 50 countries adopts a risk-based approach to the design, development, use, and decommissioning of AI systems.

— Signatories will be accountable for "any harmful and discriminatory outcomes of AI systems", and will ensure that "outputs of such systems respect equality and privacy rights, and that victims of AI-related rights violations have legal recourse".

— There are a few exemptions in the scope of applicability of the Framework Convention, such as national security and research and development. The treaty puts an obligation on parties to address the risks posed by activities within the lifecycle of AI by public and private actors.

— The treaty comes at a time when sovereign governments and smaller multilateral groups have come up with a clutch of new regulations and agreements to oversee AI tools, including the G7 pact on AI (October 2023), Europe's AI Act, and Bletchley Declaration signed by 28 countries (November 2023).



— Even though the treaty is being called “legally binding”, there are concerns that it does not contain provisions for punitive sanctions such as penalties or fines.

For Your Information:

— Even as the private industry innovates rapidly, lawmakers around the world are grappling with setting legislative guardrails around AI to curb some of its downsides. Recently, the IT Ministry issued an advisory to generative AI companies deploying “untested” systems in India to seek the government’s permission before doing so.

— However, after the government’s move was criticised by people from across the world, the government scrapped the advisory and issued a new one which had dropped the mention of seeking government approval.

— Last year, the EU reached a deal with member states on its AI Act which includes safeguards on the use of AI within the EU, including clear guardrails on its adoption by law enforcement agencies. Consumers have been empowered to launch complaints against any perceived violations.

HOW OPENAI’S PROJECT STRAWBERRY PROMISES TO BE AI’S NEXT BIG BREAKTHROUGH

OpenAI, the world’s premier artificial intelligence research organisation, will likely release its most powerful AI model this fall (September-November), and could integrate it into ChatGPT-5, the new version of the chatbot and virtual assistant that it launched in late 2022.

The secretive project, on which OpenAI has been working for long, was earlier known as Project Q* (Q-star), and is now codenamed Project Strawberry. It is expected to feature autonomous Internet research and dramatically improve AI reasoning capabilities, and has been billed as OpenAI’s push to create Artificial General Intelligence — AI with capabilities similar to that of the human brain.

On August 7, OpenAI CEO Sam Altman posted an image of strawberries growing in two pots to his X account. The tweet was seen as confirmation that OpenAI is working on the new and powerful large language model (LLM).

OpenAI was reported to have demonstrated a version of the new model to national security officials, seemingly a statement of its commitment to transparency at a time when the rapid development of AI has raised serious security concerns among national governments.

A wizard at math

The influential California-based tech industry business publication The Information reported on August 26 that Project Strawberry would be better at math and programming than any existing chatbot, quoting “two people who have been involved in the effort”.

Integration with ChatGPT will make the latter the most powerful AI chatbot there is, the report said. ChatGPT has sometimes struggled with math, and experts think the errors could be due to the absence of adequate mathematical information in the training data.

The Information report said that a demo by Project Strawberry staff had shown that the new AI model is capable of advanced levels of thinking, which allowed it to solve puzzles, including The New York Times ‘Connections’, a particularly difficult word puzzle.



Need for training

The Information said that Project Strawberry aims to raise more capital, which OpenAI needs for its next-frontier model, codenamed Orion.

The generation of high-quality training data for Orion is believed to be one of Project Strawberry's key applications. This is significant because most of the training data on the Internet has already been used, and there is now a dearth of information that is outside paywalls and authentication, and is free to access for the purpose of training AI models. Indeed, OpenAI has been of late making deals with publications to use their content for training.

Project Orion, which is being designed to outperform GPT-4, could use a combination of Project Strawberry and high-quality synthetic data that would likely reduce errors and hallucinations compared to its predecessors and other AI models.

Creating synthetic data

Altman has said that in order to try out different ways to train AI models, OpenAI has been testing how to generate large amounts of synthetic data. Generative AI models create synthetic data based on real-world data samples. The algorithms learn patterns, correlations, and statistical properties of the sample data; after it is trained, the model can produce statistically identical synthetic data.

The large datasets that AI models rely on could be prone to biases and errors, or could have incomplete or inaccurate information — high-quality synthetic data produced by Project Strawberry can fill gaps in real-world data sets and provide a more wholesome, inclusive, and balanced training set.

Many believe that the use of synthetic data can help make future AI models more neutral and fair, and reduce noise and irrelevant information — thereby improving both the efficiency of training and the accuracy of the model.

Big Strawberry leap

Based on what is known, Project Strawberry's improved reasoning, logic, and the ability to plan and carry out research, could allow the model to autonomously conduct experiments, analyse data, and come up with new hypotheses. This could potentially lead to scientific breakthroughs, including the discovery of new drugs. The models could also offer personalised education, creating educational content and interactive lessons.

DO AI AGENTS FORETELL THE NEXT WAVE OF AUTONOMY OR LIABILITY?

Assistants based on artificial intelligence (AI), such as Apple's Siri and Amazon's Alexa, have been around for more than a decade. An AI assistant can be defined in many ways. According to an April 2024 report, Google DeepMind defines "an AI assistant ... as an artificial agent with a natural language interface, the function of which is to plan and execute sequences of actions on the user's behalf across one or more domains and in line with the user's expectations".

What are AI agents?

The next-generation AI assistants are called AI agents (AIA) and are set to surpass their predecessors in ability as well as efficiency. AIAs can be broadly classified into three categories.



Reactive agents are first-generation AI agents developed to respond to specific inputs or commands. They follow predefined rules and perform tasks limited in scope as they can't learn anything new and lack the ability to adapt. Learning agents were enabled by machine learning, which enabled them to learn from experience. They have better abilities, such as pattern detection and data analysis, and can improve their performance over time. Finally, cognitive agents can reason, analyse, and plan. They have cognitive skills because they can learn from their environment, and adapt and make decisions based on algorithms and their own 'knowledge'. These agents use techniques including natural language processing, computer vision, and deep learning to perform tasks. The present generation of AIAs are cognitive agents. AIAs can perform multiple functions as users' agents or autonomously (that is without instructions or user intervention). They can be integrated with the 'internet of things', allowing them to connect with multiple devices and their sensors and collect and analyse data in real-time.

Cognitive AIAs can also 'understand' human speech and language and with this skill can perform tasks that require multiple proficiencies. For example, they can plan a trip after listening in on a user's phone calls and reading their emails, understanding their preferences, and parsing their previous travel experiences.

Recently, a Bengaluru-based startup launched an AIA that could autonomously handle items in a warehouse. It receives inputs as voice commands and responds with real-time decisions.

Companies and research facilities have also deployed AIAs to drive autonomous vehicles and to guide financial investments and treatment plans. A tool called Orby AI automates repetitive tasks while 4149 AI collaborates with humans inside apps like Slack and Notion to improve their productivity.

In sum, cognitive AIAs are not limited to their training data, are able to acquire new knowledge without human intervention, and can integrate with other systems. In turn, they enable personalisation by tailoring their responses to users' preferences and needs. But in doing so, cognitive AIAs also pose many risks.

Challenges posed by AIAs

In particular, cognitive AIAs highlight concerns over accountability, liability, and responsibility. Humans' increasing reliance on AIAs may also render them more vulnerable. For example, when an AIA plans a user's travel, it accesses and digests vast amounts of information about the user's plans, schedule, and financial instruments. In turn, the companies that build and offer such AIAs to users must explicitly protect users' privacy.

Since AIAs can learn and adapt, they can also develop and use hindsight. Such hindsight might remain sensitive to users' needs as well as moral principles; prioritise users' safety; and be able to navigate the responsibility to be of help without getting in the way of human autonomy and creativity.

Developers must also incorporate mechanisms that protect the AIAs from being manipulated by malafide actors, or at least keep the manipulated AIAs' effects from affecting users' data.

On agency and liability

Even as people adopt AIAs to help with more and more tasks, many unresolved legal and ethical issues persist. We obviously need better safety measures but they alone won't suffice. Since AIAs can be manipulated for malicious purposes, we need to constantly monitor them so they don't



harm the user, which in turn raises important questions about accountability that law and regulations must answer. For example, in the absence of a legal recognition of AI's personhood, the law won't admit AIAs' intentions as being distinct from the user's intentions.

In fact, while we call them "agents", AIAs possess no agency in the eye of the law. However it's possible to argue that their liability lies with its maker or a corresponding service provider. For example, earlier this year, a court held that Air Canada was liable after a Canadian man sued the airline for being misled by a chatbot on the airline's website about air fares.

Similarly, Catrin Misselhorn, who studies the philosophy of AI at the University of Gottingen, contended in a 2022 book that it's unfair to expect AIA users to assume all the responsibility for an AIA's misdeeds and that part of the blame lies with the programmers whose algorithms guided the AIA's decisions.

Even more fundamentally, Erez Firt, of the University of Haifa and Israel Institute of Technology, wrote in a February 2024 paper that even 'artificial moral agents' with sufficient autonomy and an understanding of human morals shouldn't be expected to develop human morals themselves.

Taken together, it should be clear that in many ways the issues surrounding the regulation of AIAs can't be separated from those surrounding the regulation of AI itself. With AIAs being developed for more labour-intensive sectors, we need a nuanced approach to address responsibility and liability on their part.

WHY GLOBAL MODELS WENT WRONG WITH THEIR LA NIÑA PREDICTIONS — AND WHAT ITS DELAY MEANS

All leading global agencies were significantly off the mark in their La Niña predictions this year.

India had pinned hopes on the influential climate phenomenon to drive enhanced rainfall during August-September. Now that a delay in La Niña's onset is imminent, what is the likely impact going to be in the upcoming months? And why did global weather models get their predictions wrong?

First, what is La Niña?

La Niña (or 'The Little Girl' in Spanish) is a phase of what climatologists refer to as the El Niño Southern Oscillation (ENSO), a phenomenon that is a key driver of global natural climate variability. ENSO is characterised by changes in sea temperatures along the tropical Pacific Ocean due to atmospheric fluctuations overhead. These changes alter and interfere with the global atmospheric circulation, and influence weather worldwide.

Occurring in irregular cycles of anywhere between two to seven years, ENSO has three phases — warm (El Niño or 'The Little Boy' in Spanish), cool (La Niña), and neutral.

During the neutral phase, the eastern Pacific (off the northwestern coast of South America) is cooler than the western Pacific (around Philippines and Indonesia). This is because prevailing trade winds — caused by Earth's rotation, between 30 degrees north and south of the equator — move east to west, sweeping warmer surface water along with them. The relatively cool waters from below rise to the surface to replace the displaced water.

These wind systems weaken in the El Niño phase, leading to lesser displacement of warmer waters off the American coasts. Consequently, the eastern Pacific becomes warmer than usual. The



opposite happens in the La Niña phase i.e. trade winds become stronger than usual and push larger quantities of water to the western Pacific.

In India, El Niño is associated with suppressed rainfall during the monsoon season, while La Niña is known to help monsoon activity. The previous El Niño event occurred between June 2023 and May 2024. Prior to that, one of the longest recorded La Niña episodes lasted from 2020 to 2023.

Anthropogenic climate change has exacerbated the impact of both El Niño and La Niña-related hazards, including high temperatures, heavy precipitation and droughts

What did global weather models predict this year?

One of the strongest El Niño events of all time ended this June, following which ENSO entered the neutral phase. Initial projections made by multiple global weather models suggested that the onset of La Niña conditions would occur around July. But by mid-July, it was clear that La Niña would be delayed.

At the time, the US-based National Oceanic and Atmospheric Administration (NOAA) had said that the transition from neutral to positive sea surface temperature, suggesting ENSO neutral giving way for La Niña, would take place between August and October. The Bureau of Meteorology (BoM), Australia, too, maintained the La Niña 'watch' stage in July, predicting the emergence of cooler-than-usual sea surface conditions in the latter half of this year.

The India Meteorological Department (IMD) had, since the first stage Long Range Forecast issued in mid-April, maintained that La Niña conditions would emerge during the later half of the June – September monsoon season. And most importantly, La Niña could enhance rainfall in the months of August and September. This year's seasonal prediction was dependent on the emergence of La Niña, resulting in 'above' normal rainfall in the final two monsoon months (more on that later).

Why were initial predictions off the mark?

There is no single reason behind the predictions being off the mark. Moreover, while almost all predictions got the onset timing wrong, they were largely accurate about the severity of the upcoming La Niña, expected to be fairly weak this time around.

In fact, a primary reason cited by weather modellers and meteorologists for the error in predicting La Niña's onset is its severity. Weather models are likely to better pick up signals in cases of strong La Niña (or El Niño) phases, rather than weak ones.

Moreover, there are other factors that impact surface and subsurface conditions across the Pacific Ocean. In particular, these include the inter-seasonal variability in the atmosphere, wind and pressure, directly linked to the movement of the Madden Julian Oscillation (MJO), an eastward moving band of rain-bearing winds and clouds. The interplay of different weather systems makes predictions harder.

Currently, ENSO-neutral conditions continue to prevail in the Pacific Ocean, as per NOAA. The latest predictions suggest that the earliest signs of the onset of La Niña will likely emerge by the end of September or in early October. La Niña would peak in November, and is expected to last throughout the winter in the northern hemisphere.



How has the delay in La Niña's onset impacted India's monsoon?

La Niña is known to enhance the rainfall during the southwest monsoon, India's chief rainy season which lasts from June to September. Since the monsoon has already reached its fag end, and La Niña conditions are yet to emerge in the equatorial Pacific Ocean, the climatic phenomenon will play no direct role in the country's rainfall at the moment.

But, there are many other factors which affect the rainfall during the monsoon season, and a delayed La Niña onset does not definitely mean an adverse monsoon performance. This has largely been the case so far.

In August, India as a whole recorded nearly 16 per cent surplus rainfall. The forecast for September too is promising, with the IMD predicting a 109 per cent 'above' normal rainfall over most geographical areas (where 100 denotes normal rainfall).

Overall in this season, starting from June, India has received rainfall that is 8 per cent more than normal. But, as is expected, there are wide variations in precipitation at the regional level. Almost every state in the east and the northeastern region has seen deficient rainfall, and so have many states in the north and the northwest. Central and south India have, however, received more than normal rainfall till now.

What does the La Niña outlook look like in the coming months?

Supposing La Niña's onset begins by late September-October, it could still influence India's weather later in the year.

Notably, it could influence rainfall during the northeast monsoon season (October – December). Also known as the winter monsoon, this is limited to Tamil Nadu, coastal Andhra Pradesh, Rayalaseema, southern interior Karnataka and Kerala. Climatologically, La Niña does not favour northeast monsoon rainfall. That said, there have been exceptions in the past. Moreover, since all these meteorological subdivisions have received either normal or surplus rainfall during the ongoing southwest monsoon, the possibility of lower rainfall later in the year should not be a worry at present.

The north Indian Ocean basin — which covers the Bay of Bengal and the Arabian Sea — sees cyclone development during March to May, and October to December, with peak activity during May and November. During La Niña years, climatologically there are high chances of frequent cyclogenesis, with storms having above-average intensity, and longer-than-average life. This will be something that Met officials and administrators will be watching out for.

Lastly, La Niña years in the past have typically seen harsher, colder winters.

TO FIND HOW MUCH CARBON IT HOLDS, AMAZON IS BEING SURVEYED LIKE NEVER BEFORE

The study is part of a new, multimillion-dollar effort in dozens of patches of forest across the world that's aimed at figuring out, to an unprecedented degree of precision, the extent to which forests perform an epic service to humanity by capturing and locking away huge amounts of carbon dioxide, the main planet-warming greenhouse gas.



— Tropical forest and other land absorbs one-third of all the world's planet-warming carbon dioxide emissions. The Amazon, despite its immensity, is actually particularly fragile. This year, fires in the Brazilian Amazon hit a 14-year high. The whole region was bathed in smoke.

— Scientists have been warning for years that the Amazon is nearing a tipping point where it shifts from capturing carbon dioxide to being a net emitter of it. As it shrinks, it becomes less able to pull water from the ocean and sustain its lushness (which, in a climate-system way of thinking, is also its ability to store carbon).

For Your Information:

— The Amazon forests in South America are the largest tropical forests in the world.

— The Amazon basin is huge with an area covering over 6 million square kilometres, it is nearly twice the size of India. The Amazon rainforests cover about 80 per cent of the basin and as per NASA's Earth observatory, they are home to nearly a fifth of the world's land species and is also home to about 30 million people including hundreds of indigenous groups and several isolated tribes.

— Other than this, the basin produces about 20 per cent of the world's flow of freshwater into the oceans. Over the last few years, the forest has been under threat due to deforestation and burning.

CLIMATE CHANGE THREATENS SOUTH KOREA'S BELOVED KIMCHI

South Korea's famous kimchi is falling victim to climate change, with scientists, farmers, and manufacturers saying the quality and quantity of the napa cabbage that is pickled to make the ubiquitous dish is suffering due to rising temperatures.

Napa cabbage thrives in cooler climates and is usually planted in mountainous regions where temperatures during the key growing summer season once rarely rose above 25 Celsius.

Studies show that warmer weather brought about by climate change is now threatening these crops, so much so that South Korea might not be able to grow napa cabbage one day due to the intensifying heat.

"We hope these predictions don't come to pass," plant pathologist and virologist Lee Young-gyu said.

"Cabbage likes to grow in cool climates and adapts to a very narrow band of temperatures," Lee said. "The optimal temperatures are between 18 and 21 Celsius."

In the fields and in kitchens — both commercial and domestic — farmers and kimchi makers are already feeling the change.

Spicy, fermented kimchi is made from other vegetables such as radish, cucumber, and green onion, but the most popular dish remains cabbage-based.

EXPRESS VIEW: WHO'S A CLEVER DOG?

Who has a tail that never stops wagging, ears that perk up at the mention of a walk or chicken, and a brain that can remember the names of toys, years after those toys get lost and/or chewed up and thrown out? As those who have spent any time with one would attest, the good boys and girls



of the world — doggos and puppies, as they are known on the internet — are also very clever boys and girls. A study at the Eotvos Lorand University in Hungary has found that dogs can store up to a dozen object names in their long-term memory, correctly identifying toys that they have not seen in two years.

For scientists, this is an important finding which could lead to a greater understanding of the parts of the brain connected to the mechanics and evolution of language, given the connection between long-term memory and linguistic skills. The fact that dogs are capable of such feats of memory — on top of their incredible emotional intelligence and ability to “read” humans — also opens up greater possibilities for their deployment as service and emotional support animals, as well as in search and rescue operations.

Dogs, of course, are not unique in their startling displays of intelligence — other species, like squirrels, octopi, rats and crows, too have demonstrated problem-solving skills and the ability to retrieve information from their long-term memory. What makes canine intelligence special, however, is that it seems to have developed as a response to the close, millennia-long relationship between dogs and humans. In other words, it is because of domestication that puppies, even when they’re mere weeks old, are better at understanding humans and using that knowledge to infer information about the environment, like where the treats are hidden. So humans can, perhaps, claim some credit for the intelligence of their furry companions. But dogs’ seemingly unending store of love and loyalty? That’s entirely down to their own selves.

WHY NAMIBIA PLANS TO KILL HUNDREDS OF ITS MAJESTIC WILD ANIMALS FOR MEAT

Namibia plans to cull hundreds of its most majestic wild animals, including dozens of elephants and hippopotamuses, to provide meat for its 1.4 million people — nearly half the southern African nation’s population — who are reeling under the worst drought in a century.

A total 723 animals, including 30 hippopotamuses, 60 buffaloes, 50 impalas, 100 blue wildebeest, 300 zebras, 83 elephants, and 100 elands, a type of antelope, are on the kill list. More than 150 animals have been killed already, and the carcasses have yielded about 63 tonnes of meat.

What has led to the drought in Namibia?

Namibia is located in drought-prone southern Africa, and frequently witnesses such events — it had declared national emergencies because of extreme droughts in 2013, 2016 and 2019. But the ongoing drought has been especially widespread and devastating, Juliane Zeidler, the country director of the World Wildlife Fund in Namibia, told The New York Times.

The drought began in Botswana in October 2023, spread and intensified across Angola, Zambia, Zimbabwe, and Namibia, and affects most of southern Africa today, according to a report by the European Commission.

The situation is so bad mainly because of El Niño, a weather pattern associated with extreme heat and dry spells in many parts of the world and the ocean. An El Niño event returned after seven years in 2023, leading to above-average temperatures and minimal precipitation across the region. Severe soil moisture deficits and vegetation stress followed, resulting in drought.

Also, numerous studies have found that with rising temperatures due to climate change, extreme weather events such as droughts and floods have become more frequent and intense.



How has the drought impacted Namibia?

Food availability is usually low in Namibia from July through September, and the situation has been made worse by the drought. Staple crops such as maize have dried up, large numbers of livestock have died, and almost 84% of the country's food reserves are exhausted, a United Nations spokesman said on August 23. As stocks have diminished, prices have skyrocketed, curtailing access to food for a large number of people.

Severe acute malnutrition among children under five has increased, and deaths have been reported in some areas, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) has said.

OCHA has also flagged the increased vulnerability of women due to the drought: "As women and girls are required to walk longer distances to collect food and water, their risk of being subjected to gender-based violence also increases."

How would the culling of wild animals help?

It is not just for meat that Namibia wants to cull wild animals. The government fears that the drought will force the animals to migrate in search of food and water, which could bring them into conflict with human populations. The country has a significant number of wild animals, including 24,000 elephants, one of the largest populations in the world.

The Ministry of Environment, Forestry and Tourism statement said it also hopes that culling of some animals would reduce the effect of the drought on wildlife. It would help "in managing the current grazing pressure and water availability...in some parks and communal areas where we feel numbers exceed available grazing and water," the ministry said.

Is killing wild animals for meat unusual?

No. Wild animals of various species are hunted for food, sport, or trophies around the world. Animals such as zebras, blue wildebeest, and impala, which are on Namibia's cull list, are commonly eaten by people in the southern African region, The NYT report said.

Rose Mwebaza, director of the United Nations Environment Programme's Africa Office, told The NYT that "provided the harvesting of these animals is done using scientifically proven, sustainable methods that consider animal welfare and are in line with both domestic and international commitments and legislation, there should be no cause for concern".

EXPLOITING SIGNALS

Fireflies rely on flashing signals to communicate with other fireflies using light-emitting lanterns on their abdomens. In fireflies of the species *Abscondita terminalis*, males make multi-pulse flashes with two lanterns to attract females, and females make single-pulse flashes with their one lantern to attract males. Researchers now have evidence that an orb-weaving spider (*Araneus ventricosus*) manipulates the flashing signals of male fireflies ensnared in its web such that they mimic the typical flashes of a female firefly, thereby luring other males to serve as their next meal. They found that the spider's web more often captured male fireflies when the spider was present. The signals made by male fireflies looked a lot more like the signals of free females. Specifically, the ensnared males used single-pulse signals using only one of their lanterns, not both. The



findings suggested that the males weren't altering their flashes as a distress signal. The researchers propose that the spiders alter the firefly's signal.

THE CHEMICAL TREASURY IN GARLIC

Those parts of a plant that are below the ground are particularly vulnerable to attack. Bacteria, fungi, nematodes, larvae, snails, mice—the list of threats is long. Not surprisingly, plants such as onion and garlic, which store food for future growth in underground bulbs, have equipped themselves with defensive chemicals of every conceivable hue and variety.

A recent inventory of the molecular army of garlic, using very sensitive analytical tools of chemistry has shown that there are over 2,300 chemicals in its cloves. Most of them are there for reasons that we do not comprehend yet. Barely 70 of these figures are in today's nutrition charts. These include manganese, selenium, and vitamin B6: three human nutrients that garlic is particularly rich in.

Many of the other constituents – thiosulfates, lectins, saponins and flavonoids, to name a few - can play protective roles in humans too. It is not surprising that humans have a long history of incorporating garlic into their diets. Sumerian clay tablets from 4000 years ago have recipes that use garlic. And beyond nutritive value, garlic has been used for its medicinal properties in many cultures.

In our tradition

In Ayurveda, warm garlic-infused milk, Lasuna Ksheerapaka, is beneficial for respiratory conditions such as asthma, cough, and common cold, and for generally improving body strength. Similarly, garlic-infused water (lasuna phata) is used as a tonic, improving digestion by stimulating the secretion of digestive enzymes, and by its carminative properties, which reduce gas formation.

The pungent flavour that is characteristic of garlic and related species comes from a sulphur-containing compound. Allicin is not present in fresh garlic. It is produced when an odour-free precursor called alliin is acted upon by an enzyme. The two are brought together when garlic is chopped, crushed, or even chewed.

Allicin interacts with receptors found on sensory neurons in the trigeminal nerve, which gathers sensations from the mouth and the nose. The pungent taste of garlic is a result of this interaction.

Allicin and other garlic constituents such as diallyl disulfide have an influence on inflammatory processes.

Beneficial effects include the regulation of blood pressure and positive trends in cardiovascular health. Another constituent, the flavonoid luteolin, inhibits the formation and aggregation of amyloid beta plaques, which are major hallmarks of Alzheimer's disease.

Ongoing research may one day pinpoint the roles played by the many other chemicals in garlic.

Some of these, individually or in combination, may contribute to the betterment of human health. What we know today is that moderation is key to the beneficial use of garlic in our diet, to avoid side effects such as heartburn and diarrhoea. Some health practitioners say that four grams every day is about the right amount.



India is the second largest producer of garlic. Impressive varieties of garlic such as the Riya van come from Neemuch and Ratlam in Madhya Pradesh, the largest garlic-producing State.

In South India, Karnataka's Gadag local varieties, with their strong, pungent flavor and aroma sell very well. And then there are the Kashmiri varieties. No matter what your preferences are, a little garlic may add spice to your life and to your health.

SCIENTISTS ARE RESEARCHING WAYS TO GROW COCOA INDOORS

Climate change is stressing rainforests where the highly sensitive cocoa bean grows, but chocolate lovers need not despair, say companies that are researching other ways to grow cocoa or develop cocoa substitutes.

Scientists and entrepreneurs are working on ways to make more cocoa that stretch well beyond the tropics, from Northern California to Israel.

California Cultured, a plant cell culture company, is growing cocoa from cell cultures at a facility in West Sacramento, California, with plans to start selling its products next year. It puts cocoa bean cells in a vat with sugar water so they reproduce quickly and reach maturity in a week rather than the six to eight months a traditional harvest takes, said Alan Perlstein, the company's chief executive. The process also no longer requires as much water or arduous labour.

Cocoa trees grow about 20 degrees north and south of the equator in regions with warm weather and abundant rain, including West Africa and South America. Climate change is expected to dry out the land under the additional heat. So scientists, entrepreneurs, and chocolate-lovers are coming up with ways to grow cocoa and make the crop more resilient and more resistant to pests.

The market for chocolate is massive with sales in the U.S. surpassing \$25 billion in 2023, according to the National Confectioners Association. Many entrepreneurs are betting on demand growing faster than the supply of cocoa. Companies are looking at either bolstering the supply with cell-based cocoa or offering alternatives made from oats or carob.

The price of cocoa soared earlier this year because of demand and troubles with the crop in West Africa due to plant disease and changes in weather. The region produces the bulk of the world's cocoa.

The innovation is largely driven by demand for chocolate in the U.S. and Europe, Martin said. While three-quarters of the world's cocoa is grown in West and Central Africa, only 4% is consumed there, she said.

The push to produce cocoa indoors in the U.S. comes after other products, such as chicken meat, have already been grown in labs. It also comes as supermarket shelves fill with evolving snack options — something that developers of cocoa alternatives say shows people are ready to try what looks and tastes like a chocolate chip cookie even if the chip contains a cocoa substitute.

DID ANIMALS DEVELOP COMPLEX BRAINS TO DEAL WITH CHALLENGING HABITATS?

Traditionally, complex behaviour has been linked to brain size and the brain-to-body size ratio. But researchers have unearthed new insights that complicate this picture. Analysing the brains of closely related lizard species from the lush green biodiversity of Puerto Rico, for example, Dr. Storks and his team found signs of a relationship between diverse habitats and brain complexity.



In a paper published recently in the journal *Biology Letters*, the researchers wrote, “Cognitive demands are likely higher in more complex habitats, as an animal must coordinate movement along a larger number of potential paths.”

GENE OF THRONES: RULERS’ GENOMES REVEAL HOW EMPIRES ROSE AND FELL

Empires of old are shrouded in mystery and are the subject of intense historical investigation. Given the enormous time scales and the lack of written records, accurate details of most founders of these empires have been lost to the vagaries of oral history. Many of them have been turned into legends, their life stories left to be pieced together from various fables.

Some scholars have held that most ancient empires started out as smaller nomadic groups that went on to assimilate various tribal units, under the leadership of a small, elite nucleus often made up of certain families. These elite individuals and the societies they shaped bonded through war, disease outbreaks, and large-scale migration to lay the foundations of large protectorates.

They are now being slowly brought into view by items from graves at archaeological sites, including the remains of human burials and silver, gold, and other artefacts, and the increasingly advanced tools and methods scientists are using to pry their secrets from them.

A new view of history

Palaeogenomics — the analysis of ancient DNA from archaeological sites — is an important way for scientists to understand the past. For example, they have investigated the genomes of individuals from the now-extinct Paleo-Eskimo, the first culture known to settle in Greenland, to reveal their migration from Siberia to the New World around 5,500 years ago. Ancient DNA from the world’s tropical regions has been a challenge to study because the skeletal remains that host them decay rapidly in the warm, wet weather. Nevertheless, advances in palaeogenomics allowed researchers to obtain and sequence the genome of a 4000-year-old strand of hair belonging to an individual from the Middle Nile Valley in eastern Africa, allowing them to unravel the history of population dispersal on the continent.

Studies involving human DNA from the Bronze Age in Eurasia have provided clues about the routes along which people migrated, how their various cultures and languages mixed, and even how some of them developed lactose intolerance.

Palaeogenomics has significantly improved our knowledge of human evolution, spread and development. To recognise his efforts to establish this discipline, Svante Pääbo received the Nobel Prize in Physiology or Medicine in 2022.

The Avar and the Xiongnu

Today, researchers are able to elicit from ancient DNA particular details about ancient human societies as well. For example, the Avars, a mysterious group of horse-riding warriors, ruled vast swathes of modern-day Hungary, Romania, Slovakia, Austria, and Serbia for more than two centuries. They helped end the Roman empire and dominated large parts of Europe in the sixth century AD.

Their origins have been unclear and a topic of intense debate among genomics scholars. Some believe the Avars migrated from Mongolia and were successors of the Mongolian Steppe Rouran



empire. After a resounding defeat at the hands of the Turks, they travelled west into Europe, where they held sway for over 200 years.

However, the start of this history is blurry, at best, because historical records from the 5th and 6th centuries provide contradicting information about where the Avars came from.

To crack this puzzle, an international team of researchers examined some items at gravesites created before and after the Avars arrived in Europe. The sites founded by Avar communities in Europe had large burial mounds surrounded by gold earrings, pendants, bracelets, gold and silver vessels, swords, weapons, and horse-riding equipment, indicating the elite status of the buried individuals. By examining the skeletal remains of these individuals, the researchers determined that the genetic compositions of pre-Avar individuals were closer to those of present day central and eastern Europeans — whereas the genomes of the Avar elite closely matched individuals laid to rest in the 6th century in Central Asia.

Thus it was clear that the Avars were originally from Mongolia and that they migrated more than 7,000 km across the vast grasslands of Asia within a single generation.

The lack of inbreeding among the buried Avar individuals also suggested the Avar migration party probably consisted of thousands of individuals, not just a few elites. This long distance trans-Eurasian movement was one of the fastest in ancient times.

Further investigations of gravesites created over a period of time revealed the Avar genetic material had intermixed with the local population. That is, the Avar non-elite probably interbred with the local population even as their rulers placed a premium on not doing so.

The findings were published in April 2022 in Cell.

A study published a year later, in Science, took a similarly close look at members of the Xiongnu empire, among the first of many nomadic steppe kingdoms that arose in Eurasia and ruled over large parts of Central Asia. These members belonged to both nomadic and sedentary groups of people from diverse ethnic backgrounds, led by an aristocratic elite group. Palaeogenomic studies at Xiongnu burial sites revealed high genetic diversity in individuals occupying the lower strata of their society, implying diverse origins. The aristocrats on the other hand had lower genetic diversity as well as Eurasian ancestry.

The story of the Longobards

In the fifth century AD, the Roman Empire collapsed. The Longobards, a tribe from an area that we today call Germany, had a large influence on post-Roman social dynamics, reflected in their genetic diversity. The Longobards moved from Germany's north to the south and conquered the area around present-day Austria and Slovakia. From here, they moved quickly to invade northern Italy, which had been severely depopulated after a long war. Together with a large number of other tribes the Longobards finally invaded all of Italy to establish a kingdom that ruled for over 200 years.

Studies of the remains of Longobard elites have found that close-knit relationships among these individuals may have played an important part in maintaining their society.

On August 19, the Proceedings of the National Academy of Sciences published a study authored by an international group of researchers, led by Stony Brook University in New York. It described ancient DNA from 28 elite gravesites plus 24 previously sequenced genomes associated with the



Longobards. They combined paleogenomics with archaeological and isotopic data to piece together social interactions, burial customs, and dietary habits among the Longobards.

They reported that the community was organised around a few related elite individuals drawn from multiple families. These families had also intermarried over time to ensure political power remained among their relatives.

This tradition gave way during the empire's twilight when the families welcomed local community leaders as well in a bid to retain power.

Since its first application to unravel the genome sequence of a single Neandertal individual, researchers have used palaeogenomics for population-scale studies with great success — so much so that they stand today to help historiography, anthropology, and sociology make big advances as well.

'BRAZEN' CLAIMS BY DRUG MAKER TRIGGER CURIOSITY ABOUT AN OLD EYE CONDITION

A pharmaceutical company's eye drops, developed to reduce dependency on reading glasses, have been mired in controversy ever since the company first said it had received approval from the Drug Controller General of India. A media report subsequently stated that claims about the approval and of the drops offering spectacular treatment for presbyopia were "unethical and false presentation of facts," and the company has been asked for an explanation. But through all of this, there has been renewed interest in presbyopia — what is it, and whom does it affect?

Presbyopia, states the Mayo Clinic's website, is the gradual loss of your eyes' ability to focus on nearby objects. It's a natural part of aging. Presbyopia usually becomes noticeable in your early to mid-40s and continues to worsen until around age 65.

Why does presbyopia occur? When you are young, the lens in your eye (behind your iris) has the ability to change shape — which means it allows you to focus on things that are both far away and close by. As you get older, this flexibility or elasticity of the lens decreases, and it becomes more rigid and is no longer able to change shape to focus on close-up objects, making them seem out of focus. There is no way to stop this ageing process, but it can be corrected, as is usually done with reading glasses.

"By the age of about 40," says Mohan Rajan, chairman and medical director of Rajan Eye Care Hospital, "people may need +1 reading glasses. This power will gradually increase as they age: by about 45, you may need +1.5; by 50, you may need +2, and so on. This is a common and universal condition," he said.

So where do the eye drops come in? A press release from the manufacturer, ENTOD Pharmaceuticals, states: "The proprietary formula not only gets rid of reading glasses but also helps the patient lubricate their eyes as a side benefit. These eye drops utilise advanced dynamic buffer technology to swiftly adapt to tear pH, ensuring consistent efficacy and safety for extended use, keeping in mind that such drops will be used for years at a stretch."

Doctors however urge caution: pilocarpine, an ingredient in the eye drops, works by constricting the pupil, they say and can have multiple side effects.

"This is not a new drug – it has been used for decades for glaucoma," said S. Soundari, medical director, Dr. Agarwal's Eye Hospital in Chennai. "However, now, there are better drugs to treat



glaucoma. Pilocarpine can have a number of side effects: it can cause headaches, blur the vision, hamper night vision since the pupil becomes smaller, over the course of many years, this can cause problems with pupil dilation, which may be needed for instance, if the patient needs a cataract surgery. We also don't know how effective the drops will be for all categories of presbyopia patients. So caution must be exercised," Dr Soundari pointed out.

NIGHTTIME LIGHT POLLUTION LINKED TO INCREASED ALZHEIMER'S RISK: WHAT A NEW STUDY SAYS

Researchers in the US have found a correlation between light pollution at night and the incidence of Alzheimer's disease.

"Exposure to artificial light at night is one environmental factor that may influence Alzheimer's," researchers Robin Voigt, Bichun Ouyang, and Ali Keshavarzian of Chicago's Rush University Medical Center wrote in the study published in *Frontiers in Neuroscience* on Friday.

The disease

Alzheimer's is the most common type of dementia, an umbrella term for a range of conditions that involve the loss of cognitive functioning. It involves the formation of plaques and tangles in the brain, and the accelerated aging of certain neurons concerned with storage and processing of memory.

Early symptoms include forgetfulness — and as the illness progresses, patients become more confused, lose their way around familiar places, and have difficulties with planning and completing simple tasks.

According to WHO estimates from 2023, more than 55 million people suffer from dementia worldwide, with Alzheimer's contributing to around 75% of these cases. Anywhere between 3 and 9 million Indians are believed to suffer from the disease, a number that is set to grow as India's population ages.

Latest drugs may slow down cognitive decline, but there is no cure available yet.

The study

Earlier research has suggested that multiple factors may contribute to Alzheimer's, from genetics and medical conditions to environmental stresses. The new study adds to this scholarship by introducing a new environmental factor — light pollution — that hasn't been previously considered.

The study used satellite-acquired light pollution data from the US, and mapped it along with publicly available Medicare data reports on the prevalence of Alzheimer's. Other medical data on variables known or believed to be risk factors were incorporated into the analysis.

Researchers found that while conditions like diabetes and hypertension were correlated more strongly with the prevalence of Alzheimer's than night-time light intensity, the latter was more strongly associated with the disease than alcohol abuse, chronic kidney disease, depression, heart failure, and obesity — all commonly cited risk factors.

The correlation with light exposure was more stark when it came to early-onset Alzheimer's i.e., for those under the age of 65.



Robin Voigt, one of the study's authors, told The Guardian that exposure to light at night disrupts natural circadian rhythms and hampers sleep, making individuals more susceptible to the disease. Additionally, "disruption of circadian rhythms is associated with increased risk of diseases that are risk factors for Alzheimer's including obesity, diabetes, and depression," the study says.

Too much light

As much as 80% of the global population experiences light pollution.

Although these artificial night-time lights are most often seen as harmless — and sometimes even beneficial (for safety, etc.) — recent research has shown numerous negative impacts of these lights, both to humans and the environment. The latest study adds to the growing scholarship on the subject, and raises an issue that should (but currently does not) concern policymakers.

LIMITED ACCESS TO MENTAL HEALTHCARE DESPITE RISING DEMAND

The demand for mental healthcare is increasing in India thanks to shifts in attitudes over the years. However, data show that there is no commensurate rise in the number of mental health professionals.

The World Health Organization's guidelines state that there should be at least three practising psychiatrists per one lakh population. As per the latest National Mental Health Survey (NMHS), which was conducted between 2015 and 2016, India has only 0.75 psychiatrists per 1 lakh population.

In its 2023 report, 'Mental Healthcare and Its Management in Contemporary Times,' the Parliamentary Standing Committee on Health and Family Welfare stated that there were 9,000 working psychiatrists in India at the time. If the goal is to have three psychiatrists per one lakh population, India would require 36,000, the report said.

The report also pointed out that about 1,000 psychiatrists enter the workforce every year. Keeping aside factors such as attrition and unemployment, it would take India about 27 years to meet the WHO-recommended goal. If India wants to achieve this mark earlier, it requires a policy intervention with adequate incentives to increase supply.

India's rate of 0.75 is poor compared to other countries. Among the BRICS nations (updated list), India is one of the two countries with the lowest number of psychiatrists per capita; the other is Ethiopia, which employs 0.1 psychiatrists per 1 lakh population. However, India fares better in South Asia.

It is important to note here that the 2023 Parliamentary Committee had to rely on the NMHS, conducted almost a decade ago, for its findings. Also, the NMHS was conducted in 12 States, covering about 40,000 people, a considerably "small sample", according to the Standing Committee. The Committee's report also highlighted that the NMHS only collected data on specific mental illnesses, overlooking milder manifestations such as emotional breakdowns that also require intervention. Further, the NMHS did not include samples from particularly vulnerable populations such as prisoners, the homeless, and the institutionalised. The second edition of the NMHS is scheduled to be rolled out later next year.

Of the 12 surveyed States in the NMHS, Kerala was the only one that employed more than one psychiatrist per one lakh people. Manipur and West Bengal ranked second and third, respectively,



with 0.5 psychiatrists per one lakh people. Tamil Nadu ranked 7th with a rate of 0.3. States in north and central India, such as Uttar Pradesh, Chhattisgarh, Rajasthan, and Madhya Pradesh, ranked the lowest.

Although the numbers indicate that accessibility to mental healthcare has become stagnant, there seems to be an increase in awareness and a decrease in stigma towards it. A study conducted by the LiveLoveLaugh Foundation, titled 'How India Perceives Mental Health 2021', said that there was a notable improvement in attitudes and treatment-seeking behaviour among Indians when compared to the previous edition of the study in 2018 (Chart 4).

There was a significant increase (from 32% in 2018 to 65% in 2021) in the share of respondents who said that individuals with mental illnesses can be given responsibilities. More than 90% of the respondents in 2021 said that they would be willing to seek treatment for themselves, or would be supportive of an individual accessing mental healthcare, compared to 54% in 2018. The share of respondents who were aware of mental health increased from 87% to 96%.

A SILENT EPIDEMIC STALKS

India is poised for rapid economic growth, potentially spurred by a young population driving production and demand. In the process, inevitably, lifestyles are being dramatically altered for the worse. India now reports the highest growth of ultra-processed food consumption among the youth, as well as low levels of exercise and adequate sleep.

— Cultural changes, including smartphones and a preponderance of English in schools, are also associated with weakened family relationships.

— Until recently, in the absence of extensive data, the role of these factors on mental well-being, encompassing our full range of mental capability, was not well understood.

— Recent findings based on a large database of over 1,50,000 individuals in India are beginning to shed light on the correlates of mental well-being among adolescents. The findings are dire. There is a silent epidemic of mental ill-health in India.

— Previous studies have found that ownership of smartphones is “frying” the brain. Data also suggests that it is not merely the ownership of a phone but also the early age of access that is associated with worse cognition and mental well-being as young adults.

— Analysis of recently collected data suggests that the earlier age of access to smartphones is associated with a lower likelihood of college completion. The American philosopher David Henry Thoreau remarked over 175 years ago, “Technology is an improved means to an unimproved end.”

— India reports the highest growth in consumption of ultra-processed foods. Some evidence suggests that these foods are as addictive as smoking. Recent data globally and from India shows a strong association between the consumption of ultra-processed foods and poor mental well-being, particularly the capacities for emotional and cognitive control.

— Finally, data shows that family closeness is strongly associated with better mental well-being, in particular, mood and outlook, and the ability to relate to others. Teenagers responding to the surveys in the regional language report substantially stronger family bonds and a better ability to relate to others than their counterparts responding in English.



— The positive association between physical exercise and mental well-being is well established, particularly with respect to energy, the experience of pain, and the ability to focus. The challenge is to inculcate a habit of exercise despite constraints...

— India's economic growth is closely tied to the youth, so we must intervene before it's too late.

— Addressing the mental health epidemic is both urgent and important. Otherwise, in a few years, we will realise that the modern lifestyle — smartphones and processed foods — has eviscerated India's demographic dividend.

For Your Information:

— According to Indu Bhushan, "Suicide rates in India are amongst the highest when compared to other countries at the same socio-economic level. According to WHO, India's suicide rate in 2019, at 12.9/1,00,000, was higher than the regional average of 10.2 and the global average of 9.0. Suicide has become the leading cause of death among those aged 15–29 in India."

— "While every precious life lost through suicide is one too many, it represents only the tip of the mental health iceberg in the country, particularly among young adults. Women tend to suffer more. Across the world, the prevalence of some mental health disorders is consistently higher among women as compared to men."

FLU SPIKES WHEN SCHOOLS REOPEN

Why do people catch colds and flu more often in the winter? Are viruses transmitted more easily in damp air? Is the resistance of the population reduced by the cold and lack of sunlight, or do the viruses simply take advantage of the greater time we spend indoors with each other?

A: There is no one reason why we get more colds and flu in winter. The rhinovirus, which is responsible for up to 40% of colds, cultures better at a temperature of 32 degrees C rather than the normal body temperature of 37 degrees C. However, 32 degrees C is the normal temperature of the lining of the nose, which is good news for the virus.

We do tend to be indoors more often in poorly ventilated areas during the winter and this aids the airborne transmission of the virus. Similarly, ultraviolet rays will kill viruses and this may be another factor as there is obviously much less sunlight in winter.

However, it is believed that one of the biggest factors for the great increase in colds that occurs in early autumn and just after Christmas is the return of students to schools and colleges.

Children and teenagers are far more susceptible to infection as their immune system learns how to combat more infections as they get older and have been exposed to more of the 200 or so viruses responsible for the common cold.

Densely packed nurseries, schools, and colleges provide an ideal breeding ground for viruses that then spread out into the community, aided by the cold damp weather.

MOBILE PHONES DON'T CAUSE BRAIN CANCER, SAYS WHO STUDY

Using mobile phones, no matter how long, is not linked to brain and head cancers, according to a comprehensive review of the highest quality evidence commissioned by the World Health



Organization (WHO). The researchers found no increase in risk for cancers such as glioma and salivary gland tumours despite years of mobile use among subjects.

— The review is significant as for years many myths had been swirling around about the side effects of wireless technology devices like mobile phones emitting radio-frequency electromagnetic radiation, also known as radio waves. In fact, the WHO's International Agency for Research on Cancer (IARC) had designated radio frequency and electromagnetic fields as a possible carcinogen in 2011.

— When the IARC termed radio-frequency and electromagnetic field as possibly carcinogenic in 2011, it was largely based on positive associations seen in case-control studies (studies that look at the difference in incidence of cancers in groups using and not using cell phone), which might have been biased based on what the participants recalled, the current analysis said.

— Not only did the review find no overall association between mobile phone use and cancer, it overruled any risk with prolonged use (for those using their mobile phones for 10 years or more) and frequency (the number of calls made or the time spent per call).

For Your Information:

— Cancer is a broad term encompassing a group of diseases characterized by uncontrolled cell growth. These abnormal cells, unlike healthy ones, ignore signals to stop dividing and can form tumours. They can also invade surrounding tissues and spread (metastasize) to other parts of the body, causing significant damage.

— The root cause of cancer lies in mutations within a cell's DNA. These mutations can be inherited or occur due to environmental factors like exposure to carcinogens (cancer-causing agents) such as tobacco smoke, radiation, and certain chemicals.

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