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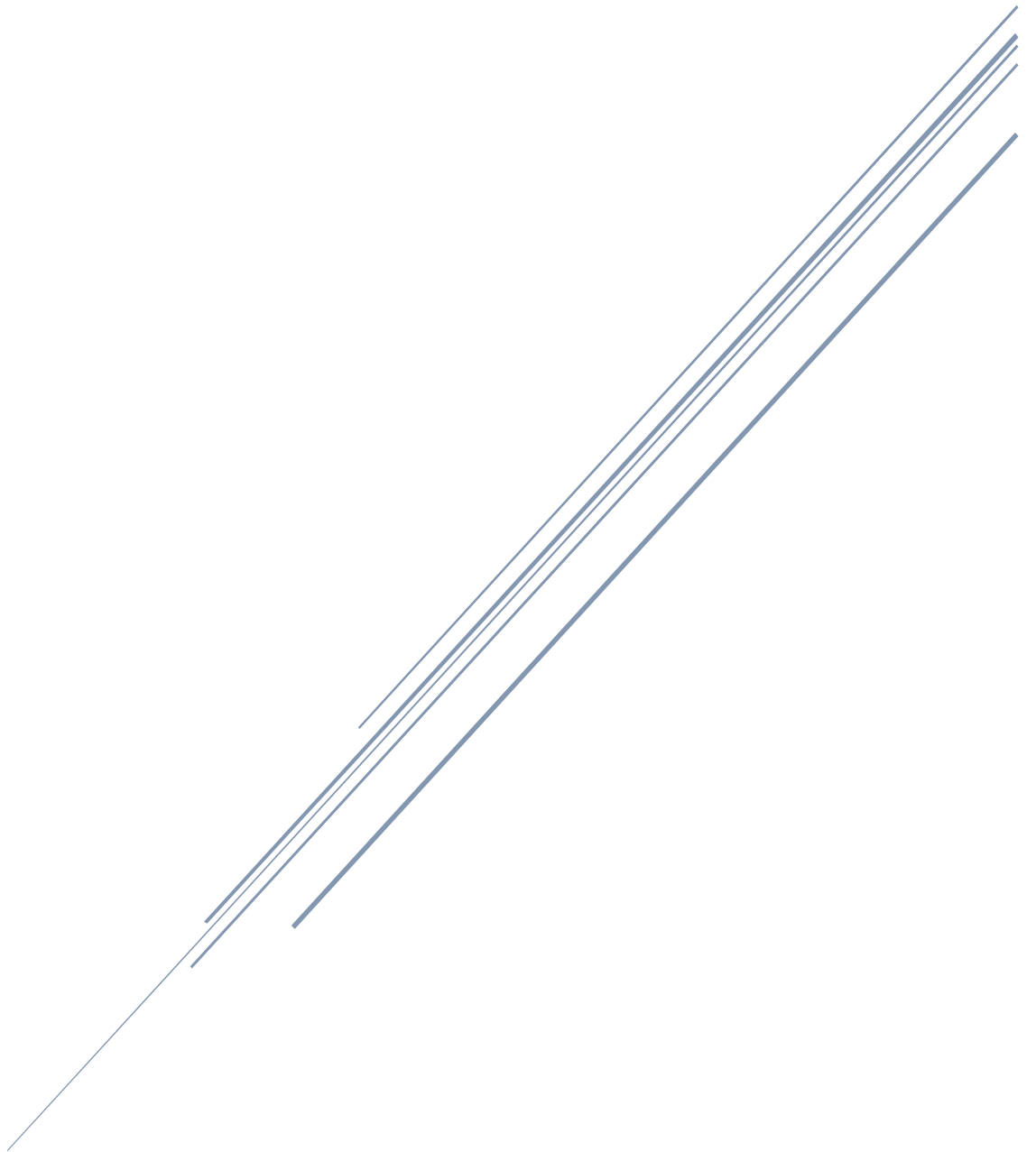
INTERNATIONAL

FORMER SPIES REVEAL DETAILS OF PAGER, WALKIE-TALKIE ATTACKS ON HEZBOLLAH

Two recently retired senior Israeli intelligence agents shared new details about a deadly clandestine operation years in the making that targeted Hezbollah militants in Lebanon and Syria using exploding pagers and walkie-talkies three months ago.

Hezbollah began striking Israel almost immediately after Hamas's October 7, 2023, attack that sparked the Israel-Hamas war.

The agents spoke with CBS "60 Minutes" in a segment aired on Sunday night.

One agent said the operation started 10 years ago using walkie-talkies laden with hidden explosives, which Hezbollah didn't realise it was buying from Israel, its enemy. The walkie-talkies were not detonated until September, a day after booby-trapped pagers were set off.

"We created a pretend world," said the officer, who went by the name "Michael".

Phase two of the plan, using the booby-trapped pagers, kicked in in 2022 after Israel's Mossad intelligence agency learned Hezbollah had been buying pagers from a Taiwan-based company, the second officer said.

The second agent, who went by the name "Gabriel," said it took two weeks to convince Hezbollah to switch to the heftier pager, in part by using false ads on YouTube promoting the devices as dustproof, waterproof, providing a long battery life and more.

Unknown partnership

He described the use of shell companies, including one based in Hungary, to dupe the Taiwanese firm, Gold Apollo, into unknowingly partnering with the Mossad.

Hezbollah also was unaware it was working with Israel.

By September, Hezbollah militants had 5,000 pagers in their pockets.

Israel triggered the attack on September 17, when pagers all over Lebanon started beeping. The devices would explode even if the person failed to push the buttons to read an incoming encrypted message.

The next day, Mossad activated the walkie-talkies, some of which exploded at funerals for some of the approximately 30 people who were killed in the pager attacks.

Gabriel said the goal was more about sending a message than actually killing Hezbollah fighters.

In the days after the attack, Israel's air force hit targets across Lebanon, killing thousands. Hezbollah's leader, Hassan Nasrallah, was assassinated when Israel dropped bombs on his bunker.

By November, the war between Israel and Hezbollahended with a ceasefire.

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ISRAELI WOMEN TAKE TO THE STREETS AGAINST MILITARY EXEMPTION FOR ULTRA-ORTHODOX

Exhausted by more than 14 months of war, the wives and mothers of Israeli soldiers are uniting in protest against exemptions from conscription for ultra-Orthodox men.

For several on Saturday evenings, the bridge over a key highway that runs between Bnei Brak, an ultra-Orthodox suburb of Tel Aviv, and Givat Shmuel, a bastion of religious Zionists whose sons and husbands proudly serve in the Army, has been the scene of a tense stand-off.

Ultra-Orthodox residents passed by, some running, as protesters holding Israeli flags and banners shouted through megaphones demanding "conscription for all".

The military has asked for extra manpower in light of the war in Gaza and connected conflicts, while the Supreme Court ruled in June that the state must draft ultra-Orthodox Jewish men into military service.

Israeli Prime Minister Benjamin Netanyahu's right-wing coalition government includes members of two ultra-Orthodox parties, and he has feared that ending the exemption could break up his coalition.

The coalition is moving ahead with legislation that would protect the exemption for the vast majority of Haredim (the Hebrew name for ultra-Orthodox Jews, meaning "God-fearing") from military service.

Political opposition

Political and religious ultra-Orthodox leaders, whose decisions are often binding on their followers, continue to strongly oppose service in the military.

They say that prayer and religious study protects the country as much as combat.

Military service is mandatory in Israel, but under agreements forged at Israel's creation, when the Haredim were only a very small community, those who devote themselves to the study of sacred Jewish texts can avoid conscription.

The ultra-Orthodox account for 14% of Israel's Jewish population, according to the Israel Democracy Institute (IDI), representing about 1.3 million people. About 66,000 of those of conscription age are exempted, according to the army.

Religious Zionist Jews are allied with the ultra-Orthodox factions in Netanyahu's coalition, and their political leaders have been willing to compromise on the issue of Haredim exemptions.

Even for them, though, the burden of the war has become too heavy.

Since October 7, 2023, 818 soldiers have been killed, including during the Hamas attack on Israel as well as in the Gaza ground operation, the Israeli offensive in southern Lebanon and operations in the occupied West Bank.

With a disproportionately high number of combat deaths due to their above-average participation in the military, they share the anger of the majority of Israelis on this issue, said Amotz Asa-El, a researcher at the Shalom Hartman Institute.

TALIBAN SAY PAKISTANI AIRSTRIKES KILLED 46 PEOPLE IN EASTERN AFGHANISTAN, MOSTLY WOMEN AND CHILDREN

Pakistani airstrikes in eastern Afghanistan have resulted in 46 fatalities, predominantly women and children, according to a Taliban government official. The strikes, which targeted the Paktika province bordering Pakistan, also left six people injured, Hamdullah Fitrat, deputy spokesman for the Afghan government, confirmed on Wednesday.

The operation occurred on Tuesday, with Pakistani security officials, speaking anonymously due to regulations, describing it as an effort to dismantle a training facility and neutralize insurgents in Paktika.

In contrast, Mohammad Khurasani, spokesman for the Pakistani Taliban (Tehreek-e-Taliban Pakistan or TTP), claimed the airstrikes caused 50 deaths, including 27 women and children. Local residents reported at least 13 fatalities, though they cautioned the toll could rise, the AP reported. The injured were transported to nearby hospitals.

Pakistan has not issued a formal comment on the airstrikes. However, on Wednesday, the Pakistani military reported that 13 insurgents were killed in an intelligence-led operation in South Waziristan, a district bordering Afghanistan's Paktika province.

Growing Tensions Between Neighbours

The strikes are expected to exacerbate tensions between Pakistan and Afghanistan. The Taliban-led Afghan government condemned the attack, asserting that many of the victims were refugees from Waziristan and vowing retaliation.

The TTP, a separate militant organization closely allied with the Afghan Taliban, has ramped up its activities in recent months. In the latest attack, at least 16 Pakistani soldiers were killed over the weekend when TTP fighters targeted a checkpoint in Pakistan's northwest.

Pakistan has accused the Afghan Taliban of failing to prevent militant activity across their shared border. The Afghan Taliban denies these allegations, insisting it does not allow its territory to be used for attacks on other countries.

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NATION

KEY PARTNERSHIP

Prime Minister Narendra Modi's visit to Kuwait, the first by an Indian Prime Minister since 1981, and nearly 12 years since a visit by the Kuwaiti Prime Minister to India, completed the loop in India's outreach to the Gulf countries. Kuwait is a key Gulf Cooperation Council (GCC) member. Half a million Indians work there, making them the largest expatriate community. This community has grown on the foundations laid by historical trade and travel ties — few would remember that Kuwait was an entrepôt for India's trading routes across West Asia, courtesy the British East India company; the Kuwaiti elite had homes in Mumbai and until 1961, when Kuwait won its independence, the Indian rupee was legal tender. Bilateral trade even today tops $10 billion, which is considerable given Kuwait's smaller size. Kuwait is India's sixth largest crude supplier and fourth largest LPG supplier, meeting 3% of its energy needs. However, while people-to-people links and trade have continued, ties have lagged in strategic areas and defence cooperation, with some residual misgivings due to India's close ties with Saddam Hussein's Iraq. This is a gap that Mr. Modi's visit sought to bridge, with the announcement of a Kuwait partnership, the latest in India's strategic partnerships in the region. After talks with the Kuwaiti Emir, Sheikh Meshal Al-Ahmad Al-Jaber Al-Sabah, the two sides signed an MoU to institutionalise defence cooperation. Kuwait's highest honour, the Order of Mubarak Al-Kabeer, was conferred on Mr. Modi, cementing the importance of the visit.

The visit came at an important moment in the broader region. The continuing bombardment of Gaza by Israel, and attacks on Lebanon and Yemen are making West Asia peace a more fragile and distant proposition. The ouster of the Assad regime from Syria has also empowered Islamist radicals and could spell more violence. In addition, key Indian infrastructure and connectivity initiatives such as the I2U2 and IMEC may not see any further progress until the situation calms. The incoming Trump administration's domestic priorities in the U.S. and Europe's preoccupation with the Russia-Ukraine conflict will leave a possible vacuum of support and leadership for many of the world's other trouble spots. This is an important moment for India to strengthen bilateral ties with each of the countries in the region, and secure energy and connectivity lines, while ensuring the welfare and rights of over eight million Indians living and working there. Despite the Opposition's criticism of Mr. Modi's frequent visits abroad, New Delhi may find it needs to plan more such international standalone forays for the Prime Minister in the near future.

AWAY FROM HOME

The story of 16 Indian workers allegedly deceived into working under inhumane conditions in Libya highlights the persistent issue of labour exploitation faced by millions of Indians abroad. According to government reports, these workers, who had travelled to the United Arab Emirates for employment, were later coerced into relocating to Benghazi, Libya, to work in a cement factory. While the Indian mission has been providing them with food and supplies, the workers cannot leave without the necessary exit permits. This incident is far from isolated. In June, a fire at a labour camp in Mangaf, Kuwait, claimed the lives of at least 40 Indians. Prime Minister Narendra Modi's recent visit to Kuwait has brought attention to the plight of Indian workers, particularly those in labour camps. Despite Mr. Modi's acknowledgment of Kuwait's support for its over one-million-strong Indian community, the dangers faced by Indian workers remain a concern. According to the Ministry of External Affairs, there are around 13 million Indian nationals abroad, with most in the Gulf countries. These workers, who lack eligibility for citizenship in their host

countries, contribute significantly to India's economy through remittances — about $111 billion in 2022. However, their personal gains are often limited. Many are burdened by recruitment fees, loans for travel and relocation, and exploitative work conditions such as the kafala system in the Gulf countries.

The Indian government has made attempts to regulate labour migration. The introduction of the e-Migrate system over a decade ago for workers travelling to 18 countries requiring Emigration Clearance (ECR) was a step forward. However, labour contractors and agents, operating in international networks, often circumvent these safeguards. Moreover, these protections do not extend to non-ECR countries such as Israel and Russia, where Indian workers have faced dire consequences, including death in conflict zones. Reforming India's Emigration Act, stricter monitoring of recruitment agents, and demanding higher compensation guarantees from foreign employers are necessary. Yet, a more sustainable solution lies in fostering equitable economic growth in India. Ultimately, in cases like that of the workers in Libya, the government is often left with no choice but to repatriate them. However, many return to a bleak future. For most, the harsh realities of life overseas still appear preferable. Rather than merely celebrating the success of its diaspora, India must use platforms such as the Pravasi Bharatiya Sammelan to address the struggles of these workers. Their plight remains in stark contrast to India's growing economic and diplomatic ambitions on the global stage.

INDIAN VISA DENIALS LINKED TO FRAUD, NOT HOUSING CRISIS, IN AUSTRALIA

Affordable homes are becoming increasingly scarce in Australia. The government attributed last year's sharp rise in immigration as a key factor that is contributing to the crisis. In response, it has implemented measures to restrict the inflow of students whose numbers skyrocketed last year, significantly outpacing the numbers of skilled migrants and other categories.

An Australian government department's analysis shows that 60% of international students live in apartments, 26% in detached houses, and the remainder in hostels or university housing. These numbers, read along with the unprecedented surge in international students in 2023, shed light on the acute housing crisis, particularly in Sydney and Melbourne, which attract most of these students.

Rent affordability has plummeted in both regions, with the decline being much steeper in Sydney than Melbourne. This coincides with the sharp increase in student arrivals.

While the housing crisis, exacerbated by a surge in student numbers, provided a rationale for limiting student intake, a closer look reveals disparities in how these restrictions were applied. Students from certain countries, particularly India, were impacted disproportionately, while students from other countries, notably China, grew in number this year despite the restrictions.

The grant rate for Indian students dropped from nearly 90% to 65%. But for Chinese students, it has remained close to 95% even in recent years.

If the housing crisis was the primary factor for increased visa denials, Chinese students should have faced more rejections given their higher concentration in Sydney. So, what explains the higher denial rates for Indian students?

The answer might lie in another problem — mounting visa fraud. The Australian government's Department of Education says there is a higher proportion of "high-risk" student visa applications from India, Nepal, and Pakistan.

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Although the processing time has increased for Chinese and Indian students, Indian student visas are processed for a much longer time, which is attributed to their classification as "high-risk". Thus the higher rejection rate for Indian students is better explained by an increase in visa fraud rather than the housing crisis.

THE HASINA FACTOR

On Tuesday, the Muhammad Yunus-led government made a formal request of extradition to India, which has hosted Sheikh Hasina, the former prime minister of Bangladesh, since she was ousted by a student-led uprising.

• Delhi has so far declined to comment on the matter and Dhaka has reportedly affirmed that it will follow up on its request. The two countries have an extradition treaty but its clauses do not oblige Delhi to hand over Hasina.

• The reasons for India to stand its ground while continuing to engage diplomatically with its eastern neighbour, though, go beyond the letter of the treaty. There is no doubt that Bangladesh's standing as a democracy has suffered because of Hasina's authoritarian ways and the country is in urgent need of political reform. However, that endeavour cannot be reduced to the persecution of one person.

• It would be extremely unfortunate if India-Bangladesh ties are soured by Dhaka's excessive focus on Hasina. The former prime minister had played an important role in taking the political and economic ties between the two countries to a new high. Her ouster seems to have been followed by a concerted pushback against several of Hasina's initiatives, including jettisoning a project that would have made Bangladesh a transit point in providing internet services to India's northeast.

• The focus of Delhi's diplomatic initiative should be to impress on Dhaka the arc of India-Bangladesh ties, pre and post-1971, the shared economic and cultural bonds between the people of the two countries, and their common concern in ensuring stability in the Subcontinent.

• The imperative should be to underline that the ties are meant to serve the people of the two countries who share a more than 4,000 km-long border — not ideologies or personalities.

Do You Know:

• India and Bangladesh signed an extradition treaty in 2013, which was then amended in 2016 to ease and hasten the exchange of fugitives between the two countries.

• According to the treaty, India and Bangladesh are supposed to extradite individuals "who have been proceeded against… or have been charged with or have been found guilty of, or are wanted for… committing an extraditable offence" by a court of the requesting country.

• The treaty says that extradition may be refused if the offence is of "political nature". But this is limited by the nature of offence. And the list of offences which cannot be deemed as "political" is rather long. These include murder; manslaughter or culpable homicide; assault; causing of an explosion; the use of a firearm with intent to resist or prevent arrest; damaging property with intent to endanger life; kidnapping or taking of a hostage; incitement to murder; and any other offence related to terrorism, etc.

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• Article 8 lists out multiple grounds for refusal including cases in which an accusation has not been "made in good faith in the interests of justice" or in case of military offences which are not "an offence under the general criminal law".

• India has the option of refusing Hasina's extradition on the ground that the accusations made against her are not "in good faith in the interests of justice". But this has the potential to adversely impact New Delhi's relations with Dhaka's new ruling dispensation.

ALMOST FOUR DECADES AFTER BAN, THE SATANIC VERSES IS ON A BOOKSHELF, IN A STORE

Nearly 37 years after its import was banned by the Indian government amid much sound and fury, Salman Rushdie's The Satanic Verses has made a quiet return.

The book under 'Limited Stock' is now on display at Delhi's prominent Bahrisons Booksellers.

The Khan Market bookstore has posted a message about its latest acquisition on X, and including a mention of the controversy surrounding the book. "The Satanic Verses is now in stock at Bahrisons Booksellers! This groundbreaking and provocative novel has captivated readers for decades with its imaginative storytelling and bold themes. It has also been at the centre of intense global controversy since its release, sparking debates on free expression, faith, and art," it posted Tuesday.

On August 12, 2022, Rushdie, facing an Iranian fatwa over the book, was stabbed multiple times by 24-year-old Lebanese-American Hadi Matar who was quoted as having justified the attack saying Rushdie had "attacked Islam."

The sale of the book, which is available in Delhi only at Bahrisons for now, has begun a month-and-a-half after the Delhi High Court noted in response to a plea that it has no other option "except to presume that no such notification (about a ban) exists".

This was after government authorities failed to produce the said October 5, 1988, notification banning the import of The Satanic Verses.

The ban had been ordered by the Rajiv Gandhi government at a time when it was trying to balance Muslim sentiments and a rising Ayodhya temple movement. Two years earlier, the government had passed a law overturning a Supreme Court order for alimony to be paid to Shah Bano, under pressure from some Muslim quarters, who called it intervention in Islamic personal law. Facing backlash over this from Hindu groups, the Rajiv government had facilitated removal of locks to a structure containing idols at the disputed Ram temple site. The temple movement that surged after this eventually paved the way for the BJP's meteoric rise.

Before The Satanic Verses row, the Rajiv government was left further bruised by the Bofors scandal and an anti-defamation Bill, which was criticised for trying to censor the media. Finally, under increasing calls from Muslim clerics, the government banned the book on October 5, 1988, via a Customs order. Later, it would use that as a fig-leaf, saying it was not the book that was banned, but just its import. Among those who castigated Rajiv for the "capitulation" was Rushdie himself, who wrote an open letter to the then PM.

On Tuesday, as the book made a return, there was conspicuous silence from the political class.

Senior Congress leader P Chidambaram, who was Union Minister of State for Home Affairs in the Rajiv government, said a few years ago that the decision to ban the book was wrong. He reiterated his view when contacted. "I maintain the same view that I said in 2015," he told The Indian Express.

When contacted, his party colleague and Lok Sabha MP Shashi Tharoor said Tuesday: "This is a welcome development. I had opposed the original ban but the argument made at the time was concern about law and order, and the risk of violent disturbances. I believe that 35 years later, that risk is minimal. Indians should have the right to read all of Rushdie's works and judge their content for themselves."

Kolkata-based Sandipan Khan, whose 2019 petition seeking that the notification banning the import of The Satanic Verses be set aside led to the High Court order last month, is himself yet to lay his hands on a copy. On the phone, he said: "I tried to (get a copy), but could not. It is good news if the book is now available at stores."

CHINA TO BUILD WORLD'S LARGEST HYDROPOWER DAM IN TIBET

China has approved the construction of the world's largest dam, stated to be the planet's biggest infra project costing USD 137 billion, on the Brahmaputra River in Tibet close to the Indian border, raising concerns in riparian states – India and Bangladesh.

— The Chinese government has approved the construction of a hydropower project in the lower reaches of the Yarlung Zangbo River, the Tibetan name for the Brahmaputra, according to an official statement quoted by state-run Xinhua news agency on Wednesday.

— The dam is to be built at a huge gorge in the Himalayan reaches where the Brahmaputra river makes a huge U-turn to flow into Arunachal Pradesh and then to Bangladesh.

— The total investment in the dam could exceed one trillion yuan (USD 137 billion), which would dwarf any other single infrastructure project on the planet including China's own Three Gorges Dam, regarded as the largest in the world, the Hong Kong-based South China Morning Post reported on Thursday.

— The Brahmaputra dam was part of the 14th Five-Year Plan (2021-2025) and National Economic and Social Development and the Long-Range Objectives Through the Year 2035 adopted by Plenum, a key policy body of the ruling Communist Party of China (CPC) in 2020.

— Concerns arose in India as the dam besides empowering China to control the water flow, the size and scale of it could also enable Beijing to release large amounts of water flooding border areas in times of hostilities.

— India too is building a dam over Brahmaputra in Arunachal Pradesh.

— India and China established the Expert Level Mechanism (ELM) in 2006 to discuss various issues related to trans-border rivers under which China provides India with hydrological information on the Brahmaputra river and Sutlej river during the flood seasons.

— The Brahmaputra Dam presents enormous engineering challenges as the project site is located along a tectonic plate boundary where earthquakes occur. The Tibetan plateau, regarded as the roof of the world, frequently experiences earthquakes as it is located over the tectonic plates.

— To harness the hydropower potential of the river, four to six 20km-long tunnels must be drilled through the Namcha Barwa mountain to divert half of the river's flow at about 2,000 cubic metres per second, according to the report.

Do You Know:

— Brahmaputra is one of the largest rivers in the world and rank fifth with respect to its average discharge. The river originates from the Kailash ranges of Himalayas at an elevation of 5300 M. After flowing through Tibet it enters India through Arunachal Pradesh and flows through Assam and Bangladesh before it joins Bay of Bengal.

— "China is building several hydroelectric projects on the Tsangpo. But one of the biggest is a 60 GW dam which is being constructed, and it is on the neck of Arunachal Pradesh in Medong. It is a part of China's ambition to achieve carbon neutrality by 2060, but also to divert water to northern China which is water scarce. This is a major concern for India.." said a senior officer.

— India's solution to the problem is the Upper Siang project, which will act as a reservoir. In the event of a diversion of water by China, the massive reservoir will be able to feed Arunachal Pradesh and its irrigation requirements, said officials.

— For India, they said, Brahmaputra accounts for 30 per cent of freshwater resources and 40 per cent of the total hydroelectric power potential of the country. The Upper Siang reservoir will store 9 billion cubic meters of water, said officials.

SHOULD ASSISTED DYING BE LEGALISED?

The story so far:

Britain's House of Commons on November 29 voted by a majority to legalise assisted dying — a less controversial synonym for assisted suicide in England and Wales. The step signals a seismic social shift on an emotive issue. Advocates regard the new Bill as a humane and compassionate intervention that should — for those who want to exercise the option — bring closure to a painful, debilitating and degrading dependence on the immediate family. Opponents, who include the head of the Church of England, are apprehensive that the severely disabled and vulnerable patients may feel forced to end their lives to relieve the burden on relatives. "It should never become easier to seek help to die than to live," they say. The debate on the Bill's merits has also brought to the fore concerns that the delivery of hospice and palliative care services could be undermined. Portrayed sometimes as a "Give us our last rights" campaign, about 75% of the public has backed the liberalisation of assisted dying, as per a U.K. National Centre for Social Research survey.

How controversial is the move?

The U.K. courts have time and again maintained that given the sensitive ethical, philosophical, and social questions involved, the subject of assisted dying was not a matter on which the judiciary could pronounce a decision based on concrete evidence. Successive British governments have similarly maintained that any change to existing law was for parliament to consider and a matter of their conscience for individual MPs and that the government would officially adopt a neutral stance. The Terminally Ill Adults (end of life) legislation was thus brought forward as a private member Bill by the Labour MP Kim Leadbeater. Among its supporters were Prime Minister Keir

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Starmer, the Home Secretary, the chancellor of the exchequer, and the Opposition leader Rishi Sunak. Six Cabinet Ministers opposed the proposal.

What is the current law in this area?

Suicide, (self-inflicted death), or attempted suicide are not in themselves criminal offences in England and Wales. Conversely, an act that encourages or assists a person to commit suicide or attempted suicide is a criminal offence that carries a 14-year prison sentence under the 1961 Assistive Suicide Act.

What is the proposed law?

The Bill before parliament seeks to give terminally ill, mentally competent adults who have less than six months to live — which assumes that a reliable method exists of forecasting survival — the option to end their life. Under one stipulation, any such request must be authorised by two doctors and a High Court judge.

What were the petitioners' prayers?

Since 2001, severely disabled applicants have petitioned the U.K. courts that the 1961 law, as well as the prosecution's refusal to allow them to end their lives under medical assistance, was incompatible with their rights under the European Convention on Human Rights (ECHR). At issue was the right to life (Article 2), which the petitioners viewed as entailing the right to self-determination and an entitlement to end life with assistance. They have also argued that the denial of the option to die with assistance — insofar as it failed to alleviate suffering — amounted to cruel and degrading treatment prescribed under Article 3. It moreover constituted an infringement of the right to privacy and freedom of conscience enshrined in Articles 8 and 9. Finally, as persons with disabilities who needed assistance to end their lives, the denial of permission by the prosecution amounted to discrimination, in breach of Article 14 of the ECHR.

What did the court rule?

The U.K. House of Lords in 2002 unanimously overruled these contentions. But, in a 2014 Supreme Court decision, the majority opined that although the 1961 law was incompatible with the rights of two incurably suffering but not terminally ill petitioners, it was for parliament to modify the law. In 2015, the European Court of Human Rights ruled that the U.K. Supreme Court was under no obligation to examine the merits of a challenge to primary legislation and that Britain's government was open to concluding that this was a matter for parliament to arrive at a suitable determination. It is thus crystal clear that only new legislation can alter the status quo in this matter.

What is the position in India?

In Common Cause vs. Union of India (2018), the Supreme Court affirmed that the "right to die with dignity" is integral to the right to life and personal liberty under Article 21 of the Constitution. The court also legalised "passive euthanasia," which involves the withdrawal of life support from terminally ill patients or those in a permanent vegetative state. This allows individuals to die a natural death in the absence of medical interventions. The top court also issued comprehensive guidelines to facilitate passive euthanasia. For instance, if a patient leaves behind a living will, it must be executed in the presence of two witnesses and attested by a Judicial Magistrate. In 2019, the Indian Society of Critical Care Medicine filed an application seeking modification of these guidelines, arguing that they were onerous and impractical. Accordingly, a five-judge Constitution

Bench in 2023 simplified the process by imposing strict timelines at each stage and limiting the role of the Judicial Magistrate.

In September, the Health Ministry released draft guidelines on withdrawing medical support for terminally ill patients, addressing a regulatory gap that had left healthcare professionals in the lurch. These specify that doctors must refrain from initiating life-support measures when they offer no benefit to the patient and are likely to cause suffering and a loss of dignity.

SANTIAGO MARTIN CASE — SC RED LINE FOR ED: CAN'T COPY, ACCESS CONTENT FROM LAPTOP, MOBILE PHONES

In a significant order that could prompt a rethink by probe agencies before they seek to confiscate mobile phones or laptops of citizens for alleged crimes, the Supreme Court has restrained the Enforcement Directorate (ED) from accessing and copying content from electronic devices seized during searches conducted on "lottery king" Santiago Martin, his relatives and employees in November.

The searches were conducted by the ED in 22 places in six states following a complaint by Meghalaya Police, which alleged that Future Gaming and Hotel Services Private Limited had "illegally" captured the lottery business in the state. The searches had yielded Rs 12.41 crore in cash.

Santiago Martin's company Future Gaming was the single largest donor of electoral bonds, having purchased Rs 1,368 crore in bonds between 2019 and 2014. It donated across party lines — Trinamool Congress was its biggest beneficiary at Rs 542 crore, DMK came a close second at Rs 503 crore. YSR Congress redeemed Rs 154 crore and BJP Rs 100 crore.

The two-page order, passed by Justices Abhay S Oka and Pankaj Mithal on December 13, ordered that the Future Gaming case be "heard along with other connected cases". The four cases listed in Future Gaming's petition include those filed by employees of Amazon India challenging ED's demands to produce their electronic devices and the Newsclick case, in which the petitioners are seeking guidelines from the Supreme Court on seizure of laptops and telephones by Delhi Police in 2023.

In their plea, the petitioners sought to "protect their Constitutional and fundamental rights, more particularly, the fundamental right of privacy". "The information stored on personal digital devices is deeply intimate, personal and more revealing about an individual's life that anything held at a physical place…," they argued.

The Supreme Court order asked the ED "not to access and copy" the contents of the mobile phone of Santiago Martin and any of the long list of electronic devices belonging to his company's employees. The judges also stayed the summons issued by the ED under the PMLA (Prevention of Money Laundering Act) "to the extent that they require the presence of the persons mentioned therein for the purpose of extraction of data stored in the respective digital devices".

When asked about the restraining order, senior ED officials told The Indian Express it was "unprecedented", but not a major setback since they had "other significant material evidence" against Martin in the case. They pointed out that they were following the guidelines of the CBI Manual on Search and Seizure of Digital Evidence.

According to the officials, ED had recently attached properties valued at Rs 622 crore linked to the Future Gaming group. Besides, the ED had several other important ongoing cases against Santiago Martin and Future Gaming, they said.

The petition filed by Future Gaming lists 12 categories of electronic devices seized during the ED search. These include 17 mobile phones (mostly with dual SIMs), hard disks of computers with "data dumps", pen drives and back-up of some emails seized from Martin, his family members and senior staff members.

Lawyer Rohini Musa, who filed the 234-page petition, told The Indian Express that the Supreme Court order could become an important precedent for other ongoing cases. "The first thing is the Supreme Court has not given a date for the restraint against the ED to be lifted. The other thing is besides the infringement of fundamental rights and the rights of privacy, it should be ensured the ED does not embark on a fishing expedition, and does not force the petitioner (Santiago Martin) to incriminate himself in this and other cases via the material found in the electronic devices."

The petition says that "at present, there was no procedure prescribed for such unrestricted seizures of devices and subsequent unlimited access to the same, leading to a possible fishing or roving inquiry." Also, the nature of information on mobile phones would include "sensitive personal information" such as financial details, medical records, passwords, and seized devices would also contain business data, strategy documents and so on.

The company lawyers, including former Attorney General Mukul Rohatgi, have also informed the Supreme Court in their plea seeking interim relief that Future Gaming has, till date, paid GST to the tune of Rs 28,205 crore in connection with the business of running state-operated lotteries.

AS KEY CASES FALL IN COURTS, ED TO STAFF: NO PMLA ON BASIS OF CONSPIRACY ALONE

With some of its high-profile money laundering proceedings falling in court, the Enforcement Directorate (ED) has decided not to rely solely on "criminal conspiracy" as the "predicate offence" based on which it registers such cases — it should also include the offence under the Prevention of Money Laundering Act (PMLA) related to that conspiracy, The Indian Express has learnt.

— According to sources, instructions regarding this decision have been "passed on" by ED Director Rahul Navin to the agency's officers. The PMLA schedule covers close to 150 primary offences, ranging from corruption to tax evasion and even violations of the Wild Life Act.

— A "predicate offence" here refers to the criminal activity mentioned in a primary FIR registered by another agency on which the ED case is based. Under PMLA, the ED can register a case only on the basis of an FIR filed by an investigative agency, such the CBI, state police or, in some cases, even the IT department.

— But the courts, including the Supreme Court, have subsequently ruled that section 120B cannot be listed as the sole "predicate offence", which should also have an offence related to the "criminal conspiracy" which falls under the PMLA's ambit.

— It was in November 2023 that the Supreme Court ruled against the invocation of PMLA solely on the basis of section 120B. The ruling came on an ED case against Pavana Dibbur, who was the acting head of a private university in Karnataka, over a land deal from 2020.

Do You Know:

— India's Enforcement Directorate (ED) has been facing repeated setbacks in some of its high-profile money laundering cases. The reason? The Supreme Court had ruled last year that the watchdog cannot rely solely on "criminal conspiracy" as the "predicate offence" based on which it registers a case. The offence should also fall within the ambit of the Prevention of Money Laundering Act (PMLA) schedule.

— A "predicate offence" refers to the nature of a crime mentioned in the primary First Information Report (FIR) registered by another agency, based on which the ED builds its case.

— With the advent of global terrorism in the 1990s, there was a focus internationally on choking terror financing and the movement of illicit money across borders. The Financial Action Task Force (FATF) was created in 1989 to coordinate anti-money laundering efforts across the world — and as a member, it was incumbent upon India to do its bit.

— The PMLA was also enacted in response to the political declaration adopted by the special session of the United Nations General Assembly held on June 8 and 10, 1998, calling on member states to put in place national anti-money laundering legislation.

— The Prevention of Money-Laundering Bill, 1998 was introduced in Lok Sabha on August 4, 1998, by the Atal Bihari Vajpayee government. The proposed law was focused on preventing money laundering and connected activities, confiscation of the proceeds of crime, setting up of agencies and mechanisms to coordinate measures to combat money laundering, etc.

FOURTH BRANCH INSTITUTIONS SHOULDN'T BE RETIREMENT HOMES FOR CIVIL SERVANTS, JUDGES: JUSTICE NARASIMHA

Underlining the role of public institutions that are enshrined in the Constitution, Supreme Court judge Justice P S Narasimha on Sunday said that "fourth branch institutions (such as the EC, CAG, Union and State Public Service Commissions, and National Commissions for SCs, STs, and OBCs) should not be retirement homes for civil servants and judges".

— Justice Narasimha was delivering the second edition of the Justice ES Venkataramiah Centennial Memorial Lecture organised by National Law School of India University in Bengaluru.

— Speaking on the significance of the Election Commission, Justice Narasimha said the framers of the Constitution deliberately ensured that elections were conducted by a body that was completely "outside the Executive".

Do You Know:

— Abhinav Chandrachud writes: The time has come for us to ask a difficult question: Should judges stop accepting post-retirement jobs offered by the government, at least for a few years after retiring, because accepting such posts could undermine the independence of the judiciary?

— Unlike federal judges in the US, judges in India do not hold office for life. They remain in office until they reach the retirement age — 65 for Supreme Court judges and 62 for high court judges.

— These judges do not hold their offices at the "pleasure" of the President. In other words, they cannot be arbitrarily removed by the government once they are appointed, and can only be

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impeached by a supermajority of both houses of Parliament "on the ground of proved misbehaviour or incapacity".

— However, the retirement of judges threatens to undermine judicial independence. This is because some judges — not all — are offered post-retirement employment by the government. It is often feared that a judge who is nearing retirement could decide cases in a manner that pleases the government in order to get a favourable post-retirement position.

— In the words of India's first Attorney General, M C Setalvad, all this raises "a question of constitutional propriety" relating to the independence of the judiciary. After all, could the government not use such tactics to reward judges who decide cases in its favour? Further, if a judge decides highly controversial and contested cases in favour of the government and then accepts a post-retirement job, even if there is no actual quid pro quo, would this not lead to the public perception that the independence of the judiciary is compromised?

HC TO GOVT: SIGN MOU WITH CENTRE IRRESPECTIVE OF POLL CODE TO IMPLEMENT PM-ABHIM

The Delhi High Court on Tuesday directed that the Aam Aadmi Party (AAP) government in the national capital needed to sign an MoU with the Ministry of Health and Family Welfare before January 5 for implementation of the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM), irrespective of imposition of Model Code of Conduct in the run-up to the Assembly elections.

• PM-ABHIM is a Central government scheme that aims to strengthen public health infrastructure to respond to future pandemics and outbreaks.

• A bench of Justices Prathiba Singh and Manmeet Pritam Singh Arora reviewed a suo motu petition from 2017, along with other related petitions concerning health infrastructure. Over time, the court has issued several directions to the Delhi government to implement the Dr Sarin Committee report, which focuses on enhancing and streamlining the city's health infrastructure.

• The Delhi government has chosen not to implement the scheme, although the All India Institute of Medical Sciences (AIIMS) AIIMS director, in a report dated December 10, stated that the scheme was being implemented only for diagnostic labs at the Indira Gandhi Hospital on a pilot basis. A division bench on December 12 directed that National Health Mission officials hold a meeting focused on implementing the PM-ABHIM Scheme in Delhi.

• "....This MoU shall be signed irrespective of a Model Code of Conduct, if any, as the same has been monitored by this court and is for the benefit of citizens of Delhi," the court said .

Do You Know:

• The MCC of ECI is a set of guidelines issued to regulate political parties and candidates prior to elections. The rules range from issues related to speeches, polling day, polling booths, portfolios, the content of election manifestos, processions, and general conduct, so that free and fair elections are conducted.

• According to the Press Information Bureau, a version of the MCC was first introduced in the state assembly elections in Kerala in 1960. It was largely followed by all parties in the 1962 elections and continued to be followed in subsequent general elections.

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• The MCC comes into force from the date the election schedule is announced until the date that results are out. The MCC contains eight provisions dealing with general conduct, meetings, processions, polling day, polling booths, observers, the party in power, and election manifestos.

DELHI GOVT. REASSESSING CONJUGAL VISITS IN PRISONS AFTER INITIATIVE HALTED IN PUNJAB

The Delhi government is reassessing a proposal to permit conjugal visits for prisoners in the city's jails after a pilot project in Punjab was suspended a few months after its launch.

Considering Punjab's experience, the Delhi Chief Minister has sought further inputs from the Law Department on the feasibility of implementing such a project, according to Delhi government standing counsel Anuj Aggarwal. The Chief Minister has also sought to know if similar schemes are being implemented in other States.

Conjugal visits, also referred to as 'private family visiting', involve allowing prisoners to spend private time with their legal partners or spouses, including intimate relations, within the confines of a prison. Notably, India lacks a specific policy framework governing the conjugal rights of prisoners.

Earlier this month, during the hearing of a 2019 public interest litigation (PIL) plea seeking necessary arrangements for providing conjugal visitation rights to prisoners lodged in the city's jails, the Delhi High Court was informed that the Delhi government is re-evaluating the issue based on the outcome of the initiative in Punjab.

In September 2022, Ludhiana Central Jail had introduced the 'Parivar Mulakat (Family Visit)' programme, which allowed inmates to have face-to-face meetings with loved ones in specially designated rooms on its premises.

"We informed the court that conjugal visits in Punjab jails were suspended shortly after being introduced due to various reasons, including security concerns," said Mr. Aggarwal.

"When women come to avail of the facility, it is not feasible to conduct a thorough body check. This makes it challenging to ensure that no prohibited items are being concealed," he said.

In October last year, the Director General (DG) of Prisons had submitted the proposal to the Delhi government's Home Department to allow conjugal visits for inmates of the city's jails. The government then assured the High Court that the proposal would be taken up with the Union Ministry of Home Affairs for further consideration. However, more than a year later, there has been no progress on the matter.

According to a government source, jail authorities had highlighted in the proposal significant challenges in implementing conjugal visits in Delhi's overcrowded prisons, which already struggle to manage 1,200 daily visitations or 'mulakats'.

Legal precedents

Legal precedents have established that prisoners have a right to conjugal visits. In 2014, the Punjab and Haryana High Court allowed a couple lodged in jail to have sex within the prison precincts in order to bear a child. It held that "the right to procreation survives incarceration".

On November 1, 2018, the Madras High Court had permitted a life convict to go on two weeks' parole following a plea by his wife that it was her right to have conjugal relations.

In July last year, Justice S.M. Subramaniam of the Madras High Court requested the Tamil Nadu government to consider allowing prisoners to have conjugal relations with spouses within the prison precincts.

'Denial of basic rights'

Advocate and social activist Amit Sahni, who had filed the PIL plea before the Delhi High Court, said conjugal visitation rights are not provided by jail authorities in the national capital though most prisoners, over 85%, fall under the sexually active age group of 21-50.

He emphasised that the denial of conjugal visits is a denial of basic human rights to the spouse of the prisoner, who is "punished without any wrongdoing".

In 2019, the DG (Prisons) had filed an affidavit in response to the PIL plea, stating that "the State of Delhi grants temporary leave to convicts and prisoners in the form of facilities such as parole and furlough for maintaining family and social ties, and therefore the purpose of conjugal relations between the prisoner and his/her spouse, while in prison, is served during the leave period".

Experts argue that a law and a policy framework are necessary to regulate conjugal visits. "It would be necessary to make a law and frame rules for such visits, particularly when there are various riders and impediments with regard to outsiders even touching inmates or making any kind of physical contact," said S.D. Singh, an advocate in the Supreme Court.

He emphasised that the legislature must recognise conjugal visits as an "important legal right by enacting a law, enabling its implementation with and without court orders".

STATES TRY TO ENRICH THEMSELVES BY RATIFYING BUILDING VIOLATIONS, SAYS SC

The Supreme Court has held that State governments often seek to enrich themselves through the process of regularisation, condoning or ratifying building violations or illegal constructions.

The court said such State governments were unmindful of the fact that whatever "gain" by condonation or regularisation of illegal constructions was insignificant compared to the long-term damage caused to orderly urban development and environment.

A Bench of Justices J.B. Pardiwala and R. Mahadevan declared that "regularisation schemes must be brought out only in exceptional circumstances and as a one-time measure for residential houses after a detailed survey and considering the nature of land, fertility, usage, impact on the environment, availability and distribution of resources, proximity to water bodies/rivers and larger public interest".

The judgment was based on a batch of appeals challenging illegal commercial constructions in Uttar Pradesh.

"Unauthorised constructions, apart from posing a threat to the life of the occupants and the citizens living nearby, also have an effect on resources such as electricity, groundwater and access to roads, which are primarily designed to be made available in orderly development and authorised activities," Justice Mahadevan, who authored the judgment, observed.

Constructions which audaciously violate building plan approval could not be encouraged. Courts must deal with such violations with an iron hand. "Any lenience would amount to showing misplaced sympathy," Justice Mahadevan cautioned. A master plan or zonal development could not be individual-centric, but should have larger public interest in mind. Officials who turn a Nelson's eye on illegal constructions must not be allowed to go scot-free, Justice Mahadevan emphasised.

In a series of directions, the court ordered that while issuing the building planning permission, an undertaking had to be henceforth obtained from the builder or applicant that possession of the building would be handed over to the owners only after obtaining completion/occupation certificate from the authorities concerned.

Other directions include the builder must display a copy of the approved plan at the construction site at all times; authorities must inspect the site periodically and keep records of their findings; electricity, water supply, sewerage connection, etc.

PIE IN THE SKY

With the Union government introducing two Bills in the Lok Sabha to implement its idea of simultaneous elections to the Lok Sabha and the State Assemblies, the stage is set for Parliament to debate the feasibility, or otherwise, of the idea of what the government calls "One Nation, One Election". With the Opposition pressing on a division of votes on the introduction of the Bill — 263 for and 198 against — the writing on the wall was clear. The government does not have the two-thirds majority in Parliament to pass the constitutional amendments to facilitate simultaneous elections. A 39-member House panel will examine the two Bills. The content in the Bills themselves are in line with the recommendations of a committee headed by former President of India Ram Nath Kovind that envisaged simultaneous Lok Sabha and Assembly elections as a first step, followed by municipal and panchayat polls within 100 days of the general election. For the amendments to conduct municipal elections, they would have to be ratified by at least half of the State Assemblies.

The Constitution Amendment Bill seeks to add a new provision that will provide for the timeline for simultaneous elections and as per the wording in the Bill, this could happen only in 2034 unless the Lok Sabha terms prior to that are curtailed for some reason. Other provisions echo the Kovind committee recommendations — for example, if a State Assembly gets dissolved before five years of its term, after the "appointed date" — the date for synchronising Lok Sabha and Assembly elections — fresh "midterm" elections will be held but the new Assembly will not have a full five-year tenure. Its tenure will end five years from the "appointed date". The Bill also provides the Election Commission the option to defer or not hold Assembly elections to a particular State, but the full term of that Assembly will still coincide with that of the Lok Sabha elections. These provisions are anti-federal. The idea of conducting multiple elections to an Assembly before the stipulated five-year period also militates against the ostensible rationale provided for the idea of introducing simultaneous elections — cost-cutting. The idea of federalism, sharing power at different levels of governance, is tied to the exclusive importance and roles demarcated to them and elections are a way for voters to exercise their specific concerns related to these different levels of government. By subsuming the electoral cycles into one time frame, the idea of simultaneous elections has the potential to diminish the importance of each tier, which is also in line with the centralising tendencies of the BJP/NDA regime. This makes it imperative for those committed to federalism to steadfastly oppose this idea.

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NO PANACEA

Ever since the use of direct cash transfers to eligible beneficiaries as a welfare measure gained prominence following the Congress party's ploy of announcing "election guarantees", other parties and ruling governments have sought to adopt this as a way of retaining their support among constituents. The 'Ladki Bahin' and 'Ladli Behna' schemes in Maharashtra and Madhya Pradesh have been seen as reasons for the success of the ruling fronts/parties in retaining power, while the regime in Tamil Nadu instituted the 'Kalaignar Magalir Urimai Thogai' to shore up support beyond traditional adherents of the ruling party. The Aam Aadmi Party (AAP) in Delhi has never shied away from comprehensive welfare benefits to retain support, now promising ₹2,100 a month to women under the proposed 'Mukhyamantri Mahila Samman Yojana'. There is a case for direct cash transfers to the needy and women from indigent families — they are in a way a recompense for the unpaid nature of work done by women as family members. While these amounts may not be high in an era characterised by inflation, that women can utilise the money without having to depend upon the family "head" in a largely patriarchal society, provides them with a disposable sum that is also fungible in the way it can be used for essentials or for savings. The benefits also accord a certain dignity to the women who are generally unemployed in the market, but who still provide labour — as domestic work or informal labour. It is no wonder that such schemes are popular in the States where they are being implemented.

Yet, these cash transfers are not a substitute for comprehensive welfare, where the state plays a role in creating employment and supports demand-driven growth. In Maharashtra and Madhya Pradesh, there has been a stagnation in employment generation, albeit of different orders. Maharashtra, one of India's most industrialised and urbanised States, has been experiencing a relative stagnation in economic growth and employment creation compared to previous decades. There is also a clear regional and economic inequality while Madhya Pradesh remains one of India's relatively poor States and lacks in diversity of employment options. While the ruling parties reaped the benefit of support over populist schemes, the reality is that they are little more than a balm as compared to effective economic policies that will generate employment, diversify the economy and provide greater opportunities. As for AAP, it did a far better job in focusing on primary health and education in its earlier terms. The fact that it is trying to emulate the BJP's and its allies' benefit schemes for women suggests that it is running out of ideas to provide a better vision for the Delhi metropolis.

GOVT. AMENDS RULE TO RESTRICT ACCESS TO POLLING FOOTAGE

The Centre has amended the Conduct of Election Rules to restrict public access to a section of poll documents. This was brought into effect through a notification issued by the Ministry of Law and Justice on Friday following a recommendation by the Election Commission.

Rule 93(2)(a) of the 1961 Conduct of Election Rules had earlier stated that "all other papers relating to the election shall be open to public inspection".

After the amendment, it reads, "all other papers as specified in these rules relating to the election shall be open to public inspection".

While officials said the rule has been amended to prevent misuse of CCTV footage of polling stations, RTI activists have termed it a setback to transparency.

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The move follows a recent direction to the EC by the Punjab and Haryana High Court to share all documents related to Haryana Assembly polls, including treating CCTV footage also as permissible under Rule 93(2), to a petitioner named Mahmoud Pracha.

According to a senior EC official, "The rule mentioned election papers. The election papers and documents do not specifically refer to electronic records. In order to remove this ambiguity and considering the serious issue of violation of secrecy of vote and potential misuse of CCTV footage of inside of the polling station using artificial intelligence by a single person, the rule has been amended."

He said, "Sharing of CCTV footage may have serious repercussions, especially in sensitive regions like Jammu and Kashmir, naxal-affected regions, etc., where secrecy is important. Lives of voters may also be at risk. All election papers and documents are otherwise available for public inspection."

"Candidates in any case have access to all documents, papers and records. Even Mr. Pracha was entitled for all the documents and records from his Constituency when he contested as a candidate in Lok Sabha Elections 2024," the official said, adding that nothing has been amended in the rules in this regard.

However, RTI activists have said it was a setback to transparency. "Huge setback for transparency! Modi government amends Rule 93(2) of Conduct of Elections Rules to restrict people's right to access election related records after High Court orders disclosure! Applications we filed in May 2024 under Rule 93(2) for copies of Form 17C are still pending," transparency activist Anjali Bharadwaj said.

Venkatesh Nayak, Director Commonwealth Human Rights Initiative, told The Hindu, "Upon initial examination, the amendment appears to be aimed at restricting citizen-voters' right to access a large number of documents created during Parliamentary and State Assembly elections, many of which are not specifically mentioned in the Conduct of Election Rules; instead, they are mentioned in the handbooks and manuals published by the Election Commission from time to time."

Some of these records are reports submitted by Election Observers, scrutiny reports submitted by Returning Officers after polling and index cards sent to the ECI after declaration of results, which contain detailed statistics relating to the elections.

Mr. Nayak said that given the controversy over voter turnout in recent Lok Sabha and Assembly polls, access to the Presiding Officers' diaries which contain detailed data of voter turnout at different points of time throughout the polling day and the number of tokens they distribute to voters who are in the queue at the hour scheduled for closing of polling are not mentioned specifically in the Conduct of Election Rules. "Yet access to such documents is crucial to assess the fairness of elections."

DELHI'S PROPOSAL FOR REPUBLIC DAY TABLEAU NOT APPROVED BY EXPERT PANEL

The Delhi government's proposal for a tableau for Republic Day was not approved by the expert committee, while Mizoram and Sikkim expressed their inability to participate in the parade this time.

Officials of the Andaman and Nicobar Islands and Lakshadweep did not turn up for the expert committee meeting. They were among the 15 States and Union Territories originally selected from

the roster for the January 26 event, defence sources said. In place of them, Andhra Pradesh, Gujarat, Haryana, Uttar Pradesh and West Bengal have been given a chance, sources said.

Against the backdrop of repeated controversies over selection of tableaux for the Republic Day parade and complaints from States year after year, the Defence Ministry, ahead of the parade this year, proposed a roll-over plan for the States and Union Territories to showcase their tableaux, and a roster was prepared for 2024, 2025 and 2026 under which each of them would get a chance to participate at least once during the three years.

"The expert committee looks into various aspects of theme, concept, designs and visual elements. Out of the 15 States and Union Territories on the roster, the expert committee did not approve the proposal of Delhi," a source said.

While details of the Delhi government's proposal and the specific reasons it was not approved were not immediately known, sources observed that in the two decades past, Delhi has presented its tableau seven times. On why Gujarat and Uttar Pradesh were selected again consecutively, a source said several States had participated more often than the two of them. They include Jammu and Kashmir, Karnataka, Chhattisgarh, Maharashtra and Assam.

Following the agreement on the three-year rollover plan in January, several States that were selected to present tableaux at the Republic Day parade on Kartavya Path presented them at the Bharat Parv at the Red Fort, which included Karnataka, Himachal Pradesh, Tripura, Jammu and Kashmir, Goa, Assam and Uttarakhand.

The Defence Ministry has an elaborate screening mechanism that selects participants for the parade.

EXPRESS VIEW ON MANMOHAN SINGH: THE LEADER WHO SAW THE FUTURE, TURNED NATION'S FACE TOWARDS IT

WITH GREAT power come great constraints. More than anything else, perhaps, the long and vivid arc of Dr Manmohan Singh's life and work embodied this essential truth about democracy. It's a truth, and a lesson, that so often goes unrecognised. Especially when, the world over, politics is about the powerful taking no prisoners and the winner taking all, seeking to vault over checks and balances. For the studious and soft-spoken boy from Gah in undivided Punjab whose family of meagre means was displaced by Partition, who went on to earn degrees from the world's storied educational institutions, who came back to hold almost all the top jobs in his country's economy, and then became Prime Minister, power was a more full-bodied and complex beast. It had an inner life that needed to be navigated with patience and respect for nuance. Manmohan Singh stepped up to the challenge of wielding power with that and more — he brought to it wisdom and decency, dignity and grace, and humility above all.

Look, again, at the two empowering moments in Dr Singh's career: June 1991 and May 2004. Both strikingly circumscribed, conspicuously hemmed in. In the first, he took oath as Finance Minister in a minority government led by PV Narasimha Rao even as India confronted a balance of payments crisis and stared at the spectre of bankruptcy in a world unsettled by the ripple effects of the unravelling Soviet empire. In the second, he became Prime Minister, after a Lok Sabha election in which a fractured mandate brought back a pale and divided Congress which had yet to fully begin learning to share power with allies. He himself had no political constituency he could call his own, having lost the only Lok Sabha election he was to fight, from South Delhi in 1999. He

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was appointed PM by a Sonia Gandhi acting on her "inner voice", which promised to haunt him as much as it enabled him to govern a large and diverse nation, and it did both. He was also the first Sikh Prime Minister from a party blighted by the ghosts of the 1984 massacre following Indira Gandhi's assassination. Indeed, his August 2005 apology to Sikhs and the "whole Indian nation" was, as a US diplomat would later put it, a powerful "Gandhian moment of moral clarity."

MANMOHAN SINGH did not come to his positions of power a powerful man. Self-effacing, his genius lay in seizing opportunities and steering breakthroughs that changed the course of the nation. As Finance Minister, with the reforms of 1991, he dismantled four decades of the old economy, industrial licensing and state-led planning, opening up the country to the irreversible forces of liberalisation and globalisation. The reforms he initiated helped lift crores out of poverty, created a middle class that continues to shape the country's economic and political future. In his term as PM, backed by Sonia Gandhi — even as that relationship was one that he also felt cramped by — he laid the foundational architecture of a modern welfare state, a rights-based edifice starring MGNREGA for the most marginalised, Right to Education, Right to Food Security — all undergirded by the Right to Information and its promise of accountability.

As PM, again, Dr Singh brought India to the global high table by signing the Indo-US nuclear deal, which ended India's isolation on the world stage and inaugurated its strategic embrace of the US as an ally on a more equal footing. To get the deal through, Dr Singh took on loud opposition from within and without, and especially from the Left, calling its bluff.

OF COURSE, Dr Singh's path was not smooth. There were accusations that he was silent on too many issues, for too long; that he was much too forbearing of his own undermining by his allies, and more than that, by his own party. There were times when the remote control looked far from remote, the Sonia Gandhi-headed NAC behaved like an extra-constitutional authority. Rahul Gandhi, infamously, tore up an ordinance passed by the Manmohan cabinet in September 2013— an abiding scar on his authority. The Congress also vetoed its own Prime Minister on a key foreign policy issue on Sharm-el-Sheikh.

MANMOHAN SINGH'S CONTRIBUTION TO INDIA ECONOMY — LPG REFORMS

The world paid tribute to Dr. Manmohan Singh who died on Thursday (26th December) at the age of 92. He is the chief architect of the economic reforms, particularly the LPG (Liberalization, Privatization, and Globalization) policy in the 1990s, which transformed India's economic trajectory. The Union government has declared a seven-day mourning period for Singh and has cancelled all government programs scheduled for Friday.

1. When **Manmohan Singh** became **Finance Minister** in 1991, India was on the verge of economic collapse, with foreign exchange reserves sufficient to cover only a few weeks of essential imports. Faced with one of the most serious economic challenges in independent India, Singh decided to introduce **economic reforms in 1991**, focused on liberalisation, privatisation, and opening up India's economy, aligning with market-driven principles.

2. Singh's reforms in 1991 sought to liberalise and end the 'Licence Raj' through industrial policy reforms. These helped India navigate a critical balance-of-payments crisis when the country had foreign exchange reserves sufficient for just two weeks of imports as against the normal safe level of three months of import cover at that time.

3. The new Industrial Policy Resolution abolished most trade licences, and provided freedom to enterprises, opening up the country to foreign direct investment, thereby, substantially deregulating the industrial sector.

4. **Liberalisation:** The reform ended the excessive regulatory framework known as the 'license-permit raj' system. The new industrial policy abolished industrial licensing for all projects barring a select few strategic industries, allowed the government to disinvest its shareholding in the public sector, and amended the **Monopolies and Restrictive Trade Practices (MRTP) Act** to allow for the setting up, expansion, and merger of businesses without prior approval. These measures were followed up with liberalisation of the banking sector and capital markets.

5. In line with the recommendations of the **Narasimham Committee Report** of 1991, the government proposed to cut down the SLR (statutory liquidity ratio) from 38.5 percent to 25 percent over a three-year period, and cash reserve ratio from 25 per cent to 10 percent over a period of four years. Bank branch licensing policy and setting of interest rates by lenders were also liberalised. These measures ensured that the financial sector had the capacity to fund the economic expansion being initiated by liberal industrial and trade policy.

6. **Privatisation:** It led to the transfer of businesses from the control of the state to the private sector. The new policy **reduced the number of areas reserved** only for public sector companies from 17 to 8. These structural reforms led to new enterprises coming into the picture both in the industrial and services sectors, growth gaining momentum, and a large number of Indians exiting poverty. With these policy reforms, nearly 80 percent of the industry was taken out of the industrial licensing framework and the Monopolies & Restrictive Trade Practices (MRTP) Act was repealed to eliminate the need for prior approval for capacity expansion by companies.

7. **Globalisation:** The main objective of globalisation was to integrate the Indian economy with the world economy by reducing trade barriers, and facilitating the free flow of capital, technology, and labour. The 1991 reform reduced the trade import duties, automatic permission was allowed to be given for foreign technology agreements in high-priority industries, and disallowed the permission for hiring of foreign technicians and foreign testing of indigenously developed technologies. The Indian government allowed **direct foreign investment of up to 51 per cent** foreign equity and removed bottlenecks to facilitate foreign technology agreements in high-priority industries.

Economic Crisis of 1990

1. A sharp jump in oil prices in August 1990 led to an acute economic crisis, turning the balance of payment situation unmanageable, depleting foreign exchange reserves along with massive capital outflows, and pushing India closer to a possibility of default.

2. These peculiar circumstances led to the government mounting the economic defence by devaluing the rupee on July 1, 1991, and the RBI transferring over 46 tonnes of gold from its reserves to the Bank of England for borrowing forex to manage immediate liquidity problems resulting from the Balance of Payment problem.

3. It was for the first time that there was the prospect of default on external commitments as the foreign currency reserves had fallen to a mere $1 billion by mid-1991.

4. This crisis compelled the government to create a new framework in which the fundamental principle would be that competition is key to improving efficiency.

DECODE POLITICS: 100 YEARS AFTER MAHATMA GANDHI EVENT, WHY CONG IS GOING ALL OUT FOR BELAGAVI SESSION

The Congress is holding an extended session of its highest decision-making body, Congress Working Committee (CWC), and a rally in Belagavi (previously Belgaum) in Karnataka on December 26-27 to commemorate the centenary of Mahatma Gandhi presiding over the Congress's historic Belgaum session as the party president in 1924.

The Congress' top brass including party chief Mallikarjun Kharge, Leader of the Opposition in the Lok Sabha Rahul Gandhi, Wayanad MP Priyanka Gandhi Vadra along with CWC members and senior party leaders from across the country, including its chief ministers and state unit presidents, will take part in the two-day event, where discussion over the party's "short and medium-term action plans" are likely to be taken up.

What was the backdrop of Cong's 1924 session?

After his release from prison in February 1924 following a surgery, Mahatma Gandhi was unhappy over the lack of unity between Hindus and Muslims during the freedom struggle. He went on a 21-day fast from September 18 to October 8 that year to "bridge" this divide. He also wanted to address the issue of rampant factionalism in the Congress.

Why is the Belgaum session considered historic?

It was the only Congress session which was presided over by Gandhi as the party chief. Gandhi had held the post of the Congress president between December 1924 and April 1925.

It was during this session in the erstwhile Bombay state that Gandhi laid down his ideas of non-violence, communal harmony as well as "swaraj (self-rule)".

What was Gandhi's message to the Cong conclave?

Referring to the non-cooperation movement, Gandhi elaborated on his idea of non-violence and said it may not have panned out as expected (the non-cooperation movement was called off in the wake of the Chauri Chaura police station incident in February 1922) but stressed that it was an effective way forward (towards Independence).

"At the special session of the Congress at Calcutta in 1920, the boycott of government titles, law courts, educational institutions, legislative bodies and foreign cloth was resolved upon. All the boycotts were more or less taken up by the parties concerned... Though not a single boycott was anywhere near completion, every one of them had undoubtedly the effect of diminishing the prestige of the particular institution boycotted. The most important boycott was the boycott of violence...." Gandhi had said.

Pointing out that acts like personal abuse, irritating conduct, lying, causing hurt and murder are symbols of violence while courtesy, inoffensive conduct, truthfulness, etc. are symbols of non-violence, Gandhi said: "And so to me, a boycott of foreign cloth is a symbol of (choosing) non-violence cloth. Revolutionary crime is intended to exert pressure... I contend that non-violent acts exert pressure far more effectively than violent acts, for that pressure comes from goodwill and gentleness."

On Hindu-Muslim unity and fighting untouchability, Gandhi said untouchability was another hindrance to swaraj. "Its removal is just as essential for Swaraj as the attainment of Hindu-Muslim unity. This is an essentially Hindu question and Hindus cannot claim or take swaraj till they have restored the liberty of the suppressed classes," he had said in his address.

On self-rule, Gandhi suggested that the final court of appeals be moved from London to Delhi and the official language of provincial governments, legislatures and courts be Hindustani, among others.

He also called for people to become "perfect satyagrahis". "I have repeatedly stated that satyagraha never fails and that one perfect satyagrahi is enough to vindicate the truth. Let us all strive to be perfect satyagrahis. The striving does not require any quality unattainable by the lowliest among us for satyagraha is an attribute of the spirit within. It is latent in every one of us. Like swaraj, it is our birthright. Let us know it," he had said.

Urging the masses to take up weaving and spinning of khadi, Gandhi said swaraj cannot be attained till people take up spinning and wearing the fabric.

Who were the participants in the 1924 Congress session?

The session was attended by several senior Congress leaders including Jawaharlal Nehru, Sardar Vallabhbhai Patel, Sarojini Naidu, and Khilafat movement leaders Muhammad Ali Jauhar and Shaukat Ali, among others.

What was its impact on the freedom movement?

Historians believe that the session was a step towards the promotion of peasant consciousness. This resulted in the spread of khadi with village industries getting traction in Karnataka and other parts of the country. It also saw increased participation of peasants in the Congress-led initiatives.

What are Cong plans for the 2024 Belagavi session?

The first day of the session would be held at the Veera Soudha, the same venue of the 1924 session, while on the second day, a statue of Mahatma Gandhi sanctioned by the Karnataka government will be unveiled at the Suvarna Vidhana Soudha – the state Assembly in Belagavi.

According to a Congress leader, a rally will also be held by the party in Belagavi to mark the occasion. He said the rally, "Jai Bhim, Jai Samvidhan", will be addressed by Kharge, Rahul, Karnataka CM Siddaramaiah, and state Congress chief D K Shivakumar, among others.

What is its significance for Cong?

A senior Congress leader said the party's current situation is similar to 1924. "The Congress needs a resurgence like it did in 1924. We are hopeful that it makes some important functional changes and gets back to winning ways," the leader said, adding that the party was doing some "serious introspection".

All India Congress Committee (AICC) general secretary in-charge of Karnataka, Randeep Surjewala alleged that "BJP's style of functioning is similar to the East India Company". "Both party president and LoP in the Lok Sabha have described the BJP as the kin of the East India Company. The BJP's style – concentrating wealth in a few hands, exploiting the poor and looking down upon oppressed classes like SCs, STs, OBCs and minorities – is similar to what the East India Company

did. They also segregate classes and build a unified order with a unitary chain of command. Hence, the fight is similar," he said.

CENTRE YET TO FORMALLY SCRAP FMR WITH MYANMAR

Months after announcing that the Free Movement Regime (FMR) along the Myanmar border has been entirely suspended, the Union Home Ministry has brought in fresh protocol to regulate the movement of people living within 10 kilometres on either side of the largely unfenced international border.

A senior government official told The Hindu that the notification ending the FMR, which involves a bilateral agreement with Myanmar, is yet to be notified by the External Affairs Ministry.

Home Minister Amit Shah had announced on February 8 that the FMR had been scrapped to ensure internal security of the country and to maintain the demographic structure of the northeastern States. However, the new guidelines indicate that the regime has not been done away with but stricter regulations, such as reducing the range of free movement to 10 km from the earlier 16 km, have been introduced.

"There have been verbal announcements on ending FMR but formal orders are awaited," the official said.

A February 16 order by the Manipur Governor regarding temporary suspension of the FMR along the Manipur border said, "MHA, Government Of India has recommended for scrapping the FMR to MEA, GoI and a formal order in this regard is awaited."

The scrapping of the FMR was opposed by Nagaland and Mizoram. The Nagaland government, led by the Nationalist Democratic Progressive Party, an ally of the BJP, has passed a resolution in the Assembly against scrapping the FMR.

In Manipur, Chief Minister N. Biren Singh has attributed the ongoing ethnic violence, which has claimed more than 250 lives since May 2023, to the unregulated movement of people from across the border. On September 23, 2023, he urged the Home Ministry to cancel the FMR along the India-Myanmar border.

A senior government official said that pressure from political circles and civil society groups was one of the reasons for finalising the "Instructions for regulation of cross-border movement of people of border area across the Indo-Myanmar Border" from 43 designated entry and exit points, instead of entirely scrapping the regime.

Familial and ethnic ties

The FMR came into existence in 1968 as people on either side of the border have familial and ethnic ties. The territorial limit of free movement then was 40 km, which was reduced to 16 km in 2004, and additional regulations were enforced in 2016.

According to the new guidelines, a resident crossing the border from India to Myanmar will be given a "border pass" by the Assam Rifles for stay up to seven days in the neighbouring country. The Assam Rifles is the primary border guarding force along the 1,643-km-long border with Myanmar along the States of Arunachal Pradesh (520 km), Nagaland (215 km), Manipur (398 km) and Mizoram (510 km).

New rules

For entry into India from Myanmar, individuals will have to report at the designated border crossing points and fill a form.

The Assam Rifles will conduct the document inspection followed by a security and health check by the State police and health department officials, respectively.

The Assam Rifles will upload all the forms on the Indo-Myanmar Border portal, record biometrics, and issue a border pass with a photograph of the applicant and a QR code. The pass will have to be deposited on return at the same crossing point before completion of seven days.

The protocol stated that the police will do physical checks to verify the visit of Myanmar nationals as per the details provided in the border pass and anyone violating the conditions will face legal action.

Eight pilot entry and exit points will be made functional immediately on stabilisation of software and deployment of staff. Another 14 entry points will be activated on procurement and installation of biometric machines and the remaining 21 points after putting in place requisite infrastructure.

WHY HAS THE MHA REIMPOSED RESTRICTIONS IN THREE NE STATES?

The story so far:

On December 17, the Union Ministry of Home Affairs (MHA) reimposed the Protected Area Regime (PAR) in the States of Manipur, Nagaland, and Mizoram to restrict and monitor the movement of foreigners. From now on, foreigners visiting the three States would have to seek prior permission and Protected Area Permits (PAP) from the government. The circular stated that the relaxation provided to the three States under the Foreigners (Protected Areas) Order, 1958 was being withdrawn with immediate effect.

What does the 1958 Order entail?

The Order stated that no foreigner shall enter into or remain in any protected area except under and in accordance with a permit issued by the Central government or any office authorised by the Central government. The permit shall include the following details — place of entry, place of residence and period of stay. The areas falling between the inner line and the international Border of the following States and Union Territories were declared as Protected Areas — parts of Himachal Pradesh and Jammu and Kashmir, Ladakh, Rajasthan and Uttarakhand and the whole of Manipur, Mizoram, Nagaland, and Sikkim (partly as protected areas and partly as restricted areas). Another Order in 1963 declared entire Andaman & Nicobar Islands and parts of Sikkim as "restricted area."

When was the Order first relaxed?

The PAR was relaxed for the whole of Manipur, Mizoram and Nagaland on December 30, 2010 in wake of an improved security scenario, and to promote tourism. The relaxation was initially for a period of one year. It was subsequently extended for a duration of 1-2 years till 2022 when it was further relaxed for another five years till December 31, 2027. On December 17, the relaxation was withdrawn for the States.

Why was it withdrawn?

A copy of the circular accessed by The Hindu said that the matter was examined by the Ministry in "the backdrop of growing security concerns in border areas of these States." Manipur, bordering Myanmar has been affected by ethnic violence between the tribal Kuki-Zo and the Meitei people since May 3, 2023. Chief Minister N. Biren Singh has attributed the ongoing violence in the State to "outsiders and foreign hands."

After a military coup in Myanmar in February 2021, there was an influx of undocumented migrants — over 40,000 refugees took shelter in Mizoram and around 4,000 refugees are said to have entered Manipur. The migrants belonging to the Kuki-Chin-Zo ethnic group share ethnic ties with the communities in Mizoram and Manipur. India shares a 1,643 km long border with Myanmar which passes through the States of Arunachal Pradesh, Nagaland, Manipur and Mizoram, The Free Movement Regime (FMR) between the two countries, allowing movement of people living within 16 kms of the international border, was suspended by the MHA in January.

How does one obtain a PAP?

The permits can be secured from Indian missions, the MHA, district magistrates, resident commissioners of a State, Home Commissioners or Foreigners Regional Registration Office (FRRO) among others.

Like earlier, citizens of Afghanistan, China, Pakistan and foreign nationals having their origin in the three countries would continue to require prior approval from the MHA. All foreigners visiting these States will mandatorily register themselves with the Foreigners Registration Officer of the State or the District they visit within 24 hours of their arrival. Myanmar nationals visiting the three States, who till now were excluded from the requirement of obtaining a PAP if they had an e-tourist visa or any other visa, should compulsorily register with the FRRO within 24 hours of their arrival.

ARE MANIPUR MILITANTS USING STARLINK DEVICES?

The story so far:

Billionaire Elon Musk has denied claims that his space company SpaceX's satellite internet technology, Starlink is being used by militants in Manipur. This came after the Indian Army and police seized weapons and what looked like a Starlink-branded satellite router and antenna. Starlink is still pending approval in India, though it will be starting in Bangladesh and Bhutan in 2025.

What is Starlink?

Starlink uses an extensive low Earth orbit satellite constellation to deliver broadband internet that has high speeds and low latency. This means that rather than restricting users to essential or emergency functions, they can also stream content, play games online, make video calls, or carry out other high data rate activities, per the company. It is a popular choice for users worldwide in remote areas, sea vessels, disaster-struck regions, or places where oppressive regimes have throttled access to more mainstream internet services. There are thousands of satellites in the Starlink system, and they orbit Earth at around 550 km. Though they cover the entire globe, per SpaceX, the company is not authorised to provide its services to users in some regions.

What is the controversy?

The Spear Corps of the Indian Army on December 16 shared photos on Elon Musk-owned X of guns, ammunition, and country-made mortars that the army and police units had seized in Manipur. X users spotted a small satellite device and router, with the latter bearing the SpaceX logo. In response to an X user who claimed that Mr. Musk's technology was being used by terrorists, the billionaire replied, "This is false. Starlink satellite beams are turned off over India." The Starlink device also had "RPF/PLA" written on it, which refers to a Myanmar-based Meitei extremist group that is banned in India. Per Starlink's website and coverage map, the service date for Myanmar is unknown.

However, this is not the first time SpaceX has become embroiled in controversy in India. Last month, smugglers were caught by the Andaman and Nicobar islands police with over 6,000 kg of meth and a Starlink device that was allegedly used for navigation and communication, despite service being prohibited in Indian waters. Furthermore, in August, Starlink equipment was seen being sold on B2B platform IndiaMART.

Can Starlink internet be controlled?

International borders are not solid and it is not easy to refine satellite internet coverage to such a precise degree that service is activated or halted exactly in line with a nation's border. An additional complication is that many international borders are contested or unclear, while satellites moving above them are continuously transmitting encrypted signals. This encryption stops satellites from being hacked by militants or other malicious actors trying to intercept the service. The key question then is whether militants in Manipur can effectively use Starlink satellite internet within India.

"If these [Starlink] boxes have been purchased from outside of India, by whatever means, they can be used because then, that box is authorised. The only thing is, do they have a position location feature? In that case, yes, if you buy a [Starlink] terminal in the U.S. and bring it to India, because of the geographical location change, it might not work. But that is provided the terminal has a built-in geographic location identifier," theorised former Indian Space Research Organisation (ISRO) engineer, Arup Dasgupta. To help visualise how Starlink stops users in prohibited regions from accessing its satellite internet, Mr. Dasgupta used the analogy of a set-top box that does not let TV watchers access some channels while others who have access can watch these channels.

With regards to seized Starlink devices, Mr. Dasgupta pointed out that by tracking the unique identification code of the Starlink terminal, it might be possible to find the buyer. However, this too could prove difficult due to shadow companies obfuscating the trail of illegal buyers. In essence, more information is needed from SpaceX and Mr. Musk to understand how the company ensures that Starlink satellite internet does not reach the countries yet to allow Starlink.

The Hindu was also able to download the Starlink app from the Google Play Store in India and go through the set-up process up to the point a plugged-in Starlink device was needed. This is in stark contrast to banned apps like TikTok, which are unavailable on the app store.

Mr. Musk in February this year also trashed news reports claiming that Starlink devices were being sold to Russia, and later explained that Starlink satellites would not close the link in Russia.

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What does Indian law state?

India strictly regulates and restricts the use of satellite-based communication devices, even by Indian civilians and citizens in conflict-free zones. Everyday gadget users within the country would have noticed that even key satellite-based emergency features on premium phones that are easily available for users overseas are not enabled for use in India. Under Section 6 of the Indian Wireless Act and Section 20 of the Indian Telegraph Act, the use of thuraya/iridium satellite phones is illegal in the country. These restrictions are in place to combat militancy and terrorism.

WHY HAVE MANIPUR SITS MADE LITTLE PROGRESS?

The story so far:

A report accessed by The Hindu shows that the special investigation teams (SIT), set up by the Supreme Court to investigate cases of rape, sexual offences against women, murder, loot, and arson in ethnic violence-hit Manipur, have filed chargesheets only in a fraction of the cases.

When were the SITs set up?

On August 7, 2023, a Supreme Court bench led by former Chief Justice of India D.Y. Chandrachud constituted 42 SITs to probe 6,523 first information reports (FIRs) pertaining to violent crimes, including sexual offences, which were reported in Manipur from May 3 to July 30, 2023. The cleaning of records brought down the number of FIRs to 3,023. Since people were displaced from their homes, many filed zero FIRs at police stations in Manipur or even outside the State as they could not travel to the concerned police station fearing for their safety. Zero FIRs are filed irrespective of jurisdiction and are later transferred to the police station.

The SIT submits a status report every month to the Supreme Court. On December 9, 2024, the court directed the Manipur government to provide details of buildings and properties which were burnt, partially burnt, looted and trespassed during the ethnic violence. The next date of hearing is January 20.

What does the status report say?

The Hindu accessed a status report of the SIT investigations dated November 20, 2024. It showed that the 42 SITs have filed chargesheets in only 6% of the total 3,023 registered cases. Chargesheets, the police summary of allegations, pertaining to various crimes have been filed only in 192 cases.

From August 2023, when the SITs were constituted, till November 20 this year, the teams arrested 384 persons, identified 742 suspects and examined 11,901 witnesses. As many as 574 accused persons have been chargesheeted so far. The report stated that the SIT is investigating 126 cases of murders and 2,888 cases of loot, arson and other property crimes. A closure report has been filed in 605 cases due to a lack of evidence and witnesses. The SIT has recovered 501 weapons, 13,464 ammunition, and 412 magazines among others so far. Overall, the Manipur Police have recovered around 1,800 looted weapons so far.

What is the composition of the SIT?

Based on the recommendation of the Manipur government, the Supreme Court said the cases should be bundled under three categories — FIRs related to murder and heinous crimes, sexual crimes against women, and other crimes such as loot, arson etc. The charter of the SITs was

distributed accordingly, and the teams were further divided into six groups, one each to probe cases of murders, heinous crime and rape, and sexual offences against women, and four groups to probe cases of arson, looting and other crimes.

A Superintendent of Police-rank officer deputed by the Union Ministry of Home Affairs was tasked with supervising three SITs each which comprise two inspectors, six sub-inspectors and 12 constables.

What did the court say?

On July 20, 2023, after a video of two tribal Kuki-Zo women being paraded naked by a mob surfaced on social media, the Supreme Court called for reports indicating the steps taken by the government to hold the perpetrators accountable and ensure that such incidents are not repeated. Though the incident occurred on May 4, 2023, the case was filed in July, after the video went viral.

On August 1, 2023, the State informed the court that 11 FIRs involving cases of violence against women and children had been filed, though this was subject to further verification. Seven arrests were made in connection with these 11 FIRs, the State informed the court. The Centre said the State was willing to transfer the 11 cases to the Central Bureau of Investigation (CBI). The sexual violence case of the two women was transferred to the CBI along with other cases. Expressing dismay at the "tardy pace of investigation," the court constituted a three-member committee headed by Justice Gita Mittal, former Chief Justice of the J&K High Court. The mandate of the committee is to enquire into the nature of violence against women that occurred in Manipur from May 4, 2023, from all available sources and the FIRs lodged as well as media reports.

The court also appointed Dattatray Padsalgikar, former Director General of Police, Maharashtra to supervise the investigation by the CBI into the FIRs transferred to it and the investigation into the remaining FIRs.

What are the challenges?

A senior government official says there are several logistical issues hampering the investigation. For recording the statement of a victim, language is a challenge as many officers heading the investigating teams are from outside the State. There have been instances when victims have changed their phone numbers. "Then, for an FIR registered in Imphal (valley), a victim who hails from the hill districts, will not want to speak to an officer from the valley — this causes delays. The same is true for cases registered in the hills when the victims are from the valley," said the official.

When will the cases go to trial?

The trial is yet to commence in any of the cases, as a direction from the Supreme Court is awaited. There are concerns about holding the trial in the State due to the ongoing ethnic violence. Even though the CBI filed a chargesheet last October in a CBI court in Guwahati in the sexual violence case of the two Kuki-Zo women, the trial is yet to begin.

WHAT ARE THE NEW INTERCEPTION RULES AND SAFEGUARDS?

The story so far:

The Union Government, on December 6, notified the Telecommunications (Procedures and Safeguards for Lawful Interception of Messages) Rules, 2024 which empower some enforcement

and security agencies to intercept phone messages under certain conditions. These rules supersede Rule 419A of the Indian Telegraph Rules, 1951.

What do the new rules state?

The new rules authorise the Union Home Secretary and the Secretary to the State government in-charge of the Home Department as the competent authority to order the interception of any message or class of messages. An officer not below the rank of a Joint Secretary to the Union Government, may also issue such order of interception in 'unavoidable circumstances' (without defining such circumstances). The Central Government may also authorise any law enforcement or security agency to intercept messages for reasons specified under Section 20(2) of the Telecommunications Act, 2023.

'In remote areas or for operational reasons', the head or the second senior most officer of the authorised agency at the central level, and head or the second senior most officer of the authorised agency (not below the rank of IG Police) at the State level may also issue an order of interception, but the officer will have to submit such an order to the competent authority within three working days of the date of its issuance. If such order is not confirmed by the competent authority within seven working days from the date of issue, such interception shall henceforth cease. The rules also mandate the destruction of records relating to interception every six months by the authorised agency and review committee (unless required for functional requirements or court directions).

How are the new rules different?

First, the condition of interception by authorised agencies only in 'emergent cases', has been relaxed. Interception by authorised agencies is now possible if it is not feasible for the competent authority to issue orders in 'remote areas or for operational reasons'. Second, under Rule 419A, there was no limit for the number of IGP rank officers at the State level who could be authorised for interception. But now, in addition to the head of the authorised agency, only (one) the second senior most officer can be authorised for interception. Third, in case the interception order by an authorised agency is not confirmed within seven days, any messages intercepted shall not be used for any purpose, including as evidence in court.

The Indian Telegraph Act of 1885 had provided the Union Government to make rules for 'the precautions to be taken for preventing the improper interception or disclosure of messages', but no such safeguards were framed for a long time. The safeguards and procedure of interception under Rule 419A were notified only in March, 2007, consequent to the directions issued by the Supreme Court in People's Union for Civil Liberties (PUCL) versus. Union of India and Another in 1996. The Supreme Court, in this case, not only elaborated the terms 'public emergency or in the interest of the public safety', but also held that the right to privacy cannot be curtailed arbitrarily without laying down safeguards which are just, fair and reasonable.

What are concerns about new rules?

While the pre-requisite of 'emergent cases' for interception by authorised agencies has been relaxed without additional checks, the rules are criticised for not fixing any accountability for the wilful misuse of powers of interception by authorised agencies. The rules are silent about punitive actions if any authorised agency abuses the powers of interception for a period up to seven days, before its confirmation by the competent authority.

SURVEILLANCE REFORM IS THE NEED OF THE HOUR

On December 20, a U.S. court ruled that Israel's NSO Group was liable for installing Pegasus, a spyware suite, on the phones of targeted individuals through WhatsApp. In an article dated July 20, 2021, Anushka Jain and Tanmay Singh argue the growing need for surveillance reform, stressing the importance of privacy protections and the risks of unchecked surveillance practices.

It is worth asking why the government would need to hack phones and install spyware when existing laws already offer impunity for surveillance. This unsettling query arises on the basis of reports emerging from a collaborative investigation by journalists from around the world, including from India's The Wire, titled the 'Pegasus Project'. Reports say that over "300 verified Indian mobile telephone numbers, including those used by Ministers, Opposition leaders, journalists, the legal community, businessmen, government officials, scientists, rights activists and others", were targeted using spyware made by the Israeli firm, NSO Group.

Threat to press freedom

Subsequent reporting showed that the Pegasus spyware had been used to target 37 phones, of which 10 belonged to Indians. Amnesty International's Security Lab was then able to confirm that Pegasus was used to compromise the phones of former journalist of The Indian Express Sushant Singh, former editor of the Economic and Political Weekly Paranjoy Guha Thakurta, former Outlook journalist S.N.M. Abdi, and The Wire's two founding editors Siddharth Varadarajan and M.K. Venu.

These revelations highlight a disturbing trend with regard to the use of hacking software against dissidents and adversaries. In 2019, similar allegations were made about the use of Pegasus against journalists and human rights activists. Most of them were situated in Maharashtra and Chhattisgarh as the hack targeted lawyers related to the Bhima Koregaon case and Dalit activists, respectively. However, despite repeated calls for investigations, the relevant State governments failed to do so.

A significant number of Indians reportedly affected by Pegasus this time are again journalists. This is not surprising since the World Press Freedom Index produced by Reporters Without Borders has ranked India 142 out of 180 countries in 2021. What is shocking, however, is that the press requires (and in democracies is afforded) greater protections on speech and privacy. Privacy and free speech are what enable good reporting. They protect journalists against threats of private and governmental reprisals against legitimate reporting. This has been recognised in Supreme Court decisions. In the absence of privacy, the safety of journalists, especially those whose work criticises the government, and the personal safety of their sources is jeopardised. Such a lack of privacy, therefore, creates an aura of distrust around these journalists and effectively buries their credibility.

Problematic provisions

The government, in its purported undated and unsigned response, relied on existing provisions of law under the Indian Telegraph Act of 1885 and the Information Technology (IT) Act of 2000. Even without the use of Pegasus or any other hacking software and surveillance, these provisions are problematic and offer the government total opacity in respect of its interception and monitoring activities. While the provisions of the Telegraph Act relate to telephone conversations, the IT Act relates to all communications undertaken using a computer resource. Section 69 of the

IT Act and the Interception Rules of 2009 are even more opaque than the Telegraph Act, and offer even weaker protections to the surveilled. No provision, however, allows the government to hack the phones of any individual since hacking of computer resources, including mobile phones and apps, is a criminal offence under the IT Act. Nonetheless, surveillance itself, whether under a provision of law or without it, is a gross violation of the fundamental rights of citizens.

The very existence of a surveillance system impacts the right to privacy and the exercise of freedom of speech and personal liberty under Articles 19 and 21 of the Constitution, respectively. It prevents people from reading and exchanging unorthodox, controversial or provocative ideas. Regardless of whether a citizen knows that their email is being read by the government, the perceived danger, founded on reasonable suspicion that this may happen, itself impacts their ability to express, receive and discuss such ideas.

There is also no scope for an individual subjected to surveillance to approach a court of law prior to or during or subsequent to acts of surveillance since the system itself is covert. In the absence of parliamentary or judicial oversight, electronic surveillance gives the executive the power to influence both the subject of surveillance and all classes of individuals, resulting in a chilling effect on free speech. Constitutional functionaries such as a sitting judge of the Supreme Court have reportedly been surveilled under Pegasus without any checks outside the executive wing of government. Vesting such disproportionate power with one wing of the government threatens the separation of powers of the government. In response to a Right to Information (RTI) request in 2013, the Central government had revealed that 7,500 to 9,000 orders for interception of telephones are issued by it every month. However, RTI requests for such information are now denied citing threats to national security and to the physical safety of persons.

The government, in its purported response, stated that any surveillance which takes place happens through a "due process of law". However, the existing provisions are insufficient to protect against the spread of authoritarianism since they allow the executive to exercise a disproportionate amount of power. Such surveillance, when carried out entirely by the executive, curtails Articles 32 and 226 of the Constitution (empowering the Supreme Court and High Courts, respectively, to issue certain writs) as it happens in secret. Thus, the affected person is unable to show a breach of their rights. This violates not only the ideals of due process and the separation of powers but also goes against the requirement of procedural safeguards as mandated in K.S. Puttaswamy (Retd) v. Union of India (2017).

Role of judiciary

Thus, in order to satisfy the ideal of "due process of law", to maintain an effective separation of powers and to fulfill the requirements of procedural safeguards and natural justice, there needs to be oversight from another branch of the government. Only the judiciary can be competent to decide whether specific instances of surveillance are proportionate, whether less onerous alternatives are available, and to balance the necessity of the government's objectives with the rights of the impacted individuals. The need for judicial oversight over surveillance systems in general, and judicial investigation into the Pegasus hacking in particular, is also essential because the leaked database of targeted numbers contained the phone number of a sitting Supreme Court judge, which further calls into question the independence of the judiciary in India.

Surveillance reform is the need of the hour in India. Not only are existing protections weak but the proposed legislation related to the personal data protection of Indian citizens fails to consider surveillance while also providing wide exemptions to government authorities. When spyware is

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expensive and interception is inefficient, the individuals surveilled will be shortlisted by priority and perceived threat level to the existing regime. But as spyware becomes more affordable and interception becomes more efficient, there will no longer be a need to shortlist individuals. Everyone will be potentially subject to state-sponsored mass surveillance. The only solution is immediate and far-reaching surveillance reform.

FORMER HOME SECRETARY BHALLA IS GOVERNOR OF MANIPUR, ARIF KHAN GOES TO BIHAR

The government on Tuesday announced new gubernatorial appointments, including former Union Home Secretary Ajay Kumar Bhalla as Governor of Manipur and former Army Chief General V K Singh as Governor of Mizoram.

Among the other appointments by President Droupadi Murmu on Tuesday are: Kerala Governor Arif Mohammed Khan as Governor of Bihar; Mizoram Governor Dr Hari Babu Kambhampati as Governor of Odisha; and Bihar Governor Rajendra Vishwanath Arlekar as Governor of Kerala.

The choice of Bhalla as Manipur Governor is significant as the Centre has been struggling to control the ethnic violence in the state for over one-and-a-half years. Bhalla was Union Home Secretary when the violence began on May 3, 2023.

Despite the deployment of Central Armed Police Forces and Army personnel in significant numbers, violence between the Meitei and Kuki populations in the state has continued unabated. Bhalla, who retired in August this year, will be expected to use his experience as Union Home Secretary to check the violence and find a way to bring the warring parties to the negotiating table.

As Kerala Governor, former Congress leader Arif Mohammed Khan has had several run-ins with the CPI(M) government led by Chief Minister Pinarayi Vijayan. His move to Bihar is significant as the state is set to go to polls next year.

Former Army Chief General V K Singh was a Minister of State (External Affairs, Road Transport and Highways, Civil Aviation) in the previous NDA government. However, ahead of the 2024 Lok Sabha elections, he was not given a BJP ticket.

His appointment as Mizoram Governor is significant as the NDA suffered a drubbing in the last Assembly polls. Mizoram is also closely associated with the ongoing turmoil in Manipur as its population identifies with the Chin-Kuki hill tribes of Manipur.

Former BJP MP from Andhra Pradesh Hari Babu Kambhampati was officiating as the Governor of Mizoram before being sent to Odisha.

In a related development, the President accepted the resignation of Raghubar Das as Governor of Odisha amid speculation that the former Jharkhand Chief Minister may make a comeback in active politics in his home state.

The BJP leadership's continued trust in Kambhampati is in line with its tradition of rewarding party veterans, specially those who participated in the JP movement. In 1974-1975, Kambhapati participated in the Lok Sangharsh Samiti agitation under Jayaprakash Narayan. He was arrested under Maintenance of Internal Security Act (MISA) during Emergency and imprisoned for six months.

After serving as office-bearer in the Janata Party and, subsequently, the BJP, Kambhampati was elected as MLA from Visakhapatnam- I constituency in 1999. In March 2014, he was elected as the president of the BJP's Andhra unit.

Arlekar, who has been shifted from Bihar to Kerala as Governor, is an RSS veteran. He joined the BJP in 1989, and was an active member of the Goa BJP. When former Goa Chief Minister Manohar Parrikar was brought to the Centre as the Union Defence Minister in 2014, Arlekar was in the running for the Chief Minister's post, but the party finally picked Laxmikant Parsekar instead.

In July 2021, Arlekar was appointed Governor of Himachal Pradesh, after Bandaru Dattatreya was shifted from Himachal Pradesh to Haryana as Governor. Arlekar was later appointed Bihar Governor.

AN AVOIDABLE TRAGEDY

As tragic as it is, India is arguably the country with the highest number of stampedes and resultant injuries and fatalities. Data from the National Crime Records Bureau reveal that between 1996 and 2022, India recorded 3,935 stampede incidents, resulting in more than 3,000 deaths. These numbers show a chronic failure in ensuring public safety during religious festivals, political rallies, and celebrity appearances. Religious gatherings account for a significant proportion of these tragedies. In 2011, in Sabarimala, 106 people died on a narrow pathway. In 2013, during the Kumbh Mela in Allahabad, 36 people were killed at a railway station due to overcrowding. Political rallies have also proven deadly — in 2014, more than 30 people were killed in a stampede at Gandhi Maidan in Patna. While stampede fatalities during celebrity appearances have been rare, they point to the dangerous combination of fan fervour and poor planning.

During a promotional event for the film Pushpa 2: The Rule, at Hyderabad's Sandhya Theatre, a "surprise" appearance by Telugu actor Allu Arjun led to a stampede. A 35-year-old woman, Revathi, lost her life, and her eight-year-old son, Sri Tej, is battling for survival. Allu Arjun, the film's production team, and the director have collectively decided to donate ₹2 crore to Revathi's family. In the aftermath, blame has been laid on the Hyderabad police, the actor, and his production team. Questions surrounding protocol, security arrangements, and crowd control have yet to yield clear answers. Was the police force prepared for the size of the crowd? Did the actor and his production team respond swiftly when they got news of the stampede? Revathi's death points to a recurring pattern of negligence, mismanagement, and inadequate planning. India must prioritise crowd safety with actionable measures. It is important to consider spatial and thermal comfort when planning events and provide sufficient hydration facilities to prevent exhaustion. There should be multiple and clearly designated entry and exit points, capable of handling the projected crowd size. Emergency preparedness, including the deployment of medical aid, trained personnel, and effective chaos management protocols, must be a non-negotiable standard. India ought to ensure the safety of its citizens, whether they gather for faith, fandom, or politics.

EXPRESS VIEW: BY ISSUING NOTICES ON AAP'S CAMPAIGN PROMISES, THE BABU IS TRYING TO BE A POLITICIAN

Senior bureaucrats, more than most, should know — and respect — the red line between the mandate of an elected political executive and unelected officers. It is not for the latter — unless they are explicitly mandated by the Constitution to do so, as in the case of Election Commissioners — to comment on the election promises of political parties and the processes by which they campaign and garner support. In essence, the fundamental principle that at least two senior

officers in the Delhi government have breached is this: They are not political actors, and they should not act as such. On Wednesday, two notices were issued by a Joint Director in the Department of Women and Child Development and the Special Secretary, Health and Family Welfare Department. Both notices called promises by the Aam Aadmi Party (AAP) "fraudulent". Even by the warped standards of the dysfunctional relationship between the AAP-led Delhi government and the bureaucracy, the notices are shocking.

The bureaucrats appear to have taken issue with two schemes. The Mukhyamantri Mahila Samman Yojna (MMSY) — announced in the last state budget — which promises non-tax paying women Rs 1,000 per month was cleared earlier this month. The second is a promise of free healthcare to people above 60 years of age, which is yet to receive the Cabinet's nod. AAP has also promised to raise the disbursement under the MMSY to Rs 2,100 if re-elected in the forthcoming Assembly elections. Currently, the party is carrying out a registration drive for both schemes. The statement that the MMSY "has not been notified" is patently false. And to say that the collection of data by the AAP is "fraudulent and without authority," is also contentious: Ruling parties have carried out such drives without inviting such a strong response. For example, a registration exercise for the Mahtari Vandana Yojna, which also promised a stipend to women voters, was carried out by the BJP in 2023. It is also important to note that the election dates for the Delhi polls are yet to be announced and the Model Code of Conduct is not in effect: The government and political parties are, as elsewhere in the country, within their rights to formulate and announce policy at this juncture.

The AAP leadership has responded to the notices by saying that they are politically motivated. Bureaucrats, like all Indian citizens, have the right to engage in partisan politics — but to do so, they should formally join political parties and relinquish their official posts. In any other context, the actions in Delhi are indefensible. Did any officer invoke fiscal reforms to object to campaign speech after speech in Maharashtra promising a raise in the Ladki Bahini scheme's entitlement? Will a Secretary in the Union Finance or Home Ministry, or the Chief Secretary of any state for that matter, issue a notice against poll promises made by their ministers? Of course, in Delhi, the relationship between the elected government and services is fraught — but even by those standards, this is the babu playing neta. Either the babus lack a spine and are rubber-stamping as per orders — or they are freelancers more loyal than their king. Either way, their actions are a shameful dent in the steel frame.

EXPRESS VIEW ON AAP GOVERNMENT HUNTING FOR ILLEGAL MIGRANTS AMONG SCHOOLCHILDREN: LEAVE THEM KIDS ALONE

A question often asked of the Aam Aadmi Party (AAP) is this: What does it stand for? For any party engaged in the complexity of electoral politics, the answer is rarely straightforward. However, in its nearly decade-long stint in power in Delhi, certain essential aspects of its ideological positions have become clear. Salient among these is the fact that it has chosen not to — or, as is evident, lacks the courage to — take a stand on minority rights at a time when they are widely seen as extremely embattled. So lest it be painted with the pro-minority brush the BJP likes to wield across the Opposition canvas, the AAP government whips itself into a frenzy on the issue of Rohingya and Bangladeshi Muslims. So what if it undermines its own much-advertised "Delhi model" of governance whose chief feature is a focus on its impressive success in improving school education. The circular issued by the Delhi government Monday demands that "schools must ensure strict admission procedures, verification of students' documentation to prevent illegal Bangladeshi migrants' enrollment, implementation of greater scrutiny to detect and prevent unauthorised

admissions of illegal Bangladeshi migrants in particular". Nothing could be farther from good governance than this circular which, in effect, weaponises teachers and students, in fact the entire school against the most vulnerable among them.

The classroom must be a safe space. The school is where children learn to overcome the divisions that mark broader society — not deepen them for electoral gains. Of course, illegal migration is a fraught issue and any government that runs the national capital has to address it. It needs a policy response at several levels including working in concert with the Central government whose mandate is to secure borders. School children cannot be the first port of call to address it. A border can be policed — a classroom must not be. In fact, the circular flies in the face of the Right to Education, which flows from the fundamental rights enshrined in Articles 21 (life and dignity) and 14 (equality). Delhi's Directorate of Education seemed aware of this basic principle as recently as April 2024. Its admission circular stated: "Admission will not be denied to any divyang child, destitute child, refugee/asylum seeker, homeless, migrant, orphan or child in Need of Care and Protection in any Govt. school due to the non-availability of essential documents at the time of submission of documents in the school."

Monday's circular is not the first time the AAP has used parochialism as a political plank. In April 2022, its leaders all but blamed Rohingya refugees for communal violence in Delhi, without citing any evidence. Even by those diminished standards, looking for illegal immigrants in the classroom is a new low. Chief Minister Atishi, one of the progressive faces of the AAP's successes in school education, waving the notification that seeks to all but criminalise children, paints the picture of a party and government that lacks both political imagination and the moral compass that points true north. It also undermines her party's "governance model". Delhi, as the national capital and one of India's most important economic and cultural centres, should be an example to follow, not avoid. The AAP government must withdraw the circular and ensure that the school remains a place for learning, not fear, targeting and intimidation.

LETTER AND SPIRIT

Among the key school education reforms instituted by the UPA government as part of the Right to Education were Continuous and Comprehensive Evaluation (CCE) and a 'no detention' policy up to Class 8. Both sought to create a benign environment in school so that there was no pressure of final examinations and "standards" on the child. The CCE was to be executed from Class 6, in discrete steps throughout the year, which meant no scary final test of just academic achievement based on a year-long curriculum. Whether those reforms contributed to the current situation or not, the reality is that a significant number of students passing out of primary school do not have foundational numeracy and literacy. And they do not seem to catch up by the time they leave middle school. Recognising the gap in achieving learning outcomes, the NDA government sought to do away with the no detention policy, in 2019, leaving it to the appropriate State governments. The CCE was given up too. But the COVID-19 pandemic intruded and made it impossible for schools to even consider detaining students. The recent notification of the Ministry of Education has removed the discretion given to State governments. It has mandated a final examination at the end of Class 5 and Class 8, which will assess a child's competence. If he or she is not found to be competent, the child will be re-examined after two months after additional instruction. If the child fails again, he or she will be detained. The rules say no child should be expelled before completing elementary education.

Practical necessity is driving this change in norms. Steps do need to be taken to address the gap in the learning outcomes achievement. An educated, capable and skilled population is needed to

reap the demographic dividend. It takes an entire neighbourhood to educate a child, not just the school and parents. The dismal situation in learning outcomes is a collective failure of society that needs to be addressed. But it would take a lot more than this particular change in policy to trigger a turnaround. CBSE-affiliated and other private schools can easily implement the new policy. However, for some States, it will be a political hot potato. Private schools should not use this as an excuse to expel poor performing students — safeguards would be needed. A sad consequence of the policy is that it brings back a single final examination as an arbiter of a child's promotion or detention. While NEET or the JEE may be taken as special cases applying to extremely competitive professions, to bring back one final test at the school level is a regression. The National Education Policy 2020, for instance, wants to replace summative assessment with formative, and promote self and peer assessments. It promises a "holistic, 360-degree, multidimensional progress report card" detailing the "progress and the uniqueness of each student". The new detention policy does not reflect the NEP's spirit.

EXPRESS VIEW ON EXAM REFORM RECOMMENDATIONS: TEST, NOT STRESS

The recommendations of a seven-member panel, headed by former ISRO chairman K Radhakrishnan, to improve the transparency and efficiency of national entrance examinations come as a much-needed acknowledgement of the problems that plague the country's higher education system. Disruptions in national entrance examinations have become routine in India — a report in this newspaper earlier this year revealed that in the last five years, across 15 states, there have been 41 documented instances of paper leaks affecting 1.4 crore potential employees. In 2024 alone, both NEET and the UGC-NET saw postponements and cancellations due to the compromised integrity of these exams, a euphemism for paper leaks, while the conduct of CUET and the delayed declaration of its results for a third consecutive year created challenges of its own. For young aspirants, this is the perfect recipe for a crisis, given that the demand-supply anomaly is a Sisyphean paradox in itself. The panel's recommendations, which include a call for better infrastructure, improved exam security, devolution of the role of National Testing Agency (NTA) and more stringent protocols, therefore is a welcome move.

In its suggestions, the committee has said that the "high dependence" on the NTA be reduced, so that it conducts only entrance examinations and not recruitment ones. Since it was set up in 2018, the NTA has conducted 244 tests. The number of candidates registered for these tests has nearly doubled from an average of 67 lakh per year in 2019-2021 to 122 lakh per year in 2022-23. This makes it particularly vulnerable to malpractices and corruption because the NTA relies on third-party service providers. The committee has also recommended an election-like tiered collaboration between the Centre and states in managing the security of these examinations and a "digi-exam" system that replicates the DigiYatra model for biometric verification of candidates. A migration to "computer adaptive testing" where questions based on individual ability are queued has also been recommended.

The panel has advocated for a comprehensive review of the examination process, including the creation of a more robust security system and accessible digital infrastructure. This is a step in the right direction. Experience shows that the gap between infrastructure and execution, aspiration and opportunity creates fertile grounds for exploitation. From poor user interfaces to inadequate support systems for candidates, the CUET's many glitches, for instance, have proved that a tech-driven overhaul demands meticulous preparation to ensure that a new form of inequality is not created inadvertently. It is not enough to simply digitise or make the process

more elaborate. It must be ensured that no student is left behind and that the systems put in place are intuitive enough for all candidates to navigate without confusion or undue stress.

SECURITY IN SAFETY

People derive a sense of ease from what they perceive to be safe cloisters; they let their guard down in these areas and, relax. When an attack happens in safe environs, it would be a harsh betrayal of that sense of trust. In the recent case of sexual assault within the campus of Anna University, Chennai, there has not only been a vile violation of a young student's bodily integrity, but also, possibly as painful, a gross betrayal of trust. On December 23, in one of Tamil Nadu's top engineering institutes, Anna University, a public State-run institution, the engineering student and her friend, also a student, decided to take a walk after dinner. As they walked into a rather secluded neck of the woods, the horror began for them. A stranger there accosted the male companion, threatened him and then went on to sexually assault the girl. Traumatised by her ordeal, the girl called the police helpline — 100 — the next day, and a team from the all women's police station nearby reached the university and took her complaint. She gave a full account of the incident, assuring them that she would be able to identify the culprit if she were to see him again. On Wednesday, police arrested Gnanasekaran, a roadside vendor who has a bunch of petty cases against him, after he had been identified in an identification parade. Apparently, though not an employee, he used to frequent the varsity campus as his wife was a contract labourer employed by the university to work within the premises.

In the aftermath of the incident, the Higher Education Minister said more lights would be provided across the campus, and all the overgrown bushes trimmed. Efforts have also been initiated to regulate who enters the campus, by conducting an ID check before allowing visitors in. While the incident has provoked widespread outrage, it has also acquired varied political hues, with reactions from some quarters bordering on the absurd. What is essential is for the government to ensure, without a doubt, that every corner of all its educational institutions and their vast cloisters are safe for all students. Whatever needs to be done in aid of that should be done, costs notwithstanding. Additionally, the personal details of the complainant were revealed in the public realm, a clear violation of the law and repeated court guidelines. This too must never be allowed to happen another time. The alacrity displayed in apprehending the culprit should be extended to the filing of charges and securing a conviction for a just closure to this horrific crime.

HOW DOES GOOGLE'S GENCAST AI, WHICH PREDICTS THE WEATHER, WORK?

The story so far:

On December 4, Google DeepMind unveiled GenCast, an Artificial Intelligence (AI) model the company said could forecast the weather better than most existing tools as well as more days in advance. Details of the model were published in a peer-reviewed paper in the journal Nature.

How do we forecast weather?

"Weather predictions ... are produced by running multiple numerical simulations of the atmosphere," Vassili Kitsios, senior research scientist at the Commonwealth Scientific and Industrial Research Organisation of Australia, wrote earlier this month. "Each simulation starts from a slightly different estimate of the current weather. This is because we don't know exactly what the weather is at this instant everywhere in the world. ... By solving equations describing the fundamental physical laws of nature, the simulations predict what will happen in the atmosphere."

This process is called Numerical Weather Prediction (NWP). The best NWP forecasts require the use of powerful supercomputers as well as high-quality data about the weather at a particular location. Even then NWPs can predict the weather only a week or so in advance.

Ensemble forecasts entered the picture in the 1990s. Here, scientists use an NWP model to produce multiple forecasts at a certain location in time, with different starting conditions. This collection of forecasts is called an ensemble and indicates the range of meteorological possibilities.

How does GenCast perform?

Google's GenCast uses ensemble forecasting too but the options in the ensemble come from an AI model rather than an NWP. Engineers at Google trained this AI model on 40 years of reanalysis data, from 1979 to 2019. According to the European Centre for Medium-Range Weather Forecasts (ECMWF), "Reanalysis data provide the most complete picture currently possible of past weather and climate. They are a blend of observations with past short-range weather forecasts rerun with modern weather forecasting models."

GenCast was trained in two steps: step I in 3.5 days and step II in 1.5 days, both with 32 TPU v5 instances. 'TPU' is short for 'tensor processing unit', an integrated circuit Google developed to run machine-learning models, sold via Google Cloud. In December 2023, Google Cloud launched a TPU called v5p: it contains 8,960 chips interconnected with a bandwidth of 4,800 Gbps/chip, and costs $4.2 per chip-hour on demand.

Just like ChatGPT is good at identifying what the next word in an unfinished sentence could be, GenCast is good at guessing what the weather will be in the next moment given the weather until some point. According to the Nature paper, GenCast had "greater skill than ENS on 97.2% of 1,320 targets we evaluated and better predicts extreme weather, tropical cyclone tracks and wind power production." ENS refers to the ensemble forecasts generated by ECMWF, considered one of the best in NWP.

Google also said GenCast was more accurate than ENS on 99.8% of the 1,320 targets when asked to predict the weather more than 36 hours in advance.

How does GenCast work?

The AI model described in the paper had a neural network with 41,162 nodes and 2.4 lakh edges. Each node is a point in the network where some input data is accepted, manipulated, and an output is generated as the input for another node. An edge is a connection between nodes.

For how this setup processes data, see the diagram above. The globes at the bottom show a weather prediction at four points of time, one after the other. Each prediction is generated by combining existing weather data with a noisy input. GenCast's challenge is to extract from the noisy input — the globes on the top — a weather prediction for the next moment in time. To do this, the model runs the combination through a refinement (green box), produces a less noisy prediction, then combines this again with the input data, runs a second refinement, then combines the new output with the input data, runs a third refinement, and so on until it finishes 30 refinements. The final de-noised output, called X1, is the final weather prediction for the next moment in time. To predict the weather for the moment after, the model begins by accepting X1 as the input and starts afresh with a noisy input. The green boxes have the neural networks.

The ability to de-noise a noisy input is a common feature of a diffusion-type AI model, which GenCast is. Other famous apps that use diffusion models include OpenAI's text-to-video model Sora and Stability AI's text-to-image model Stable Diffusion, both of which are also examples of generative AI.

GenCast produces at least 50 forecasts at a time for the ensemble, and Google has said each forecast can be produced in parallel. In all, the ensemble contains forecasts for 15 days at a time, with a spatial resolution of 0.25° x 0.25° (latitude-longitude) and temporal resolution of 12 hours. The researchers found this entire process took GenCast running on one TPU v5 unit eight minutes, much shorter than the several hours required by supercomputers for NWP.

Will GenCast replace NWP?

GenCast's forecasts are probabilistic rather than deterministic, that is, "there will be 25% chance of rain in Chennai on December 25" rather than "there will be 5 mm of rain in Chennai on December 25". Current NWP models and their ensembles are deterministic. Experts have said probabilistic weather forecasts are better at revealing the possibility of extreme weather events.

"We should make more use of these probabilistic forecasts for extreme events instead of relying on quantitative predictions. Probabilistic forecasts provide more lead time, which can be used for better preparation," former secretary to the Indian government Madhavan Rajeevan wrote in The Hindu in December 2023.

This said, while GenCast's performance suggests AI weather models will soon surpass the abilities of NWP models, both NWP and GenCast are founded on more fundamental weather data still acquired using the laws of physics.

Experts have said understanding the weather using these laws remains important because the weather is changing rapidly in many parts of the world, in ways in which historical weather conditions can't prepare us for.

GenCast itself requires more reanalysis data to train itself. As Google said in a public statement: "We deeply value our partnerships with weather agencies, and will continue working with them to develop AI-based methods that enhance their forecasting.

Meanwhile, traditional models remain essential for this work. For one thing, they supply the training data and initial weather conditions required by models such as GenCast." The code to run GenCast is available on GitHub.

DeepMind has also been working on a model called GraphCast to develop "deterministic medium-range forecasts". Google Research has been developing a model called NeuralGCM that combines AI and NWP models to generate deterministic forecasts, and at least two other models to predict extreme floods and to quantify forecasting uncertainties. Elsewhere, Huawei's Pangu-Weather model can predict the weather one week at a time with accuracy comparable to NWP but much faster. Nvidia's FourCastNet model can already outperform a state-of-the-art NWP facility at ECMWF at predicting extreme rainfall, in less than two seconds.

PUSHED THROUGH

Prime Minister Narendra Modi flagging off work on the Ken-Betwa river interlinking project signalled that the national government is unbothered by the wide-ranging opposition to it. At a

budgeted cost of ₹44,605 crore, the project will draw supposedly "excess" water away from the Ken river basin towards the Betwa river basin and thereon to farmland and human settlements. When the Union Cabinet approved the project in 2021, the National Green Tribunal was still deliberating a challenge to its green clearance. This was typical of the state's tendency to pardon businesses found in violation of environmental laws after they had made considerable investments. The government itself has ignored critical comments from experts, including members of an empowered committee appointed by the Supreme Court, and bypassed due process. The law has strict terms for allowing hydroelectric power projects in ecologically sensitive areas — the Daudhan Dam will be erected inside the Panna Tiger Reserve — but there is little evidence of such scrutiny. Work on the dam will destroy lakhs of trees and destabilise fragile ecosystems. The government has also refused to release hydrological data of the basins claiming they are sensitive by virtue of being subsets of the international Ganga basin.

That a river interlink will water fields and quench thirst is irrefutable, but for how long? Various studies have asserted that the Ken and the Betwa basins suffer floods and droughts together, that the subcontinent's rainfall and sedimentation patterns stand to be altered, and that the Betwa basin can be replenished more affordably by maintaining environmental flows and bolstering natural storage. The government's principal claim is that the Ken and the Betwa basins are respectively water-surplus and water-deficient. This is disingenuous: the Betwa basin is water-deficient strictly because it hosts several lakh hectares of irrigated cropland. Should the demand in the Ken basin increase, both areas will suffer. Experts have instead suggested that the project is a ploy to pacify the electorate in Bundelkhand — as its approval months ahead of State polls in Uttar Pradesh also suggested — and/or to improve water supply to reservoirs in the lower Betwa thanks to other upstream blockades. The project seems more the product of political expediency and self-image than current ecological sense. The more resources the government sinks into it, the more unlikely changing or reversing course will become in the face of adverse developments. When they come to pass, the responsibility and costs of mitigating the adverse consequences of this and other projects, including the recently launched Parbati-Kalisindh-Chambal link, will fall to the people.

PM MODI LAYS FOUNDATION STONE: WHAT IS THE KEN-BETWA RIVER LINKING PROJECT, ENVIRONMENTAL CONCERNS AROUND IT

Prime Minister Narendra Modi laid the foundation stone of the Ken- Betwa River Linking National Project on Wednesday (December 25), on the 100th birth anniversary of former Prime Minister Atal Bihari Vajpayee.

The Congress criticised the PM for this, saying the project poses a threat to the Panna Tiger Reserve.

What is the Ken-Betwa Link Project (KBLP)?

The KBLP envisages transferring water from the Ken river to the Betwa river, both tributaries of the Yamuna. The Ken-Betwa Link Canal will be 221 km in length, including a 2-km tunnel.

— It is the first project under the National Perspective Plan for interlinking of rivers, which was prepared in 1980. This plan has 16 projects under its peninsular component, including the KBLP. Apart from this, 14 links are proposed under the Himalayan rivers development plan.

— The Ken-Betwa Link Project has two phases. Phase-I will involve building the Daudhan Dam complex and its subsidiary units such as the Low Level Tunnel, High Level Tunnel, Ken-Betwa Link Canal and power houses. Phase-II will involve three components — Lower Orr Dam, Bina Complex Project and Kotha Barrage.

— On March 22, 2021, a memorandum of agreement was signed among the Ministry of Jal Shakti and the governments of Madhya Pradesh and Uttar Pradesh to implement the Ken-Betwa Link Project.

— The idea of linking the Ken with the Betwa got a major push in August 2005, when a tripartite memorandum of understanding for preparation of a detailed project report (DPR) was signed among the Centre and the two states.

— The project lies in Bundelkhand, which spreads across 13 districts of Uttar Pradesh and Madhya Pradesh. According to the Jal Shakti Ministry, the project will be of immense benefit to the water-starved region, especially the districts of Panna, Tikamgarh, Chhatarpur, Sagar, Damoh, Datia, Vidisha, Shivpuri and Raisen of Madhya Pradesh, and Banda, Mahoba, Jhansi and Lalitpur of Uttar Pradesh.

— The river-linking project has faced intense scrutiny for its potential environmental and social impact. The project will involve large-scale deforestation inside the heart of the Panna National Park and Tiger Reserve.

— The submergence of around 98 sq km of Panna national park, where tigers had gone locally extinct in 2009, and felling of about two to three million trees has been one of the most controversial aspects of the project. The Daudhan dam is situated inside the national park.

— The dam will displace 5,228 families in Chhatarpur district and 1,400 families in Panna district due to submergence and project-related acquisition.

Do You Know:

— Rajasthan and Madhya Pradesh signed a Memorandum of Understanding (MoU) with the Union Ministry of Jal Shakti on Sunday to implement the Modified Parbati-Kalisindh-Chambal-ERCP (Modified PKC-ERCP) Link Project.

— The project envisages integration of the long-pending PKC river link project with the Eastern Rajasthan Canal Project, under the national perspective plan of interlinking of rivers (ILR) programme of the Government of India.

— Last year, the Patna High Court has directed the Centre and Bihar government to set up Kosi Development Authority and interlink Kosi and Mechi rivers to tackle annual floods often caused due to excess water discharged from Nepal.

WHY IS STRENGTHENING FISHERIES EXTENSION SERVICES CRUCIAL?

The story so far:

India possesses diverse fisheries resources that provide livelihood opportunities to approximately three crore fishers and fish farmers. The country has witnessed an 83% increase in the national fish production since 2013-14, that stands at a record 175 lakh tons in 2022-23. With 75% of this coming from inland fisheries, India is the second-largest fish and aquaculture

producer globally. In this backdrop, strengthening last-mile fisheries and aquaculture extension services is of paramount importance. Experts contend that such extension should provide request-based services to fishers/fish farmers on the life cycle of improved species cultured, water quality, disease, and available rearing technologies; address issues faced by seed growers and hatcheries; and conduct need-based training to promote sustainable practices and fisheries-based activities that have the potential to be viable business models.

What is the role of Matsya Seva Kendras?

Under the flagship Pradhan Mantri Matsya Samapada Yojana, 'Matsya Seva Kendras' (MSK) has been envisioned as one-stop solution to provide a range of extension services by trained aquaculture professionals. The governmental assistance to set up such Kendras for women and weaker sections is available to the extent of 60%. Funds have been provided to State governments and Union Territories for operationalising 102 such Kendras. For example, the MSK in Thrissur, Kerala has a well-equipped lab for water, soil, and microbial analysis to conduct request-based disease tests, while the MSK in Nasik and Sangli districts in Maharashtra focuses on capacity building for fishers/fish farmers on varied seed/feed inputs backed with the required technology infusion.

Fostering a 'whole of government approach,' the Government of India advises MSKs to mobilise start-ups, cooperatives, fish farmers' producer organisations, joint liability groups, and self-help groups to share best practices. The latter includes regenerative and conservation management practises for both inland and marine fisheries in view of the effects of climate change.

How do Sagar Mitras support fishers?

Another innovative extension initiative by the government is the deployment of "Sagar Mitras" in coastal States and U.T.s as a vital interface between the government and sea-borne fishers. They compile information and data on daily marine catch, price fluctuations, and requisite marketing needs at fish landing centres/harbours. They disseminate information to fishers on local regulations, weather forecasts, natural calamities, hygienic fish handling, and potential fishing zones in the seas.

How can extension services be improved?

To make the extension and advisory services in fisheries and aquaculture more robust the need of the hour is twofold. First, the above initiatives should be institutionally converged with the already networked field extension machinery of over 700 Indian Council of Agricultural Research-driven Krishi Vigyan Kendras and the State governments and U.T.s extension services. Second, promoting digital outreach. The National Fisheries Development Board has initiated a nationwide virtual learning platform, 'AquaBazaar,' that enables experts to clarify basic concepts and provide practical demonstrations to fishers on breeding/seed production of commercially important fish.

In this context, the World Bank-assisted Government of India project to formalise the fisheries and aquaculture sector is a boon indeed. It aims to create work-based digital identities for all fishers and fish farmers in the country, thereby strengthening their extension, capacity building, and awareness generation needs.

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PM CARES FUND RECEIVED RS 912 CRORE CONTRIBUTION IN YEAR AFTER COVID PANDEMIC

The Prime Minister's Citizen Assistance and Relief in Emergency Situations Fund (PM CARES Fund) received Rs 912 crore in contributions during the financial year 2022-23 as donations continued to pour in even after the Covid pandemic.

— The PM CARES Funds received Rs 909.64 crore as voluntary contributions and Rs 2.57 crore as foreign contributions during 2022-23, the latest year for which audited accounts are available in the public domain.

— In addition to donations of Rs 912 crore, the Fund also received Rs 170.38 crore as interest income, of which Rs 154 crore came from interest on regular accounts and Rs 16.07 crore from foreign contributions account.

— It also received about Rs 225 crore in form of refunds from various sources, including refund (Rs 202 crore) from procurement of 50,000 'Made in India' ventilators to government hospitals run by the Centre/States/UTs.

— In all, the PM CARES Fund received a total of Rs 13,605 crore — as voluntary contributions (Rs 13,067 crore) and foreign contributions (Rs 538 crore) — in the four years from 2019-20 to 2022-23. During this period, it received Rs 565 crore as interest income.

— The PM CARES Fund was registered as a Public Charitable Trust under the Registration Act, 1908 in New Delhi on March 27, 2020, three days after the lockdown in the country in the wake of the Covid-19 pandemic.

— It was set up "keeping in mind the need for having a dedicated fund with the primary objective of dealing with any kind of emergency or distress situation, like posed by the COVID-19 pandemic, and to provide relief to the affected."

— The Prime Minister is the ex-officio chairman of the PM CARES Fund, while the Defence Minister, Home Minister and Finance Minister are ex-officio trustees of the Fund. The Prime Minister, as the chairperson of the Board of Trustees of the PM CARES Fund, has nominated Justice K T Thomas (retd.) and Kariya Munda as trustees.

Do You Know:

— In pursuance of an appeal by the then Prime Minister, Pt. Jawaharlal Nehru in January, 1948, the Prime Minister's National Relief Fund (PMNRF) was established with public contributions to assist displaced persons from Pakistan.

— The resources of the PMNRF are now utilized primarily to render immediate relief to families of those killed in natural calamities like floods, cyclones and earthquakes, etc. and to the victims of the major accidents and riots.

— Disbursements are made with the approval of the Prime Minister. PMNRF has not been constituted by the Parliament. The fund is recognized as a Trust under the Income Tax Act and the same is managed by Prime Minister or multiple delegates for national causes.

LOCAL CLINICAL TRIAL WAIVER FOR SELECTED DRUGS IS A DOUBLE-EDGED SWORD: EXPERTS

A move to give patients in India faster access to medicines is a double-edged sword, experts have warned. This follows the Central Licensing Authority (CLA) recently allowing a local clinical trial waiver during the approval process for five categories of new drugs, sourced from six countries. This was notified under Rule 101 of the New Drugs and Clinical Trials Rules (NDCTR), 2019. A senior Health Ministry official said that the notification "will help faster decisions on waivers of requirements for local clinical trials, with consistency and predictability." The countries and regions specified through the order include the US, United Kingdom, Japan, Australia, Canada, and the European Union. New drugs from these countries, including orphan drugs for rare diseases, gene and cellular therapy products, those used in pandemics, those used for special defence, and drugs that offer significant therapeutic advantages over current standard care, will be considered for clinical trial waivers, according to the Drugs Controller General (India) (DCGI). "India's decision to waive local clinical trials for drugs approved in countries like the U.S., U.K., Japan, and the European Union represents a pivotal regulatory shift. While the move aims to expedite access to essential medications and enhance market availability, it raises significant concerns about patient safety, research and development (R&D), and broader healthcare implications," noted Rajmohan Seetharaman in his paper titled The implications of waiving local clinical trials for drugs in India: a double-edged sword?', published in The Lancet regional health (Southeast Asia) recently. He argues that waiving local clinical trials presents safety concerns and notes that trials are essential for assessing how drugs interact with diverse genetic profiles.

Pivotal regulatory shift

"India's population diversity means bypassing trials could result in unanticipated adverse effects or reduced efficacy," he said. He said countries like Japan and China mandate local testing or foreign data analysis for ethnic sensitivity, emphasising the importance of safety through localised validation. Japan's cautious approach to genetic diversity in drug metabolism and China's regulatory framework highlight the need for India to consider its own population's unique traits.

Patient groups have also expressed their concerns with many stating that local trials are also a way of accessing costly medicines for several patients with rare diseases.

Patient advocacy groups (PAG) have highlighted that the Drugs Controller General of India (DCGI) directive to implement fast-track approvals for rare disease drugs represents a significant advancement in enhancing access to life-saving treatments for patients. "This initiative addresses several critical challenges, including accelerated drug availability and the reduction of long waiting periods for patients diagnosed with life-threatening conditions," stated the mother of a 15-year-old patient with Acid sphingomyelinase deficiency (ASMD).

Reduces waiting periods

Currently, the Central Technical Committee on Rare Diseases at the Ministry of Health and Family Welfare has yet to decide on including acid sphingomyelinase deficiency (ASMD) as a notified condition under the National Policy for Rare Diseases 2021, despite treatment being approved by the Subject Expert Committee of CDSCO as early as 2023. Voices from the industry, state that the move will expedite the approval process for new drugs and will help industry to respond faster in case of pandemic situations and bring in products for rare diseasesat the earliest. It added that this will also ease the regulatory pathway for new drug launches.

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WHY ARE SOME PACKAGED FOODS UNDER A CLOUD?

The story so far:

A study of 432 convenience food products, in five categories — idli mixes, breakfast cereals, porridge mixes, beverage mixes, soup mixes — and extruded ('puffed' or 'expanded') snacks, has found that a majority of these ready-to-eat/packaged food products are high in carbohydrates.

Who conducted the study?

The study, 'Assessment of front and back of pack nutrition labels of selected convenience food products and snacks available in the Indian market' by Shobana Shanmugam et al, was published in Plos One. Researchers with Chennai-based Madras Diabetes Research Foundation, the Indian Council of Medical Research-National Institute of Nutrition and the University of Reading, the U.K. were involved. It aimed to evaluate the nutritional profiles and claims of selected convenience food products and snacks in the Indian market and also measured their healthiness.

The nutritional profiling of the foods was conducted based on the Food Safety and Standards Authority of India (FSSAI) claims regulations, after evaluating the nutritional information on the front and back of pack labels of the selected food items. Only the nutritional content claims related to protein, dietary fibre, fat, sugar and cholesterol were evaluated in this study. The healthiness was assessed using a nutritional traffic light system.

What did the study find?

In essence, the study found that while most of the products could fall under the 'healthy' or 'moderately healthy' categories, except extruded snacks, most of the products provided over 70% of the energy from carbohydrates, while extruded snacks provided over 47% of the energy from fat. The energy distribution from protein was found to be less than 15%.

All convenience food products that the study tested were rich in carbohydrate content. While beverage mixes had the highest carbohydrate content (35.5g to 95g/100g), extruded snacks had the highest total fat content (mean 28.3±7.5 g/100g), and the highest saturated fatty acid (SFA) content (mean 11.0±4.5 g/100g). The beverage mixes were found to be high in sugar content. The soup mixes had high sodium levels with poor protein and dietary fibre content. The idli mixes had high protein content and were largely sugar free. The study also found that despite FSSAI's packaging and labelling regulations requiring products to display the minimum nutritional information for energy, protein, carbohydrate, sugar, and total fat as "per 100 g" or "100 ml" or "per serving" of the product on the label, only certain breakfast cereals and some beverages widely disclosed the concept of per-serving information. Further, some products that claimed to contain whole grains did not display them in the ingredient list and these claims may be misleading to the consumer, it noted.

What are the issues around food labelling?

For years, activists have been advocating for front-of-pack labelling that has warning labels indicating high fat, sugar and sodium. "We want the warning labels to be specific, so, for instance, a customer with hypertension can avoid food labelled as 'high sodium' or a customer with diabetes can avoid high sugar foods," said Vandana Prasad, a public health professional.

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Lead author of the paper and senior scientist at Madras Diabetes Research Foundation Dr. Shanmugam said the present labelling system was not uniform, and customers could find it hard to understand.

How are changing diet patterns affecting health?

As per the household consumption expenditure survey 2022-23, Indians are now spending more on processed food, beverages, and refreshments.

Experts have highlighted this changing diet is a huge contributing factor to the staggering burden of non-communicable diseases in the country. The Economic Survey of India this year, citing the Indian Council of Medical Research's dietary guidelines, noted that 56.4% of the total disease burden in India is due to unhealthy diets.

Not only do excessive carbohydrates in the diet place a strain on the pancreas, therefore increasing one's risk for type 2 diabetes, but other chemicals in processed food can increase the risk of ailments such as fatty liver as well, said Nihal Thomas, senior professor, Department of Endocrinology, Diabetes and Metabolism, Christian Medical College, Vellore. R.M. Anjana, managing director of Dr. Mohan's Diabetes Specialities Centre, Chennai, who was part of the study, reiterated the importance of reading food labels and avoiding processed food as much as possible.

CANARY IN THE CANOPY

Through history, forests for humans have been sites of shelter, food, livelihoods, protection, and strength of spirit. According to the new India State of Forest Report 2023, 25% of India's land is covered by forests or trees, on its face a healthy figure and a step closer to the National Forest Policy's prescriptions. But big numbers always hide problems. Post-Independence, India's forest governance has been typified by attempts to break free from European colonialists' insular view of forests as sources of timber, codified in laws the country inherited. Two significant achievements in this regard were the Forest (Conservation) Act 1980 and the Forest (Rights) Act 2006. The counteracting forces of industrial development and the pressures of climate change on the state have however troubled the implementation of both Acts and the government has, sadly, chosen the easy way out.

Courts and conservationists have demanded that the state follow the dictionary definition of forests whereas the administration has been muddying it to exclude "community" forests, among others, while including plantations and orchards. Even if the administration's impetus is murky, it is allowing India to claim it is growing its carbon sink towards its climate commitments while allowing developmental activities to continue unimpeded. Thus, the 25% figure hides forest cover loss in the biodiverse Western Ghats, the Nilgiris and the northeast, the shrinking of mangroves in the Kutch and the Andamans, and of 'moderately dense' forests and the ongoing endangerment of open natural ecosystems. The report also lacks details about whether its estimates of the carbon sequestration potential of degraded land account for the specific uses to which they are currently being subjected. Forest loss in biodiverse areas cannot be adjusted with new plantations elsewhere, the consequences of which are exacerbated by the decision to include even commercial plantations, which have lower sequestration and ecological value, and the continued use of the Compensatory Afforestation Fund Act. Indeed, the growing gap between theoretical and actual forests also extends to finances. In several northern districts, the extent of forest cover that suffered fire losses has increased by an order of magnitude in two years. Ground reports by The Hindu have documented a paucity of human resources, skill, and equipment to control fires.

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Economic growth is essential and trees will be lost, but this is precisely why the friction that laws impose on the growth impulse is essential too. Yet, the government has been weakening environmental safeguards — more recently, the Forest (Conservation) Amendment Act 2023 further contracted the 1980 Act's purview — and distorting its official inventory of forests. It is hard to imagine anyone winning in the end.

WHY GROWTH OF INDIA'S OVERALL GREEN COVER IS NOT ALL GOOD NEWS

The 18th biennial State of Forest Report (ISFR-2023) by the Forest Survey of India (FSI) found a marginal gain of 156 sq km in forest cover, and a sizable increase of 1,289 sq km in tree cover since 2021.

For the first time, India's green cover has exceeded the 25% threshold with 8,27,357 sq km (25.17%) of the country now under forest (21.76%) and tree (3.41%) cover. Of this, 4,10,175 sq km is classified as dense forests.

Trees and forests

Tree patches smaller than 1 hectare do not count as forests, and have been measured separately by FSI as tree cover since 2001. The latest biennial cycle registered the sharpest growth in tree cover. From 3.04% in 2003, it had fallen to 2.76% in 2011, before rising to 2.91% in 2021. IFSR-2023 recorded a 0.5 percentage point jump in two years, with tree cover rising to 3.41%.

In comparison, India's forest cover has increased by only 0.05 percentage points since 2021. This is consistent with the trend of diminishing growth since India's forest cover crossed the 20% threshold at the turn of the millennium. Between 2003 and 2013, forest cover increased by 0.61 percentage points, from 20.62% to 21.23%. In the next 10 years, it grew by only 0.53 percentage points to 21.76%.

ISFR-2023 shows that 3,913 sq km of dense forests — an area larger than Goa — have disappeared in India in just two years since 2021. This is consistent with the worsening trend over the past two decades: 17,500 sq km of dense forests were wiped out between 2013 and 2023, while 7,151 sq km disappeared between 2003 and 2013.

Do You Know:

• Irrespective of land use or ownership, tree patches measuring 1 hectare or more with a minimum canopy cover of 10% are counted as forests in India. Areas with a canopy density of 40% and above are considered dense forests, and those with canopy density of 10-40% are open forests (OF). Since 2003, areas with at least 70% canopy density have been classified as very dense forests (VDF).

• Depending on factors such as climate and biotic pressure, a forest can improve or degrade to the next density category — a VDF patch may thin to become a moderately dense forest (MDF) or an OF may get upgraded as an MDF — during a 2-year IFSR cycle. When a previously forested area is recorded as non-forest (NF) or shrub (below 10% canopy), it means that the forest has been wiped clean.

• Overall, India has witnessed the complete destruction of 24,651 sq km — more than 6.3% — of its dense forests in the two decades since 2003. As a single forest unit, that would be nearly half the size of Punjab.

• ISFR-2023 accounts for 1,420 sq km of plantations becoming dense forests since 2021. This again shows a downhill trend: areas under plantations-as-dense-forests are expanding as the disappearance of dense forests becomes routine.

THE LOSS OF THE BOOK POST SERVICE

Information at fingertips is the order of the smartphone era. Scroll, pause, scroll, and pause. Repeat until complex issues are simplified into small bites. There is no need for extensive reading. Information is the protagonist; knowledge the casualty. At a time when people's attention spans have come down to around eight seconds, books seem to be a thing of the past. Still, some people search for new arrivals. They look for fresh thoughts, crave the smell of fresh pages, and send books to their loved ones. They celebrate access to knowledge, not merely information.

The Indian Post office, however, does not seem to be willing to uphold and cultivate the reading culture. It has discontinued its longstanding "Book post service" which let people send 5 kg of books for only Rs 80. The motivation behind the Book Post was to promote reading and develop a literary tradition. The shift from Book Post to the "Registered Parcel", through which books are supposed to be sent from now onwards, will result in people being charged at least three times the earlier cost. Knowledge should at least fly faster than rumours. The domination of the WhatsApp university in shaping the knowledge system needs serious intervention. And for this purpose, the books should fly at nominal costs.

Studies suggest that even in the age of new media, Indians, on average, read one hour more than their international counterparts. It should be seen as their strength and tapped into for developing a knowledge base that can contain the overwhelming spread of (mis)information. In the words of Stephen King, "Books are a uniquely portable magic". It's better not to charge its portability — the magic might be lost.

KOLKATA'S YELLOW AMBASSADOR'S LAST RIDE

Most people, naysayers included, would agree that if there is one thing that Kolkata thrives on it is its umbilical link to nostalgia. Ramshackle lanes with cheek-by-jowl houses speak of former glory in the city's older, northern part. In the south, tram tracks remind one of a 151-year-old relic that has only recently lumbered into extinction from the city's traffic loop. Now, another distinctive totem of the city's chaotic streets is set to fade into the sunset of nostalgia: The yellow Ambassador cabs. The cessation of production as well as the 2009 order of the Supreme Court's green bench disallowing vehicles older than 15 years from plying has meant that by March 2025, over 7,000 Ambassador cabs — 80 per cent of the city's fleet — will go off road. By 2027, almost all of these cabs are expected to be phased out.

The production of the Ambassador began in Hindmotor in the city's outskirts in 1958. By 1962, its durability had become a legend, leading to its incorporation in the city's public transport system, leaving behind competitors such as the Fiat Padmini. The death knell was sounded earlier though by the arrival of app-based cabs and then the pandemic. But before that, for most residents, the yellow taxi, distinct in its ample girth and bright yellow paint, had been more than just a mode of transport. In a city where time stretches and folds to its own unique rhythm, the Ambassador meant the joy of a family evening out or the irritation of rush-hour commute where the litany of complaints about the traffic or the condition of roads bound the driver and commuter in kinship.

It is, of course, true that not everything old needs a new lease of life. In terms of safety and environmental hazard, the trundling Ambassadors have been out of joint for a while. Why not then use a spot of ingenuity for the best of both worlds? Use the colour yellow for a sleeker, safer fleet of cabs?

EXPRESS VIEW ON SHYAM BENEGAL: HE LEAVES BEHIND A CINEMA WITH A CONSCIENCE

If there's one thing today's filmmakers can learn from Shyam Benegal's cinema it's that social and political issues are not at variance with meaningful movies. His films have stayed firmly on our radar for half a century — his debut feature Ankur released in 1974 — because they were a reflection of their times, and are as resonant today.

Indian cinema has had a vexed relationship with sociopolitical themes, even though there were always filmmakers who worked with such issues. Filmmakers in the post-Independence era were confronted with Partition and a fractured polity. A broad consensus-building nationalism was seen to be the need of the hour, and that's what popular cinema placed front and centre. Bimal Roy's Do Bigha Zamin (1953) employed melodrama to give us a moving portrait of agrarian distress. V Shantaram's Do Aankhen Barah Haath (1957) used song-and-dance effectively in its story of prison reform, the strong messaging cushioned by familiar tropes. In the same year, B R Chopra's Naya Daur told us that man and machine could exist. Benegal's brand of cinema borrowed its bent, and moral conscience, from these filmmakers, as well as several others who highlighted uncomfortable truths. But his choices — a sparse style which was never austere, buoyed by a crop of excellent actors, and the use of wonderful music by his constant collaborator Vanraj Bhatia — did something significant. It made his movies cross over, and deepened the definition of "mainstream", without any pandering — creating an audience base, and widening it, in a way his contemporaries of parallel cinema like Mani Kaul and Kumar Shahani could not.

Apart from Bhatia, it was his cinematographer Govind Nihalani who could read his mind, and helped create the striking imagery of some of Benegal's most memorable films including Nishant, Manthan, Bhumika, Junoon and Kalyug. Benegal was amongst the first to establish, without really meaning to, what might be called a repertory, with many actors becoming fixtures in his work. His band included, among others, Naseeruddin Shah, Shabana Azmi, Smita Patil, Om Puri, Amrish Puri, Kulbhushan Kharbanda, Anant Nag, K K Raina, Sadhu Meher, and Rajit Kapur. There was no didacticism. Benegal's warm humanism, laced with humour, set his cinema apart and made it timeless.

EXPRESS VIEW ON M T VASUDEVAN NAIR: HIS WORK SHOWCASED ALL FACETS OF KERALA'S HISTORY

For nearly seven decades, M T Vasudevan Nair has been a lot like first love for Malayalis. Unavoidable and unforgettable. Rooted in the landscape of Kerala — both geographical and cultural — his novels and stories and the movies he wrote and directed have drawn them into a world of familiar passions and universal complexities. From the lush, rain-soaked hills of the Western Ghats to the sunlit shores of the backwaters, from the stultifying humidity of summer to the petrichor after monsoon rains, his novels, stories and films brought to vivid life a region that is both traditional and modern, conservative and progressive. He wrote about the tensions between these dualities, revealing how Kerala's history, with its complications of caste, class, and politics, shapes the lives of its people. Whether it was the struggles of a young man, torn between familial loyalty and his own desire for freedom in Naalukettu (1958) — considered the gold

standard of modern Malayalam literature — or the haunting reversal of tropes in the film Oru Vadakkan Veeragatha (1989), he rejected simplistic binaries of heroism and victimhood. He lent his characters depth and dignity as they negotiated generational trauma and loss and searched for an identity or voice of their own.

A part of this has to do with the time and the milieu M T began writing in. In a newly-independent nation, growing up in a literary family, he was guided by the works of contemporary greats such as Vaikom Muhammad Basheer, Thakazhi Sivasankara Pillai and Ponkunnam Varkey. Their socialist ideals shaped his consciousness but they also lent themselves to a gentler, more inward glance in his work, where myth and history coalesced with individual experience. The result was richly rewarding. At 25, he had won the Kerala Sahitya Akademi award for Naalukettu. In 1970, he won the Sahitya Akademi prize for his fifth novel, Kaalam. He won the National Award for screenplay four times and the Kerala State film award 11 times. And these were only a few of a lifetime's accolades.

One of the trappings of celebrityhood is that it disconnects the star from the ground, isolates him from the reader/audience. M T was especially careful to avoid falling into the trap. At heart, he remained the boy from Kudallur, shaped by the earthiness of the land and the generosity of the river Nila. As an editor at the Mathrubhumi Weekly, the leading Malayalam literary magazine, he nurtured writers such as Sethu, M Mukundan, Paul Zacharia and Sarah Joseph, each stalwarts in their own right. His passing marks not just the loss of a literary giant but that of a cultural touchstone.

SHORT NEWS

GOOD GOVERNANCE DAY

— Good Governance Day is celebrated on December 25th every year to raise awareness among citizens about government accountability and effective administration while promoting the practice of "good governance" among civil servants.

— In 2014, the Union government announced that December 25 would be celebrated as "Good Governance Day" to honour the birth anniversary of former Prime Minister Atal Bihari Vajpayee.

NATIONAL FARMERS DAY 2024

— India celebrates National Farmers' Day, also known as Kisan Diwas, to recognise the lifeblood of the nation—its farmers on December 23, every year.

— This day also commemorates the birth anniversary of India's fifth Prime Minister, Chaudhary Charan Singh, who served from 1979 to 1980 and is well-known for his extensive understanding of rural concerns and unwavering support for farmer welfare.

— During his term, he promoted measures that would improve farmers' livelihoods, including land reforms and attempts to increase agricultural output.

— This year, the Government of India is celebrating Kisan Diwas under the idea of "Empowering 'Annadatas' for a Prosperous Nation."

SUPOSHIT GRAM PANCHAYAT ABHIYAN

— The PM launched the 'Suposhit Gram Panchayat Abhiyan', which aims at improving nutritional outcomes and well-being by strengthening the implementation of nutrition-related services to eliminate malnutrition and form the basis of developed India.

— The programme will involve competition among anganwadis, and a total of 1,000-gram panchayats will get Rs 1 lakh while a part of this amount will be used for better nutrition in the anganwadis.

FREE-AI

— The Reserve Bank of India (RBI) has constituted an eight-member committee of experts to develop a framework for responsible and ethical enablement of artificial intelligence (FREE-AI) in the financial sector.

— The committee, to be headed by Pushpak Bhattacharyya, professor (Department of Computer Science and Engineering), IIT Bombay, will recommend a robust, comprehensive, and adaptable AI framework for the financial sector.

— The committee will assess the current level of adoption of AI in financial services, globally and in India, and review regulatory and supervisory approaches on AI with a focus on the financial sector globally.

FRAMING RULES FOR ARUNACHAL'S 'FREEDOM OF RELIGION ACT': CM

Chief Minister Pema Khandu Friday announced that his state is framing rules to implement the Arunachal Pradesh Freedom of Religion Act, which prohibits religious conversion "by use of force or inducement or by fraudulent means" and has been dormant since it was passed in 1978.

SEVERAL UNION MINISTERS, CMS TO ATTEND WEF MEET

Union ministers Ashwini Vaishnaw, CR Patil, Chirag Paswan, K Ram Mohan Naidu and Jayant Chaudhary, alongside three chief ministers — Devendra Fadnavis, Chandrababu Naidu and Revant Reddy, will join hundreds of government and business leaders from across the globe in Swiss ski resort town Davos next month for the World Economic Forum Annual Meeting 2025.

BNP SLAMS YUNUS'S SUGGESTION TO LOWER VOTING AGE TO 17, SAYS WILL DELAY ELECTIONS

Bangladesh's Chief Adviser, Muhammad Yunus proposed on Friday that the minimum voting age in Bangladesh should be lowered to 17 years. Responding to Yunus's suggestion, the Bangladesh Nationalist Party (BNP) expressed concerns on Saturday over warning that it could burden the Election Commission and potentially delay the electoral process.

BALD EAGLE

— The bald eagle, a symbol of power and the strength of the United States for more than 240 years has officially become the US's National bird. They are put under the Least concerned category of the IUCN Red List.

— In 2007, when the bald eagle was removed from the endangered species list, there were roughly 9,789 known breeding pairs in the US. The latest figures (from 2021) put the number of nesting pairs at about 71,4000 with the overall population standing at roughly 316,700.

— According to the U.S. Fish and Wildlife Service, Bald eagles are native to North America and can be found in almost every state, but they are most populous in Alaska.

RED PANDAS

— West Bengal marked Christmas by welcoming two red pandas from the Netherlands, the first such acquisition from a foreign country in a decade.

— The red panda (Ailurus fulgens), also known as the lesser panda, is a small mammal native to the eastern Himalayas and southwestern China.

— It is listed as endangered in the list of the International Union For Conservation of Nature. According to the World Wildlife Fund, their population is less than 10,000.

PANGOLINS

— Recent incidents in Telangana have renewed concerns about the smuggling of pangolins, a scaly nocturnal mammal known for its huge demand in the international market.

— In India, both Indian pangolins and Chinese pangolins are listed in Schedule I of the Wildlife (Protection) Act, of 1972. Therefore hunting, trade, or any other form of utilisation of the species or their body parts and derivatives is banned.

— Since 2017, all pangolin species have been listed in Appendix I of the Convention on International Trade in Endangered Species (CITES), prohibiting their commercial trade.

— Chinese Pangolin is classified as 'Critically Endangered' on the International Union for Conservation of Nature (IUCN) Red List while the Indian Pangolin is classified as 'Endangered' on the IUCN Red List.

— They are the only known mammals with large keratin scales covering their skin. They are also toothless and nocturnal. They curl up into scaly spheres upon being alarmed.

GANGETIC DOLPHIN

— The first ever Ganges river dolphin (Platanista gangetica) was tagged in Assam on December 18, the movement aimed towards conserving India's National Aquatic Animal.

— The family Platanistidae comprises two extant species of Indian river dolphins — the Indus river dolphin and the Ganges river dolphin.

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— Ganges river dolphins go by a number of local names across their range including susu, soons, soans, or soos in Hindi, shushuk in Bengali, hiho or hihu in Assamese, and bhagirath, shus or suongsu in Nepali.

— Both the Indus and Ganges dolphins have been listed as 'Endangered' in the International Union for Conservation of Nature (IUCN) Red List since the 1990s.

V RAMASUBRAMANIAN

— Former Supreme Court judge V Ramasubramanian has been appointed as the 9th Chairperson of the National Human Rights Commission (NHRC) for a tenure of three years until December 2027.

— The previous NHRC chairman, Justice Arun Mishra, completed his term on June 1, 2024.

— The first NHRC chairman was former Chief Justice of India Ranganath Mishra.

— Until 2019 only former Chief Justices of India could be appointed as NHRC chairperson. However, in July 2019, the Protection of Human Rights Act, 1993, was amended to also allow former SC judges for the post.

— The committee to select the NHRC chairperson is headed by the Prime Minister. It has the Lok Sabha Speaker, the Union Home Minister, the Leaders of the Opposition in the Lok Sabha and Rajya Sabha, and the Deputy Chairperson of the Rajya Sabha as its members.

SANJAY KISHAN KAUL

— Retired Supreme Court judge Sanjay Kishan Kaul has been appointed a member of the Bahrain International Commercial Court by King Hamad bin Isa Al Khalifa. He is among the nine members appointed to the newly established BICC.

— Leading arbitrator Jan Paulsson has been appointed as BICC president and former British judge Sir Christopher Greenwood as its vice president.

— The BICC is a part of the Bahrain government's "Team Bahrain" to enhance private sector investment in the country by providing a forum for dispute resolution between parties.

MADAN B LOKUR

— Retired Supreme Court judge Madan B Lokur has been appointed chairperson of the United Nations Internal Justice Council.

— The Internal Justice Council comprises five members appointed by the Secretary-General. The other four members on the list are Carmen Artigas (Uruguay), Rosalie Balkin (Australia), Stefan Brezina (Austria) and Jay Pozenal (United States of America).

BAPSI SIDHWA

— Bapsi Sidhwa died in Houston, Texas. She was 86. She is survived by her novels known for their comedy, tragedy and seamless fusion of the political and personal.

— Her first novel, The Crow Eaters (1978), published to much backlash in Pakistan, was about a Parsi businessman, a stalwart of his community, who couldn't tolerate his mother-in-law. The book tracked his fortunes and failures after he uprooted his family's life in central India and moved them to Lahore.
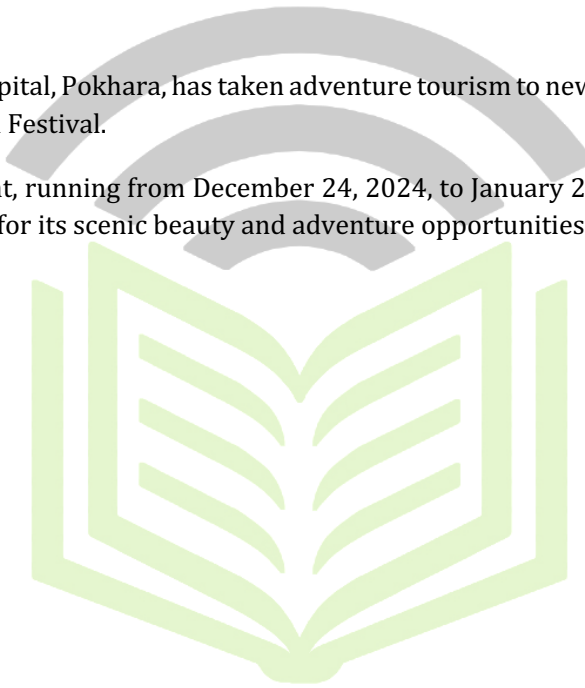
DR. RAVI PILLAI

— Bahrain King Hamad bin Isa Al Khalifa awarded the Medal of Efficiency (First Class) to R P Group Chairman Ravi Pillai for his "outstanding contributions" to the Kingdom of Bahrain. In the field of refinery operations.

POKHARA, NEPAL

— Nepal's tourism capital, Pokhara, has taken adventure tourism to new heights with its inaugural International Balloon Festival.

— The nine-day event, running from December 24, 2024, to January 2, 2025, is being held in the Pame region, known for its scenic beauty and adventure opportunities.

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BUSINESS & ECONOMICS

U.S. AND CHINA RENEW S&T AGREEMENT

The story so far:

On December 13, China and the U.S. agreed to extend their Agreement on Co-operation in Science and Technology for an additional five years, effective from August 27, 2024, and also signed a protocol to amend it. Observers have welcomed the development as an affirmation of science and technology cooperation between the two major powers. The Agreement was first signed on January 31, 1979, by Chinese leader Deng Xiaoping and U.S. president Jimmy Carter at a time when both countries had established diplomatic relations and agreed to cooperate on agricultural research and technology. Since then, the Agreement has been renewed every five years while expanding in scope. The Agreement is governed by the U.S.-PRC Joint Commission on Scientific and Technological Cooperation. The U.S. and China each appoint co-chairs and an agency from each country is nominated as the 'executive agent'. There are also additional protocols between agencies and 40 sub-agreements in different areas, from agriculture to nuclear fusion.

Why do bilateral S&T agreements matter?

Bilateral science and technology agreements have been key to promote cooperation in these fields. Often there are specific agreements or cooperation pacts as part of a larger engagement framework. While these agreements don't mention specific investments in science and technology, they often pave the way for forms of cooperation that aren't confined to state institutions. They also facilitate joint research, mobility between the countries for students and scientists, encourage institutional cooperation, and set up bilateral research centres. India has such agreements with 83 countries.

But while countries sign such agreements as part of routine engagements, both countries need to have the capacity and intentions to pursue the cooperation earnestly for the instruments to succeed. Token initiatives have never cut it. In this regard, the Agreement between China and the U.S is probably the most successful of its kind.

MUSK BACKS H-1B VISAS, SAYS 'WILL GO TO WAR', ASKS CRITICS TO 'TAKE BIG STEP BACK'

Elon Musk, the world's richest man, owner of Tesla, X and SpaceX, and a key ally of US President-elect Donald Trump, waded into the debate around hiring H-1B visa-holders and said he "will go to war" on the issue and asked right-wingers to "take a big step back".

• The H-1B programme allows businesses in the US to employ skilled foreign nationals. While the discourse on immigration in the US usually centres around illegal entrants via the US-Mexico border, legal ways such as the H-1B program have also come under intense scrutiny over the past week by the far right in the US.

• In fiscal year 2023, of the 2.65 lakh H-1B visas issued by the US, 72 per cent went to Indian nationals. During the same period, top four Indian IT majors with a presence in the US, viz., Infosys, TCS, HCL, and Wipro, obtained approval for around 20,000 employees to work on H-1B visa, as per the latest US Citizenship and Immigration Services (USCIS) data.

• Immigration was an important political hot-button issue in the 2024 US presidential elections, where Trump had promised to shut down illegal immigration at the southern border and start a mass deportation effort. However, the current debate focuses on legal immigrants.

• Technology companies say H-1B visas for skilled workers, used by software engineers and others in the industry, are critical for hard-to-fill positions. But critics have said they undercut US citizens who could take those jobs. Some on the right have called for the programme to be eliminated, not expanded.

Do You Know:

• The H-1B visa programme allows US employers to hire immigrant workers in specialty occupations that require "a high level of skill" and "at least a bachelor's degree", according to the US Department of Labour. The H-1B visa can be issued for a maximum of six years at a stretch.

• "The intent of the H-1B provisions is to help employers who cannot otherwise obtain needed business skills and abilities from the US workforce by authorising the temporary employment of qualified individuals who are not otherwise authorised to work in the United States," the department's website says.

• The H-1B visa is a hit especially among Indians. Data from the US government shows that Indians make up a significant majority of H-1B visa-holders — in the fiscal year 2023, Indians accounted for 72.3% (2.79 lakh of a total of 3.86 lakh) H-1B visa holders, according to the US Citizenship and Immigration Services (USCIS). Chinese immigrants came a distant second, holding 11.7% of the total H-1B visas H-1B visas.

• The sheer dominance of Indian H-1B visa holders, a majority of whom work in computer-related occupations, has invited criticism from anti-immigration voices such as Lippincot — they see Indians in the context of well-paying software engineering jobs in the same light as they see Mexicans when it comes to poorly paid manual labour.

AMERICANS FRET OVER POTENTIAL BAN ON MADE-IN-CHINA DRONES BY LAWMAKERS

Russell Hedrick, a North Carolina farmer, flies drones to spray fertilisers on his corn, soybean and wheat fields at a fraction of what it would cost him to use a conventional ground spreader.

As a volunteer rescuer, Mr. Hedrick uses thermal drones to search for people trapped by mudslides and cargo drones to send water and baby formula to those who are stranded — something he did after Hurricane Helene.

Now he is fretting that one day he will have to ground his drone fleet. Most commercial drones sold in the United States, including those used by Mr. Hedrick, are made in China. They have become a target of U.S. lawmakers, who see the dominance of Chinese drones not only as an espionage threat but as a commercial threat because they make it nearly impossible for American manufacturers to compete.

It's another front in the U.S.-China economic and technological competition that's likely to intensify with the return to the White House in January of Republican Donald Trump, who has promised to get tough on China.

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Washington has already placed restrictions on Chinese telecommunications companies and imposed high tariffs on Chinese-made electric vehicles as the U.S. competes with China in semiconductors, artificial intelligence and other areas.

A defence Bill that Congress passed on December 18 includes a clause to stop two Chinese companies from selling new drones in the U.S. if a review finds they pose "an unacceptable risk" to American national security. Congress has banned federal agencies from acquiring Chinese drones, with some exceptions, and several states have barred publicly funded programs from using or procuring Chinese drones.

Part of life, work

A broader ban is worrisome for Americans for whom drones have become a part of their lives and work. It could disrupt wide-ranging operations, from law enforcement to mapping and filmmaking that drone operators say are viable because of the low cost and high performance of the Chinese drones. American-made drones just aren't comparable, they say.

Mr. Hedrick began flying Chinese-made drones in 2019 to fertilise crops and monitor crop health. A drone spreader costs $35,000, while a conventional ground sprayer would set him back $2,50,000, he said.

"It is strategically irresponsible to allow Communist China to be our drone factory," argued Rep. Elise Stefanik, R-N.Y., who has been tapped by Mr. Trump to be the U.S. ambassador to the United Nations. She led earlier House efforts to ban new Chinese drones.

It was the role of drones in everyday life that drove Sen. Rick Scott, R-Fla., to get Congress to restrict the purchase of Chinese drones by federal agencies. Those restrictions were included in a defence Bill that Democratic President Joe Biden signed last year.

Mr. Scott has compared Chinese drones to spy balloons that could "gather data or carry harmful payloads" across America, posing risks to military bases, critical infrastructure and natural resources.

Michael Robbins, president and chief executive officer of AUVSI, an advocacy group for unmanned vehicles such as drones, opposes an immediate ban. Instead, his group has urged the government to support the U.S. drone-making industry through investment so it can catch up with its Chinese competitors in both capability and cost.

That vulnerability was clear earlier this year when Beijing sanctioned the U.S. drone maker Skydio, forcing it to ration its batteries sourced from China.

"This is an attempt to eliminate the leading American drone company and deepen the world's dependence on Chinese drone suppliers," wrote Adam Bry, chief executive officer of Skydio.

Citing security interests, China has restricted exports to the U.S. of drone parts, including motors and flight controllers .

John Goodson, CEO of Darkhive, a San Antonio-based drone maker, said a ban would not stop Chinese drone makers from selling their products elsewhere in the world but could hurt U.S. drone companies that rely on China for parts.

For now, it remains unrealistic to ban Chinese drones when there are few comparable products, said Faine Greenwood, a drone enthusiast.

The best-known Chinese drones are those by DJI Technology Co., a company founded in 2006 and based in the southern city of Shenzhen.

Several states have already restricted the use of Chinese drones.

INDIA'S RELIANCE ON CHINA FOR CRITICAL MINERALS

The story so far:

The Ministry of Mines in 2023 identified 30 critical minerals deemed essential for the nation's economic development and national security. While the report highlighted India's complete import dependency for 10 critical minerals, it did not fully address a more pressing concern — the extent and nature of dependency on China.

Is China a dominant player?

China's unparalleled dominance in critical minerals stems from its vast resource base and strategic investments across the value chain. As the world's largest mining nation, China has discovered 173 types of minerals, including 13 energy minerals, 59 metallic minerals, and 95 non-metallic minerals. Reserves of nearly 40% of these minerals, particularly copper, lead, zinc, nickel, cobalt, lithium, gallium, germanium, and crystalline graphite, increased significantly last year, supported by an exploration investment of $19.4 billion. This led to the discovery of 132 new mineral deposits, including 34 large ones. China's dominance extends beyond reserves to include processing and refining, with control over 87% of rare earth processing, 58% of lithium refining, and 68% of silicon processing. Furthermore, China has strategically invested in overseas mining projects and built unparalleled midstream refining capabilities, raising supply chain vulnerabilities for countries including India, the U.S., and EU nations.

What about China's export controls?

When it comes to China's approach to weaponizing critical mineral exports, it is strategic and calculated. Beijing primarily targets minerals deemed critical by Western nations and their allies, especially those essential for semiconductors, batteries, and high-tech manufacturing. However, China carefully balances these decisions against two constraining factors: it avoids controlling minerals which heavily depend on Western raw material imports, and it refrains from actions that could disrupt its domestic industrial enterprises or export-dependent sectors. This strategic calculus was evident in China's 2010 rare earth embargo against Japan, its recent restrictions on antimony, gallium, and germanium exports, and its December 2023 ban on rare earth extraction and processing technologies.

Is India dependent on China?

An in-depth examination of import data of 30 critical minerals spanning 2019 to 2024 reveals India's acute vulnerability to Chinese supplies, particularly for six critical minerals where dependency exceeds 40%: bismuth (85.6%), lithium (82%), silicon (76%), titanium (50.6%), tellurium (48.8%), and graphite (42.4%). Bismuth, primarily used in pharmaceuticals and chemicals, has few alternative sources, with China maintaining an estimated 80% of global refinery production. Lithium, crucial for EV batteries and energy storage, faces processing

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bottlenecks, despite alternative raw material sources, as China controls 58% of global refining. Silicon, vital for semiconductors and solar panels, requires sophisticated processing technology that few countries possess. Titanium, essential for aerospace and defence applications, has diversified sources but involves high switching costs. Tellurium, important for solar power and thermoelectric devices, is dominated by China's 60% global production share and finally graphite, indispensable for EV batteries and steel production, faces supply constraints as China controls 67.2% of global output, including battery-grade material.

Why does India rely on imports?

Despite being endowed with significant mineral resources, India's heavy reliance on imports stem from several structural challenges in its mining and processing ecosystem. Many critical minerals are deep-seated, requiring high-risk investments in exploration and mining technologies — a factor that has deterred private sector participation in the absence of adequate incentives and policy support. The country's processing capabilities are also limited. This is particularly evident in the case of the recently discovered lithium deposits in Jammu and Kashmir, where despite the presence of 5.9 million tonnes of resources in clay deposits, India lacks the technological capability to extract lithium from such geological formations.

What is the way forward?

India has initiated a multi-pronged approach to reduce its dependency on China. The government has established KABIL, a joint venture of three State-owned companies, to secure overseas mineral assets. India has also joined strategic initiatives like the Minerals Security Partnership and the Critical Raw Materials Club to diversify its supply sources and strengthen partnerships. The country is also investing in research through institutions like the Geological Survey of India and the Council for Scientific and Industrial Research while promoting recycling and circular economy practices to reduce virgin mineral dependency. Production-linked incentives for extracting critical minerals through recycling also seem promising. However, transitioning away from China will require sustained investment and long-term commitment to these various initiatives.

AS INDIA'S OIL DEMAND GROWTH SURPASSES CHINA'S, CRUDE DIVERSIFICATION EFFORTS MAY GATHER STEAM

India, which is the world's third-largest consumer of crude oil, is expected to end 2024 with an oil demand growth rate surpassing that of China — a trend that is expected to continue in the coming year as well — making the South Asian country one of the fastest-growing major oil consumption centres globally, according to S&P Global Commodity Insights (SPGCI).

This is expected to further accelerate Indian refiners' capacity expansion plans and provide a fresh impetus to their efforts to widen crude diversification by importing more from an expanding slate of source markets.

"India will be the leading driver, along with Southeast Asia and other parts of South Asia, of the region's future oil demand growth," said Kang Wu, global head of macro and oil demand research at SPGCI.

According to Wu, in 2025, India is forecast to deliver a relatively faster growth of 3.2 per cent in oil demand vis-à-vis China's 1.7 per cent. In January-October of 2024, China's oil demand rose by

148,000 barrels per day (bpd), or 0.9 per cent, year-on-year, lagging India's growth of 180,000 bpd or 3.2 per cent, per SPGCI data.

China is the world's second-largest consumer of crude oil behind the United States (US), but is the commodity's biggest importer globally. But oil demand growth in China has been subdued in the post-pandemic era due to a combination of factors. These include a slump in sectors like real estate and construction, investments shifting to sectors that are not oil intensive, declining population, and growing adoption of vehicles powered by electricity and other alternative fuels.

India, on the other hand, is still seen as a growth centre for oil demand given the future potential in energy-intensive industries, growing vehicle sales, a rapidly expanding aviation sector, expected growth in consumption of petrochemicals, and a still growing population with relatively low per-capita energy consumption. In fact, India is among the few markets where refinery capacity is expected to expand substantially over the coming years.

In February, Paris-based International Energy Agency (IEA) had said that India's oil demand growth was expected to overtake China's by 2027, making the former the biggest driver of global oil demand growth through the remainder of the decade "underpinned by strong economic and demographic growth". According to the IEA's projections, India is on track to post an increase of nearly 1.2 million barrels per day (bpd) in oil demand by 2023, accounting for more than a third of the projected global demand growth of 3.2 million bpd by the end of this decade.

India's growing crude diversification

India is intensifying efforts to diversify its crude import basket to reduce reliance on a few supplying countries. For instance, the Indian government as well as refiners are understood to be in active discussions with new source markets like Guyana for oil purchases. Currently, India relies heavily on Russia and West Asian oil exporters for its oil imports, although it has a fairly extensive slate of source markets from which oil can be bought to suit local refinery configurations.

New Delhi depends on imports to meet over 85 per cent of its oil requirement for meeting domestic demand. The country's leadership had time and again stated that Indian refiners will continue to buy oil from the cheapest available sources.

"Recent diplomatic visits will help bring in crude oil from Africa and Latin America, but the growth in absolute volume would depend on the overall crude market…The share of Middle Eastern crude shipments to India's basket is likely to drop by a few percentage points due to the diversification," said Abhishek Ranjan, South Asia oil research lead at SPGCI.

Expanding refining capacity

India is set to see significant refining capacity growth in 2025, SPGCI said. The country is only months away from launching its first greenfield integrated refinery and petrochemicals complex (HPCL Rajasthan Refinery project in Barmer) in nearly a decade.

By 2030, India aims to expand its refining capacity to 450 million tonnes per annum (mtpa) from the current capacity of almost 257 mtpa, even as it expands its renewable energy capacity, apart from pushing other transition, alternate, and future fuels.

LOOKING AT 2025, THE ECONOMY: SOME POSITIVES, SOME CONCERNS

A pronounced dip in economic output in the first three quarters of 2024 notwithstanding, India's long-term growth story is believed to be intact. A growth rate of 6.5% is projected over the next half decade, which would help the country remain the fastest-growing big economy in the world.

However, China, Japan, and South Korea grew at well over 8% on a sustained basis during their rapid-growth phases. Whether 6%-plus growth would be enough for a country that needs to generate upwards of 8 million jobs every year until 2030 is the big question — and whether this growth rate would be enough to bridge expanding wealth disparities and offer scope for generational mobility.

There is a view that the decline in growth rate simply brings it back to trend after data aberrations triggered by the pandemic and the subsequent buoyancy on an abnormally low statistical base. Finance Minister Nirmala Sitharaman has said the lower-than-expected GDP growth of 5.4% in the second quarter of FY25 was only a "temporary blip".

Economist Neelkanth Mishra and his team at Axis Bank have described the loss in momentum for the Indian economy in the first half of the current fiscal as "cyclical", due to "unintended fiscal and monetary tightening". In October, Japanese brokerage Nomura had said the Indian economy was in a phase of "cyclical growth slowdown", and described the Reserve Bank of India's estimate of 7.2% GDP expansion as "overly optimistic". Weeks later, RBI was forced to pare its forecast by more than half a percentage point.

The Positives

There are some clear upsides to the current picture of the economy.

Government spending

Fiscal spending is already seen as rising after the dust of the elections has settled. The recent cut in the cash reserve ratio (CRR) has freed up money kept by banks with the RBI.

The capex cycle seems to have restarted in some sectors, boosting capital formation, says Mishra, adding that this growth will be investment-led. Also, monetary easing is expected to support growth in the coming financial year. But the government will likely have to continue to do the heavy lifting.

Economists also say the GDP shock of Q2 FY25 — another set of dismal numbers are likely in Q3 — merely signals a progressive normalisation of the growth trajectory after the waning of the base effect of the pandemic, when the economy shrank abnormally. That could partly explain the steady slide in growth from 8.6% to 7.8% to 6.7% to 5.4% in 2024.

state of economy

"…It is not that we think that the second quarter slowdown is purely a data artefact and as more data comes in, it will automatically be upgraded. The numbers will be revised higher or it could be a simple, seasonal factor… Or it could be something more fundamental as the ability of the state to spend what is budgeted… We will be on track to achieve…between 6.5-7 per cent for the whole financial year. But…the focus is on how to make sure that we grow at a sustainable rate in a world that is going to be extraordinarily difficult," Chief Economic Adviser V Anantha Nageswaran said at a CII event on December 12.

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After a couple of quarters of likely sub-optimal economic output, GDP growth is projected to settle around 6.5%, which could mark the real rate of growth going back to trend. The question that RBI's overestimation — and subsequent correction — poses is this: did the central bank keep interest rates high for longer than needed because it had projected an excessively rosy picture of GDP growth? However, inflation remains at the upper end of the permissible band, and food prices are at near double digits in terms of inflation — that somewhat strengthens the argument for sticking with high rates, and compounds RBI's problems going forward.

Lower investment growth was largely due to public investments coming down; this could change in the second half of the fiscal and later. One indication is the surge in order backlog for capital goods companies that suggests investment activity is likely to grow going forward. For instance, in utilities, a pivot from renewables back to thermal power, which accounted for the bulk of the capex between 2010 and 2015, could give impetus to industrial activity, given that virtually no thermal capacity has been added over the past 6-7 years.

According to Mishra, a relatively empty election calendar in the states in 2025, provides a window for reforms. But the appetite — even for restarting pending reforms such as the Labour Codes — appears diminished.

Possible MSME recovery

In two other dismal trends, analysts see a possible silver lining.

Corporate growth is slowing, partly due to sliding consumption growth, but there could be an upside. Former Chief Statistician Pronab Sen said Micro, Small and Medium Enterprises (MSMEs), which have been hit repeatedly by shocks such as demonetisation, implementation of GST, and the Covid-19 lockdown, are perhaps getting back in business, and competing with the corporate sector.

While more data are needed on this, two other signals suggest this possibility: one, there is consumption recovery in rural areas even as urban growth is flagging; two, Periodic Labour Force Survey numbers show an improvement in salaried employment, which could be partly due to increasing non-casual jobs with MSMEs. An MSME rebound could mean the two branches of the K-shaped recovery could narrow.

The labour data show another positive: female participation in the labour force is increasing, particularly in rural areas. Around 39.6% of women with education level of post-graduate and above were reported as working in FY24, compared to 34.5% in FY18. For women with higher secondary education level, these numbers were 23.9% and 11.4%.

Growth in services

India's services surplus as a share of GDP hit a new high in October 2024 — a key positive. On the structural drivers of India's share gains in global services exports, Mishra and his team say the disaggregation of global services value-chains, rapid increase in global cross-border telecom bandwidth, and the surge in remote-working are adding to the demographic trends supporting the growth in India's services exports to developed markets.

In November, India's services trade exports surpassed goods exports as IT exports continued to register strong growth amid weak goods demand in the West, and higher shipping costs due to disruption in the Red Sea, according to official data released by the Commerce Ministry. Going

forward, however, India's IT exports, on a compositional basis, appear vulnerable to new technologies such as AI.

The Negatives

Sluggish investments

Performance is tapering off for many corporates, and investments are struggling. Executives at Tata Consumer Products Ltd have flagged concerns over "softness" in urban demand; those at Nestle India have said big cities are pressure points and blamed the "muted demand" partly on high food inflation. Carmakers are pointing to worries on demand, blaming it on heavy rain and the election-induced slowdown. All of this could have repercussions for growth and job creation.

But why are private investments struggling, despite pre-Covid corporate tax cuts and exhortations by the government to invest?

To unleash the so-called animal spirits, companies must feel optimistic about the future, and not have to look behind their backs. The single biggest hurdle to fostering a conducive investment environment is India's tax laws and its administration, Arvind P Datar, Senior Advocate, said at the National Convention of All India Federation of Tax Practitioners on December 16.

Companies are also scaling down salary outlays. Real salary and wage expenditure growth of listed non-financial corporates — a proxy for real urban wages — has moderated to 0.8% in Q2 FY25 from 1.2% in Q1 FY25, and is down from 2.5% in FY24 and 10.8% in FY23, Nomura said.

Savings-investment gap

The decline in the household financial savings rate could present another challenge. The RBI's latest Financial Stability Report shows net financial savings of households fell to 5.3% of GDP in FY23 from 7.3% in FY22, sharply below the 8% average of the previous decade. Household net savings are the total money and investments of families, including deposits, stocks and bonus, minus any money they owe, such as loans and other debt.

Over the same period, household debt has jumped sharply. Annual borrowings are at 5.8% of GDP, the second-highest level since the 1970s. A large part of savings is also entering financial markets bypassing the banking industry, which is another worry.

Sliding credit growth

Growth in credit has been falling — households, which mostly borrow to finance home purchases, have not been doing so since 2021. For a while, industry had offset this, but this has tapered off since the beginning of 2023. Excess capacity and lack of appetite for new projects is seen as limiting industry's capacity to absorb new credit.

In such a scenario, bond-financed government spending is the only meaningful way to generate new credit in the economy, according to Mishra, but much of this new debt issued is being used to clean up old 'hidden debt' at the local level.

Unless there is a fundamental shift in the use of fiscal force to stimulate the economy, high growth is unlikely. Bank lending to MSMEs could be something to watch for, especially if personal credit slows and corporates are unwilling to borrow.

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While bad loans have been coming down, there are new concerns over a significant rise in NPAs in the personal loan and credit card segments. Both these types of credit are unsecured and carry high interest rates. In November 2023, the RBI had increased risk weight on the exposure of banks towards consumer credit, credit card receivables, and non-banking finance companies.

Fiscal prudence

At the Centre, fiscal consolidation has been a consistent theme. A projected decline in fiscal deficit from 6.4% to 5.9% of GDP in FY24 will stabilise public debt at around 83% of GDP — a promising indicator of sustainability, given India's growth outlook, according to the IMF.

But competitive loosening of purse strings by states poses a fiscal problem. The RBI has flagged concerns over a sharp increase in expenditure by states on various subsidies, including farm loan waivers and cash transfers.

Axis Bank's India Outlook report said that by 2025, 14 states would have some version of "handout" schemes aimed at about 134 million women, which is almost 20% of all women in India. These programmes cost the government almost Rs 1.9 lakh crore every year, or about 0.6% of the country's GDP.

While these transfers have helped lower-income families by giving them more money to spend, especially on food such as pulses, onions, and tomatoes, the supply of these items has not increased enough, which has caused food prices to rise, the report said.

LEAVE BANKING TO RBI, AVERS SC

The Supreme Court made it clear the judiciary must not assume expertise and jurisdiction over banking and should leave the job exclusively to the Reserve Bank of India (RBI).

"It is RBI alone which enacts the mandate for the banks. In this sphere, the only function of courts is to examine the lawful authority is not abused, and not to appropriate itself the task entrusted to that authority," a Bench of Justices Bela M. Trivedi and Satish Chandra Sharma underscored in a judgment.

The judgment, delivered on December 20 but published days later, was based on appeals filed by HSBC, Citibank, American Express Banking Corporation, and Standard Chartered Bank along with an intervention by HDFC. The banks had challenged a National Consumer Disputes Redressal Commission decision of July 2008 which capped interest on credit card dues at 30%.

'Exorbitant' rates

The Commission found the 36% to 49% charged by the banks "exorbitant", usurious and an "exploitation of the borrowers". Justice Sharma, who authored the verdict, set aside the Commission's judgment.

Justice Sharma highlighted the RBI, as the prime banking institution of India, was entrusted with the supervisory role over banking and conferred with the authority of issuing binding directions having statutory force.

"No other entity or banking institution has been conferred by the legislature the power of subordinate legislation to formulate and enact new directives/guidelines in public interest and for the growth of the Indian economy," the apex court said.

The function of the courts was restricted to examine if there was any abuse of lawful authority and not to appropriate itself the task entrusted to that authority.

"However, the National Commission has done just that. The National Commission assumed jurisdiction and expertise over the Reserve Bank of India," Justice Sharma pointed out.

Capping interest at 30% was a violation of the provisions of the Banking Regulation Act, 1949. Section 21A of the Act, specifically, mandates the rates of interest charged by banking companies must not be subject to court scrutiny.

WHY IS THE INDIAN RUPEE FALLING AGAINST THE US DOLLAR?

The Indian rupee's exchange rate against the US dollar has breached the 85 mark. In other words, one would have to pay Rs 85 to buy $1. In April, this "exchange rate" was around 83 and a decade ago, when Prime Minister Narendra Modi took charge, it was around 61. As such, the rupee has been weakening in value relative to the dollar. To be sure, this is a long-term trend as CHART 1 shows.

What is the exchange rate?

Typically, we buy goods (such as a pizza or a car) and services (such as a haircut or a hotel stay in a hill station) using our money — the Indian rupee. But there are many things where we need things from outside the country — say an American-made car or Swiss vacation or indeed, crude oil. For all such goods and services we might have to first buy the US (dollar) or Swiss currency (euro) using our domestic currency before we buy the final item. The rate at which one can swap between currencies is the exchange rate. In other words, how many rupees would buy you a dollar or a euro.

In such a market — also referred to as the currency market — each currency is like a commodity itself. The value of each currency relative to another currency is called the exchange rate. These values can stay the same over time but more often than not they keep changing.

What determines the exchange rate?

Like any other trade in life, the relative value of one currency against another depends on which is demanded more. If Indians demand more US dollar than Americans demand the Indian rupee, the exchange rate will tilt in favour of the US dollar; that is, the US dollar will become relatively more precious, more valuable, and more costly. If this situation keeps repeating every day, such a trend will become stronger and the rupee will keep losing value relative to the US dollar. This movement will show up in the form of the rupee's exchange rate weakening against the dollar.

But what factors determine the demand for rupee vis a vis dollar?

There are several factors that can affect the demand for currencies.

One big component of demand comes from trade of goods. For the sake of simplicity, imagine a world where there are only two countries — India and the US. If India imports more goods from the US than what it exports to the US, then the demand for US dollar will outstrip the demand for Indian rupee. This, in turn, will make the US dollar gain strength against the rupee and its exchange rate versus the rupee will appreciate. Put differently, the rupee's exchange rate relative to the dollar will weaken. As a result, more rupees will be required to buy a single US dollar.

The other big component is trade in services. If Indians buy more US services — say tourism — than Americans buy Indian services, then again, demand for dollar will outstrip the demand for rupee, and rupee will weaken.

The third component is investments. If Americans invest in India more than Indians invest in the US, then the demand for rupee will outstrip the dollar and rupee will appreciate against the dollar.

These are the three main ways in which the exchange rate can change.

But what factors affect these three kinds of demands?

Of course, there are several factors that can affect these three demands.

Suppose the US decides that it will not allow Indian imports. In such a scenario, the demand for Indian rupees will plummet. After all, if the Americans can't buy Indian goods, why would they go to the currency market to buy Indian rupees?

End result: rupee will weaken. Something similar is expected to happen if, as President-elect Donald Trump has promised, the US slaps high tariffs against Indian goods, making them so costly that no one in America will buy them.

Similarly, imagine a scenario where both India and the US are experiencing high inflation. By definition, inflation eats away the value of a currency because an inflation of 5% means that whatever one could buy for Rs 100 in first year, requires Rs 105 to buy in the second year.

Now imagine that in five years time, the US reduces its inflation to zero while in India it stays at 6%. This would mean that if an American decides to invest in the Indian stock market thinking that Indian companies/shares give an annual return of 10%, he or she would end up getting only 4% real return because six out of those 10% would be eaten up by inflation. On the other hand, the US stock market might give a return of just 5% but since inflation is at 0%, the final return would be 5%.

In such a scenario, an investor may not make any fresh investments into India; worse still, he or she may actually pull out money from India and invest it back in the US. Both these actions will reduce the demand for rupees relative to the dollar and the rupee will weaken against the dollar. Again, something similar is happening at present as the investors pull out money from India.

AS RUPEE HITS NEW LOWS, REAL EFFECTIVE EXCHANGE RATE SOARS TO AN ALL-TIME HIGH

The rupee is hitting fresh lows against the US dollar each day, yet its exchange rate has scaled an all-time-high in "real effective" terms.

• The real effective exchange rate (REER) index of the rupee touched a record 108.14 in November, strengthening by 4.5 per cent during this calendar year, according to the latest Reserve Bank of India (RBI) data.

• The REER measures the rupee's value vis-à-vis not only the dollar, but other global currencies as well. In this case, it is a weighted average of the rupee's exchange rate against a basket of 40 currencies of countries that account for about 88 per cent of India's annual exports and imports. The REER also adjusts for inflation differentials between India and each of these trading partners.

• The rupee's REER — an index similar to that for consumer prices or industrial production, with 2015-16 as the base year and currency weights derived from the shares of the individual countries in India's total foreign trade — fell from 105.32 in January 2022 to 99.03 in April 2023. But since then, it has been on an appreciating trajectory, climbing to 107.20 in October and 108.14 in November this year.

• The main reason for the divergence — the rupee's simultaneous weakening and strengthening — has to do with the dollar's behaviour over the past three months, especially post Donald Trump's victory in the US presidential elections on November 5.

• In other words, the rupee isn't weakening as much as the dollar is strengthening — against all currencies. The dollar is strengthening because of Trump's public pronouncements favouring universal tariff hikes (more so, on imports of Chinese goods), deficit-financed income tax cuts and mass deportations of illegal immigrants.

• Assuming the rupee was "fairly" valued in 2015-16, when the REER was set to 100, any value above 100 signifies overvaluation and the exchange rate not falling enough to offset higher domestic inflation. The rupee is, to that extent, highly overvalued today, making imports into India cheaper and exports from the country less cost competitive. It probably also explains why the RBI is now allowing the rupee to fall — at least against the dollar.

CONSUMER PRICE INDEX

— Food inflation — typically considered idiosyncratic — has stayed stubbornly elevated, restricting the fall in the consumer price index (CPI) and restraining the Monetary Policy Committee of the Reserve Bank of India.

— Food commands nearly 40 per cent weight in the CPI basket. Hence, and as past trends also indicate, overall inflation cannot be tamed without bringing down food prices.

— Inflation refers to the rate at which the general price level for goods and services increases over a period of time, causing a decrease in purchasing power of money or real income. In other words, as inflation rises, each unit of currency can buy fewer goods and services than before.

— Rising inflation affects the financial well-being of households, especially those with lower incomes or fixed incomes. As the cost of goods and services increases, it reduces the quantity of goods and services that can be purchased with the same nominal income, thereby affecting households' cost of living.

— There are different methods for measuring inflation such as Consumer Price Index (CPI), Wholesale Price Index (WPI), GDP deflator, Producer Price Index (PPI), and wage inflation, with each focusing on a specific aspect of price changes.

— Typically, inflation relates to consumer prices of all goods purchased by the consumer which may be either domestically produced or imported. The government publishes CPI each month. CPI measures changes over time in the general level of prices of goods and services that households purchase for consumption.

— The formula for calculating inflation is $((CPI_{x+1} – CPI_x)/CPI_x))*100$.

CPI_x = the value of the CPI in the initial/base year x.

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

Telegram: http://t.me/DreamIAS_Jamshedpur

LOWER GST ON FOOD DELIVERY, INSURANCE DEFERRED, MANY RATES ON POPCORN NEW ROW

The Goods and Services Tax (GST) Council in its 55th meeting held in Jaisalmer Saturday deferred a decision to lower the tax rate on health and life insurance premiums, and food delivery charges of e-commerce aggregators such as Swiggy and Zomato. It also discussed inclusion of Aviation Turbine Fuel (ATF) under GST, but deferred a decision since most states were not in favour of losing their right to tax it.

Key Takeaways:

— The Council discussed the tax rate on ready-to-eat popcorn, which is mixed with salt and spices. It took the view and clarified that popcorn with salt and spices has the essential character of a namkeen and should face 5 per cent GST (other than pre-packaged and labelled). — The GST should be 12 per cent if the popcorn is pre-packaged and labelled. When mixed with sugar (e.g. caramel popcorn), it was akin to sugar confectionery items (items with 'added sugar') and hence, would attract 18 per cent GST.

— The Group of Ministers (GoM) on rate rationalisation sought more time to discuss the proposal to tweak rates on as many as 148 items, which will also come up for discussion in the Council later. The GoM for compensation cess was also given an extension by the Council to submit its recommendations.

— For taxation of used electric vehicles, the GST Council recommended a harmonisation of the GST rate on sale of old and used vehicles including EVs at 18 per cent. Sitharaman said the Council decided to raise the rate of tax to 18 per cent from 12 per cent on all used EV sales, just as in case of non-electric vehicles.

— In other key rate changes, the GST Council recommended that no GST will be payable on penal charges levied and collected by banks and NBFCs from borrowers for non-compliance with loan terms, or in other words, loan defaults.

— A special demand by Andhra Pradesh to discuss levy of 1 per cent additional GST over and above the topmost 28 per cent rate in case of disasters, broadly on the lines of flood cess levied by Kerala in 2019, was discussed in the Council. The GST Council agreed to refer this discussion for a special levy for disasters to a GoM.

Do You Know:

— The GST regime came into force after the Constitutional (122nd Amendment) Bill was passed by both Houses of Parliament in 2016. More than 15 Indian states then ratified it in their state Assemblies, after which then-President Pranab Mukherjee gave his assent.

— It came into effect in 2017 and was billed as an attempt to simplify the existing tax structure in India, where both the Centre and states levied multiple taxes, and to make it uniform.

— The President set up the GST Council as a joint forum of the Centre and the states, under Article 279A (1) of the amended Constitution. It said that members of the Council include the Union Finance Minister (chairperson), and the Union Minister of State (Finance) from the Centre. Each state can nominate a minister in charge, of finance or taxation or any other minister, as a member.

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— According to Article 279, the GST council is meant to "make recommendations to the Union and the states on important issues related to GST, like the goods and services that may be subjected or exempted from GST, model GST Laws". It also decides on various rate slabs of GST, whether they need to be modified for certain product categories, and so on.

PM TELLS MINISTERS TO ATTEND PROPERTY CARD DISTRIBUTION EVENTS ON DEC 27

Prime Minister Narendra Modi has asked all Union ministers to attend the public events to be held to distribute 57 lakh property cards among a dozen states and UTs on December 27, under SVAMITVA, a central sector scheme, The Indian Express has learnt.

• The move is being seen as a big push to the implementation of the scheme that aims to provide 'Record of Rights' to owners possessing houses in inhabited areas in villages, and issue legal ownership rights through property cards or title deeds.

• It is learnt that the Prime Minister has asked ministers to attend the events, at a meeting of the Cabinet on December 20.

• According to sources, the Ministry of Panchayati Raj has planned to hold physical events across 12 states and UTs—Chhattisgarh, Himachal Pradesh, Gujarat, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Mizoram, Odisha, Punjab, Rajasthan, Uttar Pradesh and Ladakh.

• The chief ministers of these states and the L-G of Ladakh will also participate in the event in their respective states, the sources said. The Prime Minister will participate virtually. In all, 57 lakh property cards will be distributed across 240 districts in these states, the sources said.

Do You Know:

• SVAMITVA, a Central Sector Scheme of Ministry of Panchayati Raj was nation-wide launched by the Hon'ble Prime Minister on National Panchayati Raj Day, 24th April 2021 after successful completion of pilot phase of scheme (2020-2021) in 9 states.

• So far, 2 crore property cards have been issued, said an official, adding that all households have been covered in several states like Haryana and Uttarakhand. The scheme aims to cover the entire country by the end of financial year 2025-26.

• The scheme is being implemented with the collaborative efforts of the Ministry of Panchayati Raj, Survey of India (SoI), State Revenue Department, State Panchayati Raj Department and National Informatics Centre. States need to sign Memorandum of Understanding (MoU) with SoI for implementation of the scheme.

• According to the Panchayati Raj Ministry, the scheme will benefit rural people in many ways.
—It will enable rural households to use their property as a financial asset for taking loans and other financial benefits.

—It will help in determination of property tax, which would accrue to the Gram Panchayats directly in States where they are empowered to collect such taxes.

—It will increase liquidity of land parcels in the market and increase the financial credit availability to the village.

—The scheme will pave a way for creation of accurate land records for rural planning.

—All the property records and maps will be available at gram panchayats, which will help in taxation of villages, construction permits, elimination of encroachment, etc.

—It will help in reduction in property-related disputes. Eighth, as the property maps will be made using the GIS technique, the same can be used for better-quality Gram Panchayat Development Plan.

ALL STATES/UTS EXPECTED TO COMPLETE DRAFT LABOUR CODE RULES BY MARCH

All 36 states and Union territories (UTs) are expected to complete "harmonisation and pre-publication" of draft rules under the four labour codes by March 31, 2025, a release by the Labour Ministry said on Saturday.

• So far, barring five states and UTs, all others have pre-published the rules, setting the stage for the much-awaited rollout of the four codes — Code on Wages, Code on Social Security, Code on Industrial Relations, and Code on Occupational Health & Safety — by next year. The Labour Ministry has been consistently working for harmonisation of rules under the four codes across the states, said the release.

• Labour laws fall under the concurrent list of the Constitution. Hence, both the Centre and states are empowered to make rules. But in the event of a conflict between state and central laws, central legislation generally takes precedence, unless the state's law has obtained presidential assent.

• The four labour codes are a judicious combination of reforms aimed at easing labour market rigidities, and reinforcing workers' rights and welfare.

• As many as 44 labour related Acts were consolidated into the four codes in 2019-2020 with the objective of reinforcing trade and investment, facilitating ease of doing business and easing compliance.

• Several minor offences were decriminalised via the codes, while skill development and dispute resolution have been accorded due priority. Meanwhile, the ministry also is working towards development of a framework for social security coverage to gig and platform workers, said the release.

• Extensive stakeholder consultations were conducted with aggregators, knowledge partners, platform worker organisations, and state/UTs this year to ensure a comprehensive understanding of the Social Security Code, 2020, and to develop collaborative approaches for a social security framework tailored to gig and platform workers, it said.

Do You Know:

• Since labour matters fall under the Concurrent List, both Parliament and state legislature hold the authority to enact relevant laws. Before the introduction of the New Labour Code, the central government identified over 40 central laws and more than 100 state laws addressing various labour issues.

• The Second National Commission on Labour (2002) recommended reforms to consolidate these existing laws into four main labour codes, which are still awaiting implementation: the Code on Wages (2019), the Code on Social Security (2020), the Industrial Relations Code (2020), and the Occupational Safety, Health, and Working Conditions Code (2020).

• These new codes prioritise critical aspects such as worker safety, fair wages, and social security. For example, the Occupational Safety, Health, and Working Conditions Code establishes comprehensive health and safety standards for employers.

WHY MSP MATTERS

"First, it is important to understand what MSP is and when and why it was introduced. The term MSP stands for Minimum Support Price. The term itself reveals much about MSP because "minimum" means the lowest possible, "support" means assistance, and "price" refers to the price that is meant to provide minimal support."

• "This scheme started about 60 years ago when the country was unable to feed its growing population as a safety net for farmers. It promised that if their crops didn't sell in the market, the government would buy them at least at this minimum price. However, at that time, the costs of production for the farmers were not factored in…"

• "Traders took advantage of this, and the farmers were exploited. Slowly, the cost of production increased, but the MSP remained far behind. This could be one of the reasons for the rise in farmer suicides."

• "Now, let's consider the argument by some that farmers in Punjab do not need MSP. The intellectual class and the Punjab government express concern about the depleting groundwater, but no concrete solutions have been offered. It is even cited that it takes 3,000 to 3,500 litres of water to produce just one kilogram of rice…"

• "Therefore, farmer unions have started demanding a guaranteed MSP law for 23 crops, hoping it will lead to the promotion of crop diversification. With guaranteed MSP for these 23 crops, farmers in Punjab and Haryana will be encouraged to grow crops that provide better profits than wheat and paddy. This will not only address the groundwater issue but also offer a permanent solution to the problem."

• "In addition to the MSP guarantee law, promoting crop diversification will significantly reduce electricity consumption in agriculture, potentially cutting it by 60 per cent. This will allow for cheaper electricity for household consumers in Punjab. Furthermore, it will help save groundwater, which is crucial for everyone, including farmers, workers, officials, and citizens…"

• "Furthermore, guaranteeing MSP will help address the growing concerns about health hazards. Reports suggest that palm oil, commonly used in many food products, is processed using dangerous chemicals, which can lead to health issues. Therefore, guaranteeing MSP would not only protect the livelihood of farmers but also safeguard public health and the country's wealth."

Do You Know:

• During each cropping season, the government announces minimum support prices for 23 crops. Simply put, the MSP for a crop is the price at which the government is supposed to procure/buy that crop from farmers if the market price falls below it.

• As such, MSPs provide a floor for market prices, and ensure that farmers receive a certain "minimum" remuneration so that their costs of cultivation (and some profit) can be recovered.

• The MSPs serve one more policy purpose. Using them, the government incentivises the production of certain crops, thus ensuring that India does not run out of staple food grains.

• Crops covered by MSPs include:

* 7 types of cereals (paddy, wheat, maize, bajra, jowar, ragi and barley),
* 5 types of pulses (chana, arhar/tur, urad, moong and masur),
* 7 oilseeds (rapeseed-mustard, groundnut, soyabean, sunflower, sesamum, safflower, nigerseed),
* 4 commercial crops (cotton, sugarcane, copra, raw jute)

WEST BENGAL & RAJASTHAN NEW MIGRANT DESTINATION HOTSPOTS; UTTAR PRADESH TOPS

West Bengal and Rajasthan are the new centres of migrants movement from across the country and have found place in the list of top five states where maximum numbers of general or second class passengers travelled to by the Indian Railways, shows the latest working paper of the Economic Advisory Council to the Prime Minister (EAC-PM) on migration trends.

• Other three states in the top five are Uttar Pradesh, Maharashtra and Madhya Pradesh. According to the analysis of data from the Indian Railways on unreserved tickets of non-suburban passengers (150+ kms journey), the council has concluded that while most of the states showed reduction in the passenger headed to them from outside, possibly as a result of an overall reduction in migration, West Bengal, Rajasthan and Karnataka are the states that showed the maximum amount of growth in percentage share of the arriving passengers.

• Compared to 2012 data, Andhra Pradesh and Bihar are now ranked a notch lower. Titled as "400 Million Dreams!", the PM advisory body in its report said that the overall number of migrants in the country has reduced by 11.78 per cent as compared to the 2011 census.

• The paper hypothesised that improved economic opportunities in smaller cities are among the reasons for the slowing migration in India.

• Apart from ticket bookings data from Indian Railway Unreserved Ticketing System (UTS) for year 2023 and 2012, EAC-PM used mobile telephone subscribers' roaming data and district level banking data on remittances to come up with the figure of 40.20 crore migrant, as of 2023, in the country. The total number of migrants in Census 2011 were 45.57 crore.

• According to its analysis, Gujarat, Uttar Pradesh, Bihar, Karnataka and Telangana are the major origin states for arrivals into Maharashtra. Similarly, for Delhi, the major origin states are Uttar Pradesh, Bihar, Rajasthan, Haryana and Madhya Pradesh.

Do You Know:

• Migration is seen as an important and essential livelihood strategy for rural households in the developing world. In India, internal migration or domestic migration – the movement of people within a country's borders – plays a crucial role in shaping both urban and rural economies.

• Internal migration can be understood and measured in terms of types or streams of movement. The types of internal migration can be intra-district or within the district, intra-state or within the state, and inter-state. The streams of internal migration can be rural-rural, rural-urban, urban-rural, and urban-urban.

• It is difficult to precisely calculate the volume of migration, especially because of the informal nature of the Indian economy. The Census of India provides useful data on understanding

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permanent movement and, to some extent, semi-permanent migration. The Census defines two types of migrants in India – migration by place of birth and migration by last residence.

• A migrant by birth is a person who is enumerated in a Census at a different place than where they were born. A migrant by the last residence is one who resides at a place different from the place of enumeration continuously for at least six months prior to the migration.

MIGRATION IN INDIA IS SLOWING, REDUCED BY 11.78 PERCENT IN 2023: PM ADVISORY BODY REPORT

The domestic migration in India is slowing and the overall number of migrants in the country has reduced by 11.78 percent as compared to the census 2011, said the Economic Advisory Council to the Prime Minister (EAC-PM) in its latest report.

According to the calculations by the council, the total number of migrants in the country, as of 2023, is estimated to be 40.20 crore. While the total number of migrants in Census 2011 were 45.57 crore. EAC-PM also said that the migration rate which stood at 37.64 per as per census 2011 is estimated to have since reduced to 28.88 percent of the population.

Titled as "400 Million Dreams!", the PM advisory body used three datasets- Indian Railway Unreserved Ticketing System (UTS) data on passenger volumes; mobile telephone subscribers roaming data from the Telecom Regulatory Authority of India (TRAI) and district level banking data on remittances to come up with this new figure on migration.

However, it also said that this method can give a general idea about the trend and accuracy of the findings can only be checked after the decennial Census.

"This paper is an attempt to address the issue of timeliness of availability of data for analysing trends in domestic migration especially that of blue collar migration (movement of working-class individuals). While the decennial Census provides comprehensive and granular migration data, however on account of its periodicity, there remains a significant lag by the time the data can be analysed," reads the report, authored by economist Bibek Debroy, who was chairman of EAC-PM, and Devi Prasad Misra, an IRS officer presently posted as Director in the council.

WHY ROADS MINISTRY WILL DEPLOY 'INTELLIGENT MACHINES' FOR NATIONAL HIGHWAYS CONSTRUCTION

Given the concerns over delays in the completion of many National Highway projects across the country, the Ministry of Road Transport & Highways (MoRTH) has expedited the use of Automated & Intelligent Machine-aided Construction (AIMC) system.

This will provide real-time data on the status of each project, with a survey going hand-in-hand with construction at every stage of the road-building process. The generated data will be sent on a real-time basis to stakeholders, including the MoRTH.

The Ministry earlier this week issued a draft circular to all the stakeholders including National Highway Authority of India (NHAI), and the National Highways & Infrastructure Development Corporation Limited (NHIDCL), seeking their comments and suggestions on the adoption of AIMC in National Highway projects.

A MoRTH official told The Indian Express that the department studied the systems of the likes of the US, Norway, and European Union countries, where AIMC is already implemented, to come up with this pan-India plan.

Why is AIMC needed?

The introduction of various kinds of machinery for highway construction greatly expedited the process. Now, with the rise of Artificial Intelligence (AI), we are at the cusp of another revolution.

A number of "intelligent road construction machines" have been developed, which will enhance the durability & longevity of roads constructed, provide real time documentation, and increase productivity. Such machines will help completion of projects as per precise schedules.

Recently, while responding to a question by a member of Rajya Sabha, Union Minister of Road Transport and Highways Nitin Gadkari said that out of 952 projects (including National Highway projects) costing more than Rs 150 crore which were under construction in March 2024, a total of 419 projects spilled beyond their original completion schedule, missing one or the other of the various stages of project completion.

While there are many reasons for the delay of highway projects, Ministry officials say that old technologies, un-updated information, and poor performance of contractors add to the problem.

Has AIMC been tested in India?

NHAI is implementing AIMC on a pilot basis in the 63-km long under-construction Lucknow-Kanpur Expressway Project, also known as the Awadh Expressway, where automated & intelligent machines such as GPS-aided motor grader, intelligent compactor, and stringless paver have been used.

Officials said that on the basis of this pilot projects, there will be countrywide adoption of the AIMC in National Highway construction.

"These machines are called intelligent machines, not the AI machines. Because AI works on the basis of already available data, in these machines, we have to feed project-wise information in the system, which will reduce the manpower. It will expedite the working because with these machines, the construction will continue during the night also," said the official quoted above.

He further said, "Currently, after the completion of each stage of the construction, we have to carry out surveys to check if the quality has not been compromised. With these machines, the survey will go hand-in-hand as it will send real-time data on every step to all the stakeholders including the Ministry."

What are AIMC Machines? How will they work?

Road projects require embankment, subgrade, subbase, and base pavement layers. Under the AIMC system, a GPS-aided motor grader will be used for earthworks, subbase & base layers, and an intelligent compaction roller (IC roller) and Single Drum/Tandem Vibratory Roller will be used for soil, subbase and base layer compaction.

GPS-aided motor grader, also called 3D machine control technology, will process the data from Global Navigation Satellite System (GNSS), and an angle sensor. It will calculate the precise

position and orientation of the grader's blade in real-time and compare it to the desired design surface or grade specified in the digital design plans.

Similarly, the IC roller will help in minimising the post-construction consolidation, an important step in highway construction. Consolidation reduces the volume of voids, air pockets, or water in materials, such as concrete or soil, so that the roads do not get damaged.

India presently has about 1.46 lakh km in its National Highways network. Out of this network, about 3,000 km comprises high-speed corridors — with a vision to construct a further 45,000 km till 2047.

HEATED COACHES, AIRPORT-LIKE SECURITY CHECK: FIVE TRAINS PLANNED FROM DELHI TO KASHMIR

Indian Railways is ready to run as many as five trains from the National Capital, which will traverse through the Himalayas to connect the Kashmir region with the rest of the country, ending the wait of almost three decades since the project was sanctioned.

A senior official of the Ministry of Railways said that these will be sleeper AC trains equipped with heating facilities inside the coaches, as part of the route will pass through the snow covered region. Given the security concerns in Jammu and Kashmir, there will be enhanced security checks for these services.

However, the decision of plying the trains is contingent upon the nod from the Commission of Railway Safety (CRS). The Katra to Reasi stretch (17km) of 272-km long Udhampur-Srinagar-Baramulla Rail link (USBRL) project is still in works and the CRS is yet to inspect the site.

The ambitious USBRL project, also called the Kashmir line, was sanctioned in 1994-95. However, it was wrecked by landslides and other adverse geological effects in the past 25 years and its cost has increased manifolds to the current estimate of Rs 37,500 crore. The iconic 359-meter high Chenab Bridge lies on this line. It is 35 meters taller than the Eiffel tower.

The construction of the first three phases of the project was completed by 2014 and trains have been running between Baramulla and Banihal in the Kashmir valley, and between Jammu, Udhampur, and Katra in Jammu region.

The work on the intervening 111-Km section Katra-Banihal was the arduous and treacherous portion due to its geology and extensive riverine system replete with deep gorges. Out of this 111-km section, a 48-km section from Banihal to Sangaldan was commissioned in February 2024 and another 46-km long Sangaldan-Reasi section received CRS authorisation on July 01, 2024. If CRS gives approval for the remaining Katra-Reasi section, Indian Railways will go ahead to launch the train services.

With the opening of this line, the government also aims to run trains from Kashmir to Kanyakumari, connecting far North and South of India. "A project connecting Kashmir to Kanyakumari is now ready, and trains will start running on this route within the next four months. This will be a major achievement for India," Minister for Railways Ashwini Vaishnaw recently said in the Lok Sabha.

LIFE & SCIENCE

MOON WAS FORMED AROUND 4.51 BILLION YEARS AGO, SAYS STUDY

Evidence to support an older age for the formation of the Moon, around 4.51 billion years ago, as per a paper published in the journal Nature.

This new analysis suggests that a 'remelting' of the Moon's surface around 4.35 billion years ago may have masked a far older history.

The Moon is thought to have been formed through a collision between the early Earth and a Mars-sized protoplanet, the last giant impact in our planet's history.

The timing of this event has been estimated by dating lunar rock samples presumed to have crystallised from the lunar magma ocean that existed post-impact, placing the Moon's age at approximately 4.35 billion years old, as per a Nature release.

However, this age fails to account for several discrepancies with thermal models and other pieces of evidence, such as the number of craters on the Moon and the age of some zircon minerals on the Moon's surface, which suggest that the Moon could be up to 4.51 billion years old.

Resetting formation

The researchers argue that the frequent occurrence of approximately 4.35-billion-year-old rocks may be indicative of a remelting event, driven by the Moon's orbital evolution, rather than the first solidification of the lunar magma ocean. The authors use modelling to show that the Moon may have experienced sufficient tidal heating to cause this remelting approximately 4.35 billion years ago, which could 'reset' the apparent formation age of these lunar samples.

In addition, the remelting of the Moon would explain why there are fewer lunar impact basins from early bombardment than might be expected, as they would have been erased during a heating event.

The authors posit that this explanation would suggest the formation of the Moon occurred between 4.43 and 4.53 billion years ago, at the upper limit of previous age estimates.

SPADEX: MEETING IN SPACE

WHAT IS IT?

SpaDeX is the name of a new mission to be flown by the Indian Space Research Organisation (ISRO). During the mission, two satellites will be launched into orbit around the earth, where they will demonstrate technologies to dock and undock while in motion.

ISRO needs to master in-space docking so that satellites launched in separate rocket launches can link up to perform more sophisticated tasks. The technology will be essential for the 'Bharatiya Antariksh Station,' a new India-made space station ISRO has begun work on.

If the SpaDeX test is successful, India will become the fourth country in the world to have a space programme capable of docking in space.

The satellites for the SpaDeX mission will be launched onboard the PSLV C60 mission. The launch is expected to happen on December 30, 2024.

Each of the spacecraft weighs about 220 kg. The rocket will launch them simultaneously but independently into a 470-km-wide circular orbit at a 55° inclination, with a local time cycle of about 66 days.

The docking manoeuvre will be SpaDeX's primary objective. Once it has been accomplished, the two satellites will proceed to the secondary objectives: "the transfer of electric power between the docked spacecraft, which is essential for future applications such as in-space robotics, composite spacecraft control, and payload operations after undocking," per an ISRO statement.

WHAT ARE INDIA'S PLANS FOR A QUANTUM SATELLITE?

The story so far:

On December 13, Ajai Chowdhry, chairman of the Mission Governing Board of the National Quantum Mission, said India plans to launch a quantum satellite in "2-3 years for quantum communications".

What is the National Quantum Mission?

The National Quantum Mission (NQM) is a Department of Science & Technology programme to accelerate the use of quantum physics to develop advanced communications and sensing systems.

The development of computers changed the course of human history from the mid-20th century onwards. Advances in this sector gave humankind satellites, telecommunications, weather forecasts, drug-discovery programmes, etc.

But these advances are reaching a saturation point because the physics phenomena on which they are based, called classical physics, are hitting a performance upper-limit. So scientists around the world are developing new technologies to solve the same problems but using phenomena of quantum physics. Because the rules of quantum physics allow for the outcomes of classical physics as well as new 'bonus' ones, the new devices are expected to be more versatile problem-solvers.

The Union Cabinet approved the NQM in April 2023 at ₹6,000 crore, to be implemented from 2023 to 2031. The planned quantum satellite is part of this package.

What is a quantum satellite?

A quantum satellite is a term for a communications satellite that uses quantum physics to secure its signals.

Communications is a broad term that refers to technologies that send and receive signals. An important part of these technologies is security: preventing bad actors from intercepting a message being transmitted across large distances, through multiple networks.

The advent of quantum computers threatens the technologies currently being used to secure messages. Fortunately, quantum physics has also paved the way for new forms of protection, and quantum satellites are expected to facilitate them.

How are messages secured?

Say two people, Anil and Selvi, are standing at two ends of a playground and wish to speak to each other. They could shout or wave their hands. However, Anil composes his message, encrypts it, and writes the encrypted text on a piece of paper. He ties it to the foot of a messenger pigeon and sends it to Selvi. If Selvi knows how Anil encrypted the message, she can decrypt it to access the original text.

Encryption is the task of concealing information. The manner is called the cipher. A simple example is the Caesar cipher, where the letters of the alphabet are offset by a fixed number. If the number is 5, the words BIRDS FLY AWAY become GNWIX KQD FBFD.

Say there is a third person, Kaushik, standing in the middle of the ground and trying to eavesdrop on the conversation. If he intercepts the pigeon, he can't crack the text unless he knows the manner of encryption.

This security paradigm is called cryptographic security. It works by hiding the secret code, or key, behind an extremely difficult mathematical problem. A bad actor like Kaushik can solve the problem with a powerful computer to reveal the code — but the harder the problem, the more time (and/or more computing resources) he will need.

Even the most powerful supercomputers have difficulty cracking the best Advanced Encryption Standard ciphers in use today — but quantum computers may be able to do better.

How can quantum physics protect messages?

Quantum cryptography uses the tenets of quantum physics to secure messages. Its most famous type is quantum key distribution (QKD).

In the example before, Anil used a key to encrypt his message and Selvi, who knew the key, used it to decrypt the message. QKD is concerned with sharing this key with both Anil and Selvi such that if Kaushik is eavesdropping on the transmission, everyone will find out and the sharing will be aborted.

Quantum physics can protect against eavesdropping in different ways. One is quantum measurement — the act of measuring the properties of a quantum system, like a photon (the particle of light). According to the rules of quantum physics, a quantum measurement changes the state of the system. If information about the key is encoded in a stream of photons and Kaushik traps and measures them to look for it, the state of the photons will change and Anil and Selvi will know the key has been compromised. Another way is to use quantum entanglement: when two photons are entangled, any change to one particle will instantaneously change the other. (This is a simplistic description.)

Has QKD been implemented?

Ravindra Pratap Singh of the Physical Research Laboratory, Ahmedabad, wrote in 2023 that standards for different QKD implementations are still a decade away. This said, China currently operates the world's largest QKD network with three quantum satellites and four ground stations.

Experts are also trying to implement QKD across longer distances. Since the early 1990s, the distance of reliable transmissions has increased to several hundred kilometres, either through fibre-optic cables or free space.

In an October 2024 study, researchers at the Raman Research Institute, Bengaluru, reported the Indian Astronomical Observatory in Hanle, Ladakh, offers the best atmospheric conditions through which to transmit data for a satellite-based QKD system. The paper's lead author Satya Ranjan Behera said the beam distance would be 500 km.

Does QKD have drawbacks?

QKD on paper can be different from that in the real-world. This is why the U.S. National Security Agency has recommended the use of post-quantum cryptography rather than quantum cryptography. Its criticism is focused on five technical limitations: "QKD does not provide a means to authenticate the QKD transmission source"; "since QKD is hardware-based", QKD networks can't be upgraded or patched easily; "QKD increases infrastructure costs and insider threat risks" that "eliminate many use cases from consideration"; "the actual security provided by a QKD system is not the theoretical unconditional security from the laws of physics... but rather the more limited security that can be achieved by hardware and engineering designs"; and since eavesdroppers can cause a transmission to stop, they can deny the use of a transmission by its intended users (a.k.a. a denial-of-service attack).

The no-cloning theorem of quantum physics also disallows quantum information from being amplified to compensate for losses during transmission.

AS TECH FIRMS LOOK TO TRANSLATE THE PROMISE OF AI IN 2025, 3 CLEAR TEMPLATES EMERGE

If the year 2024 started with the promise of generational AI, 2025 could be more about testing out the use cases of some of these AI tools. And finding answers to the quintessential question of monetising AI. Going forward, there could be three board templates for the most compelling use cases yet.

• One, is this clear focus on AI agents — artificial intelligence tools that can handle multi step chores like onboarding clients, approving expenses and not just routing, but actually responding to customer-service requests, all with minimal human intervention.

• Second, if monetising AI is a big question, San Francisco-based Perplexity AI has some answers. In November, Perplexity – a conversational 'answer engine' that uses large language models (LLMs) to answer queries using sources from the web and citing links within the text response – launched a user-focused shopping hub in a bid to beef up its platform as it attempts to take on Google's dominance in the search engine space.

• Third, is a doubling down on improving the AI interface by the segment leaders – a handful of companies such as OpenAI, Google, Meta, xAI and Anthropic that have converged at the top of the current generation of LLM models.

• Google too has a pitch in this segment, with the promise to launch Gemini 2.0, its most capable model that it says is built for the 'new agentic era'. With new advances in multimodality — like native image and audio output — and native tool use, Google said the new launch "will enable us to build new AI agents that bring us closer to our vision of a universal assistant".

• All this comes at a time when most of the segment leaders feel that the progress on AI is going to get harder, with the low hanging fruit gone and the curve on the hill getting steeper in 2025. The foundational models are likely to get better at reasoning, comparing a sequence of actions

more reliably in a more agentic way, Google CEO Sundar Pichai said in a conversation at a New York Times event earlier this month.

Do You Know:

• Artificial Intelligence (AI) is the ability of machines, especially computers, to perform tasks that typically require human intelligence. These tasks include things like understanding language, recognising patterns, solving problems, and making decisions.

• Essentially, AI enables machines to think and learn from experience, just like humans do, but often at a much faster pace with access to vast amounts of data.

• AI can be classified into two types: Artificial Narrow Intelligence (ANI) also known as weak AI and Artificial General Intelligence (AGI) also referred to as strong AI.

• ANI is designed for specific tasks and excels within a narrow domain. Examples include virtual assistants like Siri, recommendation systems on platforms like Netflix, and image recognition software. ANI systems are highly specialised and cannot transfer their expertise to unrelated tasks.

• In contrast, AGI aims to replicate human cognitive abilities, enabling it to perform any intellectual task a human can do. AGI would possess general reasoning skills, understand context, and adapt to new situations across various domains. It would be capable of autonomous learning and problem-solving without requiring task-specific programming.

• Machine Learning (ML) and Deep Learning (DL) are subsets of AI but differ in complexity and capabilities. ML involves training algorithms to learn from data and make predictions and often requires manual feature extraction.

• DL, a subset of ML, uses neural networks with many layers (hence "deep") to automatically learn features from large datasets. While ML works well with smaller datasets, DL requires vast amounts of data and computational power.

US COURT HOLDS ISRAELI COMPANY NSO LIABLE FOR TARGETING WHATSAPP USERS

In a significant ruling on Friday, a United States District Court held Israeli technology company NSO Group liable for targeting the devices of 1,400 WhatsApp users. NSO Group is the maker of the Pegasus spyware allegedly used by its government clients to infect the devices of several WhatsApp users, including activists, journalists, and other members of the civil society.

— The case now moves the deliberations to determine damages NSO owes WhatsApp, which is set to begin on March 3, 2025, in Oakland, California. The ruling, however, does not address the rights of individuals whose phones were hacked.

— Friday's ruling came five years after the Meta-owned WhatsApp sued the NSO Group in the US District Court of North California in October 2019.

— In its ruling, the court concluded that in exploiting a bug in WhatsApp, NSO Group had violated sections of the Computer Fraud and Abuse Act (CFAA), a federal cybersecurity law that criminalises unauthorised access to computers, networks and other digital information, and a similar state law in California called the California Computer Data Access and Fraud Act (CDAFA).

— It also ruled in WhatsApp's favour over its claim that the NSO Group had violated its terms of service, handing the messaging app a decisive victory.

— This is significant, given that no prior court had held NSO Group liable for its spyware. As The Indian Express reported in November using unsealed court documents, WhatsApp alleged that between April 2018 and May 2020, the NSO Group had reverse-engineered and decompiled its source code to create installation vectors (points of entry) named "Heaven", "Eden" and, "Erised"—all part of a sophisticated hacking suite called "Hummingbird" that NSO Group sold to its government clients.

— Critically, the ruling rejects NSO Group's oft-quoted defence that it wasn't liable for its clients' – governments that acquired the spyware — actions and decisions on how they deployed it.

— NSO admitted that the installation of Pegasus through WhatsApp was indeed a matter for "NSO and the system to take care of, not a matter for clients to operate."

Do You Know:

— WhatsApp, which is owned by Facebook, is the world's most popular messaging app, with more than 1.5 billion users worldwide. About a quarter of those users — more than 400 million, or 40 crore — are in India, WhatsApp's biggest market.

— The NSO Group is a Tel Aviv-based cyber-security company that specialises in "surveillance technology" and claims to help governments and law enforcement agencies across the world fight crime and terrorism.

— All spyware do what the name suggests — they spy on people through their phones. Pegasus works by sending an exploit link, and if the target user clicks on the link, the malware or the code that allows the surveillance is installed on the user's phone. Once Pegasus is installed, the attacker has complete access to the target user's phone.

— Once the phone is exploited and Pegasus installed, it begins contacting the operator's command and control servers to receive and execute operator commands, and send back the target's private data, including passwords, contact lists, calendar events, text messages, and live voice calls from popular mobile messaging apps. The operator can even turn on the phone's camera and microphone to capture activity in the phone's vicinity. In 2021, it was reported that Pegasus was used on more than 300 Indian mobile numbers, including that of two serving ministers in the Narendra Modi government, three Opposition leaders, one constitutional authority, several journalists and business persons.

WHAT IS AUSTRALIA'S ONLINE SAFETY AMENDMENT ABOUT?

The story so far:

Australia's House of Representatives recently passed the "Online Safety Amendment (Social Media Minimum Age) Bill, 2024" which imposes obligation on certain social media platforms to take reasonable steps to prevent children under 16 years of age from having an account.

What is the new law about?

The object of the amendment (a new Part 4A- social media minimum age inserted in Australia's existing the Online Safety Act of 2021) is to 'reduce the risk of harm to age-restricted users from

certain kinds of social media platforms'. The age-restricted user shall mean 'an Australian child who has not reached 16 years'.

The age-restricted social media platforms (ARSMP) affected by the proposed amendment would cover (with some exclusions) an electronic service which enables online social interaction between two or more end-users, and allows end-users to post material on the service.

The Australian Minister of Communication clarified that the government expects the ARSMP will, at minimum, include 'TikTok, Facebook, Snapchat, Reddit, Instagram, X, among others.

How will the ban be implemented?

The law proposes that the providers of ARSMPs 'must take reasonable steps to prevent age-restricted users having accounts with the age-restricted social media platforms'. Failing to meet this requirement may result in a maximum civil penalty of $49.5 millions. However, what is meant by 'reasonable steps' is not defined within the Bill.

It shall be the duty of the eSafety Commissioner to formulate, in writing, guidelines for taking reasonable steps to prevent age-restricted users having accounts with age-restricted social media platforms and to promote those guidelines.

The proposed restriction will not take place earlier than 12 months after the proposed day of enforcement. The affected stakeholders shall be consulted and government's age assurance trial will guide the industry on which age assurance technologies would be considered 'reasonable' and consistent with minimum age obligation. However, it was confirmed that all account holders on ARSMPs will have to verify their age.

The law does not otherwise place any obligation on ARSMPs to prohibit people under the age of 16 from accessing content on their platforms. There is no civil penalty for parents who provide access to ARSMPs for children under 16.

What are privacy concerns?

It has been observed that 'age assurance technologies can pose privacy risks due to the type and amount of data they collect, store, use, and share'. With regard to privacy concerns, the proposed law will establish privacy obligations where an 'entity' holds personal information about an individual that was collected for the purpose of taking reasonable steps to establish identity. Penalties may be imposed under the Privacy Act, 1988 if the entity uses or discloses information, without falling within one of the exceptions under the Act.

There will also be an obligation on entities to destroy the collected information 'after using or disclosing it for the purposes for which it was collected. The government also announced its intention to legislate a 'Digital Duty of Care' to 'place the onus on digital platforms to proactively keep Australians safe and better prevent online harms.'

Is social media harmful to children?

Emerging research indicates that social media may impact children's mental health. Despite various benefits, the risks of social media are also well acknowledged.

However, a blanket ban to prohibit children from using social media is not considered to be the most advantageous solution. Some researchers and academics expressed concern 'that a ban is

too blunt an instrument to address risks effectively'. The Australian Greens criticised saying that the legislation was 'rushed, reckless and goes against the evidence'.

THE PRINCIPLE BEHIND THE WORKING OF A SPEED GUN, USED FOR MOTION TRACKING

The world of today is a world in motion. People constantly want to get somewhere. The heavens are filling up with satellites, our skies with airplanes and rockets, our seas with ships and submarines, and our land with cars, bikes, and trains. Humans have developed laws, rules, technologies, and subsequently entire industries to make sure all these vehicles move smoothly, without harming humans or each other. A small but significant piece of this picture is the speed gun.

What is a speed gun?

A speed gun is a device to measure the speed of a moving object without having to be in contact with the object. To achieve this, the device bounces electromagnetic radiation of a specific frequency off the object, capturing the reflection and using the Doppler effect to infer the object's speed. Speed guns are electronic, and use complex circuitry to emit the radiation used to make the measurement.

These devices are widely used by law enforcement officials to monitor traffic speed, by coaches to gauge the performance of their athletes, and in various other industries in need of accurate motion tracking.

What is the Doppler effect?

The Doppler effect is named for the Austrian physicist Christian Doppler and relies on the simple concept of relative velocity. Say there's a man sitting at the centre of a field blowing a whistle. The sound waves move out in a circular, concentric pattern with the whistle at the centre, and evenly spread out. A woman standing at the edge of the field will receive these waves at frequent intervals — as and when the waves' crests reach her. (Since sound waves move at 343 m/s in air, human ears can't hear the gaps.)

Each wave has a frequency and a wavelength. A higher frequency produces a higher pitch and vice versa.

Now, say the whistling man is moving around the field on a buggy. If the buggy is moving towards the woman, the waves in front of the vehicle become bunched up. In other words, from the woman's perspective, the waves would have acquired both the speed of the buggy in addition to the speed of the sound wave. Thus the waves will reach the woman more frequently, and she will perceive a higher pitch. (For the same reason, the sound will have a lower pitch in a direction behind the buggy.)

This is why, when a train moves into a station, people on the platform will hear the horn blowing at a higher pitch than when the train is leaving the station. This effect is the Doppler effect.

The speed gun was originally developed during World War II for military use and applies the effect using radio waves rather than sound waves. A speed gun has a radio transmitter and a receiver. The transmitter emits radio waves, which the person holding the speed gun can direct at an object. The receiver collects the waves reflected by the object back in the direction of the speed gun.

If the object is approaching the speed gun, the frequency of the returning waves will be slightly higher than that of the transmitted waves. A simple computer in the gun can deduce the object's speed based on this difference.

How are the speed and the effect linked?

All electromagnetic waves have a fixed speed — equal to the speed of light in that medium. In vacuum, this value is denoted c: 299,792,458 m/s. Any change in the frequency the speed gun detects directly corresponds to the Doppler shift caused by the object's motion. This principle is powerful because it allows the speed gun to work accurately over a wide range of distances and velocities without being affected by air resistance.

A speed gun can calculate the speed of a moving object by multiplying the difference (between received and emitted frequencies) with c and dividing by the emitted frequency times 2.

This relationship shows how the difference is directly proportional to the speed of the object: the faster it moves, the more pronounced the difference will be. In other words, the only condition is that the object should be moving much slower than the speed of light — which is the case in most, if not all, practical applications of the speed gun.

Do speed guns have shortcomings?

The technology to emit radio waves is ubiquitous today. The principle is simple: when an antenna is excited by an alternating current with a radio-wave frequency, it emits radio waves. Radio-wave frequency is in the range of 30 Hz to 300 billion Hz.

For a long time, the equipment to produce the waves was bulky. This changed when scientists invented transistors in the 1940s. Electronic circuits built using transistors considerably simplified the process of producing radio waves and also made the transmitters much smaller.

However, radio waves have intrinsic shortcomings that transmitters can't fully adjust for. For example, radio waves diverge as they move through the air. If an antenna is 5 cm long, the waves it emits will diverge by 22º to either side, producing a beam that is 44º wide overall.

Such a beam could strike more than one moving vehicle and produce inaccurate speed readings.

A continuous-wave radar — which emits radio waves and tracks their reflections continuously — may also produce readings due to multiple vehicles.

Engineers have developed systems to compensate for these errors but the resulting setups have been more sophisticated and more expensive.

For such reasons, LIDAR speed guns have been replacing radar counterparts. The name is short for 'light detection and ranging'. LIDAR uses laser light instead of radio waves; the gun's operation is otherwise similar. Laser light has very low divergence and thus offers better targeting.

LOOKING AT 2025, CLIMATE: BLEAK FORECAST, ADAPTATION WAY FORWARD

The year 2024 was when the world all but gave up on its effort to restrict global warming within 1.5 degree Celsius from the pre-industrial average, one of the key goals of the 2015 Paris Agreement on climate change. Ironically, 2024 is also set to emerge as the year when the annual average global temperature breached the 1.5 degree Celsius threshold for the first time.

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There is nothing sacrosanct about the 1.5 degree threshold. The devastating impacts of climate change have already begun to play out at much lower levels of warming. When the world had agreed on the 1.5 degree target in the Paris Agreement, as something worth pursuing in addition to the main 2 degree goal, it was under the impression there was sufficient time on hand. After all, the temperature rise had not hit the 1 degree mark at that time. However, the planet has warmed at a much faster rate after that, and the absence of any meaningful climate action during this time has meant that the 1.5 degree target is well beyond reach now.

The writing on the wall has been evident for quite some time. However, people are still being fed the narrative that a narrow window of opportunity exists to prevent the temperature rise in excess of 1.5 degree Celsius from becoming a norm. The numbers just do not stack up.

In its most recent report, the Intergovernmental Panel on Climate Change (IPCC) — the UN-affiliated body that advances scientific knowledge about climate change — said the world needed to cut its annual greenhouse gas emissions by at least 43 per cent from 2019 levels by 2030 to keep alive hopes of achieving the 1.5 degree goal. But current climate actions, which every country says is their best effort, are projected to deliver barely a 2 per cent reduction in the best-case scenario by that time. There is no way this large emission gap can be bridged in the short period remaining before the 2030 deadline.

In many ways, the COP29 climate meeting in Baku, Azerbaijan, this year was the last hope for the 1.5 degree goal. It was supposed to deliver an agreement to sharply increase the money flowing into climate actions. The assessed requirement was in the range of trillions of dollars per year. However, the developed countries, whose job it is to raise financial resources for climate action, said they could commit to no more than $300 billion a year and that too only from 2035.

Sub-optimal outcomes are not new to COP meetings but this one in Baku was particularly disappointing. Although a provision for larger sums of money would not have immediately filled up the huge emissions reduction gap, it would have done two other things. It would have demonstrated the collective capability to step up effort when faced with an emergency, and it would have provided the much-required cash for developing countries to implement adaptation projects that could save lives.

Record warming

Adaptation will be critical since developed countries have failed to deliver anything close to the required emissions cuts to keep rising temperatures in check.

The year 2024 has already been declared to be the warmest calendar year ever, overtaking the record set just last year. The Copernicus Climate Change Service run by the European Centre for Medium Range Weather Forecasting (ECMWF) said 2024 was expected to end with a global average temperature that would be at least 1.55 degree Celsius above pre-industrial levels. The 1.5 degree Celsius threshold mentioned in the Paris Agreement does not refer to a single-year breach, but rather a long-term trend, like an average over a decade. However, it seems the world has already entered a period with temperatures consistently higher than this threshold.

June 2023 was the first time when the monthly global average temperature crossed the 1.5 degree mark, and it has remained like that ever since, barring the month of July this year. In fact, ECMWF data show that the 12-month period between November 2023 and October 2024 was about 1.62 degree Celsius warmer.

The year 2023 was also the first time when each and every day exceeded 1 degree Celsius warming over corresponding periods in pre-industrial times. A total of 173 days in 2023 breached the 1.5 degree mark, while two days, in November, went above 2 degree Celsius for the first time ever. Similar figures for 2024 are still to be released.

This record-breaking spell of very high temperatures has resulted in unprecedented heatwaves and several other extreme events throughout the world, killing thousands of people. They also have led to significant impacts on human health, natural environments and infrastructure.

Tepid response

The response has been far from commensurate. And it is only likely to weaken further, with US President-elect Donald Trump widely expected to walk out of the Paris Agreement once again, just as he had done during his previous term. The fear is that this time a few other countries might follow suit. Argentina triggered this speculation at the COP29 meeting when it abruptly pulled out its negotiators mid-way through the conference. While it has ruled out any such plan for the time being, there is a growing frustration amongst the developing countries about the increasing ineffectiveness of the current climate regime governed by the Paris Agreement.

Developed countries have not fulfilled any of their commitments — on emission cuts, on finance, or on technology transfer — and there is nothing to be done about that.

This is one reason why a new case in the International Court of Justice (ICJ) has created so much excitement, particularly among the developing countries. The case, still being heard, seeks advisory opinion of the ICJ on the obligations of countries on climate change. The case is being seen as a possible new way to put pressure on developed nations to deliver on climate obligations.

A lot of blame for climate inaction would invariably be put on Trump, but the fact is that even without him, the US has not exactly been a flagbearer for enhanced climate action. In fact, it is one of the worst performers, considering that it has the highest share of historical emissions, about 25 per cent. Even its current targets — 50-52 per cent emissions reduction by 2030 on 2005 levels, and 61-66 per cent by 2035 — represent the bare minimum that is required from the world as a whole, not from the country with the largest responsibility for climate action.

The international climate regime also gives a free pass to China, the world's largest emitter of greenhouse gases for the last almost two decades. Latest data show that China now also has the second-largest share of historical emissions, just behind the US. It has overtaken the European Union and accounts for about 12 per cent of the emissions since 1850. But as a developing country, China is not mandated to reduce its emissions, which has grown almost four times between 1990 and now.

Drastic emission cuts, the kind that the IPCC says are necessary to meet the Paris Agreement temperature goals, are unlikely to happen in the 2030 or 2035 timelines. That may throw the 1.5 degree target out of the window but does not necessarily mean the end of the world.

New technologies

Accelerated elimination of fossil fuels — the key reason behind global warming — and a shift to cleaner and renewable sources of energy in the post-2035 period is not an unrealistic possibility.

Technology hurdles holding up swift energy transition do not seem as insurmountable as they did just a few years ago. Efficiency limits on renewable systems, technical and economic feasibility of

carbon capture or removal technologies, or challenges of battery storage systems all appear solvable within the deadline imposed by climate change, thanks to rapid advancements in disruptive technologies such as artificial intelligence and quantum systems.

Clean energy solutions happen to be one of the biggest focus areas for research in AI, quantum science and biotechnology.

Also, a country like China is likely to reduce its emissions quickly once it decides they have peaked, which can be anytime now. China has created a renewable energy capacity that is greater than the rest of the world put together, which can enable a quicker shift away from fossil fuels than any other country has so far managed. The scale of Chinese emissions reduction in the post-2030 timeframe would be most critical for achieving climate targets for 2050.

But the shift is unlikely to be painless. Climate impacts are not going to go away the moment emissions begin declining. They are expected to continue to worsen for a few decades before changing course. Developing countries, particularly the small island nations, would continue to get disproportionately impacted by extreme weather events. And there is little they can do on their own. Therefore, adaptation is extremely critical in the short term, particularly for developing countries. Unfortunately, most of these countries are also resource-starved, making them dependent on foreign help, both in terms of money as well as know-how, to fulfil their adaptation requirements.

That is why an initiative such as Early Warnings for All, being executed by the World Meteorological Organization, is an important step forward. More than half the countries of the world do not have effective early warning systems even for routine events such as rainfall or cyclones. With weather events becoming increasingly erratic and ferocious, ensuring the setting up of an early warning system in every country is the minimum the world can do to minimise the damage from climate change.

HOW THE 2004 INDIAN OCEAN QUAKE TRANSFORMED TSUNAMI SCIENCE

December 26, 2024, marks the 20th year since the 2004 Indian Ocean earthquake and tsunami. The tsunami generated by the quake of magnitude 9.1 was sourced off the Sumatran coast and was the third largest (by magnitude) in the world since 1900. The source was 30 km below the ocean floor, in the Sunda trench, where part of the Indo-Australian plate subducts beneath the Burma microplate, which is a part of the Eurasian plate.

The 2004 earthquake ripped through 1,300 km of the plate boundary, the fault tearing from Sumatra in the south to Coco Islands in the north. The quake was felt in Indonesia, Bangladesh, India, Malaysia, the Maldives, Myanmar, Singapore, Sri Lanka, and Thailand. It caused severe damage and killed hundreds in Northern Sumatra and in the Andaman and Nicobar Islands. The tsunami was most impactful on distant shores, affecting 17 countries lining the Indian Ocean. In all, with an astounding death toll of around 227,000 plus 1.7 million more displaced, the 2004 tsunami is the deadliest in recorded history.

Unprecedented magnitude

In less than six years, on March 11, 2011, a magnitude 9.1 earthquake hit the east coast of Japan, the largest ever recorded in that country. It generated a tsunami that reached as high as 39 metres and travelled up to 8 km inland. The twin disasters killed more than 18,000 people, displaced more than 500,000, and resulted in the Fukushima Daiichi nuclear power plant accident.

Although devastating tsunamis have occurred in the past — 1960 Chile and 1964 Alaska, for example — the two 21st century events taught us important lessons. Particularly, the 2004 tsunami highlighted how vulnerable the world was to natural hazards. It landed like a bolt from the sky, hitting the most unexpected locations, and placed a premium on the importance of tackling disaster risk through preparedness and resilience.

The 2004 tsunami surprised researchers and hazard managers alike with its transoceanic reach. With no recorded history of any event of such magnitude, the research community hadn't anticipated it occurring along India's eastern seaboard. The only previous tsunamis had occurred in 1881, caused by a large earthquake (magnitude ~8) off Car Nicobar island, and another in 1883 due to the explosion of Krakatoa. These events produced only small sea surges as recorded by tide gauges at different points on the east coast.

However, in the two decades since 2004, researchers have made tremendous leaps in the scientific understanding of tsunami generation and the technical aspects of earthquake monitoring. The Indian Tsunami Early Warning Centre (ITEWC), established in 2007 by the Union Ministry of the Earth Sciences of the Government of India, is perhaps the most significant step in this direction.

Operating from the Indian National Centre for Ocean Information Services (INCOIS) at Hyderabad, ITEWC operates seismological stations as well as bottom pressure recorders and tidal stations across the Indian Ocean basin — all 24/7. These systems can transmit offshore and deep ocean tsunami observations that enable early warnings. Earthquake data from the stations operated by the India Meteorological Department (IMD) and 350 global stations are also available at INCOIS.

Ocean monitoring systems also pass data in real-time. In about 10 minutes, for example, the system can identify a potential tsunami-producing earthquake and issue tsunami alerts or warnings — depending on the expected severity — for countries bordering the Indian Ocean. India is the fifth country in the world, after the U.S., Japan, Chile, and Australia, to have an advanced tsunami warning system of this kind.

SQUIRRELS AND VOLES

A new study provides the first evidence that California ground squirrels also hunt, kill and eat voles. Researchers have for the first time chronicled widespread carnivorous behaviour among squirrels. The study changes our understanding of ground squirrels. It suggests that what was considered a granivorous species is an opportunistic omnivore and more flexible in its diet. Through videos, photos and direct observations at the regional park, the researchers documented California ground squirrels of all ages and genders hunting, eating and competing over vole prey between June 10 and July 30 this year. The squirrels' carnivorous summer behaviour peaked during the first two weeks of July, coinciding with an explosion of vole numbers at the park reported by citizen scientists on iNaturalist. This suggests the squirrels' hunting behaviour emerged alongside a temporary increase in the availability of prey, the study said. The scientists did not observe the squirrels hunting other mammals.

SCIENTISTS FIND BACTERIA LIVING ON FISH BRAINS

For decades, scientists have believed the human brain is a sterile fortress, protected from microbial invaders by the robust blood-brain barrier. But a new study, published in Science Advances, challenges this assumption by showing bacteria can't just make their way to the brain, they can thrive there.

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Researchers from the University of New Mexico, led by biologist Irene Salinas, made this startling revelation when studying salmon and trout. Using DNA extraction and microscopic imaging, they identified living bacteria in the fishes' olfactory bulbs and other brain regions. The results showed the olfactory bulb, which is directly connected to the nasal cavity, harboured bacteria as did deeper-lying brain tissue.

"Our findings demonstrate that microorganisms … redefine the boundaries between microbiota and the healthy vertebrate brain," the researchers wrote in their paper.

The presence of bacteria in fish brains raised several questions. The foremost was about how they managed to cross the blood-brain barrier. Salinas & co. discovered that many of these microbes possessed unique adaptations that helped them breach the barrier. Some produced molecules called polyamines that can open tight junctions in the barrier fluid; others were able to evade immune responses or outcompete their rivals, ensuring their survival in the brain's delicate environs.

The group also explored the origins of these brain-dwelling microbes. Some bacteria seemed to have colonised the brain much before the blood-brain barrier had evolved to its present form. Others likely travelled up from the gut or the bloodstream, continuously infiltrating the brain throughout the fishes' lives. The researchers said the presence of more than one pathway suggests the brain's microbial community is dynamic, shaped by both early colonisation and ongoing interaction with other bodily systems.

A particularly striking finding was the image of a bacterium caught mid-transit across the barrier, offering direct visual evidence. Some researchers have hypothesised that these microbes might be engulfed by immune cells while others have suggested they could play active roles in physiological processes — just like the human gut microbiome does in regulating digestion, immunity, and mood.

"Microorganisms shape the vertebrate brain via complex biological processes, the best characterised being the gut-brain axis," to quote from the paper. "This bidirectional communication involves molecular mediators released by microorganisms but not direct microbial colonisation of the brain. Our findings uncover remarkable associations between the salmonid brain and bacteria during healthy physiological states. Whether this is a hallmark of other teleosts or a universal symbiotic relationship found in all vertebrates remains to be investigated." Teleosts refers to a group of more than 26,000 fish species, making up the vast majority of all known fish.

Fish are very different from humans yet the study also opens the door to rethinking the brain's microbiome in vertebrates, including humans. If bacteria can thrive on fish brains, it's possible they may do so on human brains as well.

A GLOBAL POLIO RESURGENCE AND THE NEED TO REEVALUATE THE BASICS

The gains of science can easily be frittered away, much faster than they were earned. Eternal vigilance is the price we pay to inhabit a planet like earth, with the range of biodiversity it has. Any letup, and it's quite likely that years of achievement might be undone. We are seeing a glimpse of this in a resurgence of polio worldwide, with environmental samples and human cases throwing up both wild polio virus as well as vaccine-derived polio virus.

The World Health Organization (WHO) has reported that poliovirus had been detected through routine surveillance of wastewater systems in five countries in the WHO European Region (Finland, Germany, Poland, Spain, and the United Kingdom) since September this year. "While no cases have been detected to date, the presence of the virus underscores the importance of vaccination and surveillance, as well as the ongoing risk that any form of poliovirus poses to all countries everywhere," the WHO says.

In Pakistan, four WPV1 cases and eight WPV1-positive environmental samples were lifted. In Cameroon and Cote D'Ivoire, one case each of cVDPV2 was detected, while in Chad and Nigeria, four and three cases of cVDPV2 were detected recently, according to the WHO. Additionally, positive environmental samples were found in Finland, Germany, and the United Kingdom.

In the past 3 months, circulating vaccine-derived poliovirus type 2 (VDPV2) was detected in sewage samples in Barcelona, Spain; Warsaw, Poland; Cologne, Bonn, Dresden, Duesseldorf, Mainz, Hamburg, and Munich in Germany; Tampere in Finland; and Leeds, London, and Worthing in the UK, according to the WHO. The detected virus was genetically linked to a strain that emerged in Nigeria. In none of the five countries was there confirmed local circulation of the virus at this time, the health body said.

All five countries where the virus was detected maintained strong disease surveillance and high levels of routine immunisation coverage, estimated at 85–95% nationally with 3 doses of inactivated polio vaccine (IPV), which provides excellent protection from paralysis caused by poliovirus. Earlier, polio was also picked up in Gaza on July 16, 2024. It was confirmed in a 10-month-old child who became paralysed in August 2024.

However, pockets of under vaccination exist in every country. In response to the detections, investigations are ongoing, including through continued disease surveillance. Subnational immunity levels have been examined to identify any potential gaps and immunisation of unvaccinated children, the WHO says.

In the context of the surge, the debate about what vaccine to use has once again come to be of interest. Even back in the early 20th century, initial theories about poliovirus transmission pointed to respiratory transmission based on the epidemiological features of polio before later studies shifted the focus to the faecal-oral route, primarily due to research on virus shedding in the gut. The polio Sabin vaccine, also known as the oral polio vaccine (OPV), is a live-attenuated vaccine that was developed by physician and microbiologist Albert Sabin. It was adopted by the WHO because of the efficacy in administering the vaccine and given the mammoth task in front of the world at that time. The flip side, however, was that oral polio vaccine allowed vaccine-derived polioviruses to infect children.

SLEEP APNEA GETS ITS FIRST DRUG: FDA APPROVES WEIGHT LOSS DRUG FOR USE

The United States Food and Drug Administration (FDA) has approved the weight-loss drug Tirzepatide — sold by the brand name Zepbound — for the treatment of Obstructive Sleep Apnoea (OSA), a condition in which the throat muscles sag and block air passages, resulting in difficulty breathing during sleep.

The drug has been approved for use in combination with a low-calorie diet and increased physical activity in those with moderate to severe OSA. This shows that the weight-loss drug has

multifarious uses other than controlling type-2 diabetes and obesity. Fat accumulation around the neck region is the reason for the laxity of throat muscle.

What is OSA?

OSA is a condition where the muscles in the throat relax when a person is sleeping, resulting in a choking sensation and the person waking up. Those with the condition usually do not feel rested even after a complete night's sleep and are likely to feel sleepy during the day. Obesity is one of the major risk factors for OSA. "More than 50 per cent of people with OSA are obese and another 25 per cent are overweight. The fat around the abdomen actually puts pressure on the lungs, making them smaller. Those with smaller lungs are likely to have a floppy tongue that can block their airway at night. Fat around the neck as well as fat deposition on the back part of the tongue can block the airway during sleep, causing OSA,"

How does the drug help?

Significant weight loss, which can be achieved using drugs such as Tirzepatide, relieves the pressure around the neck. "Excess body fat contributes to several diseases, including OSA. This is just a new indication where the medicine helps by reducing weight in obese individuals. This is largely meant for insurers — so that the treatment and its cost can be justified. Right now, we are seeing the impact of the drug in more and more diseases, mainly because of its weight loss properties. Although, some other mechanism of action is also being studied,".

What did the trial for OSA show?

Zepbound was approved for OSA based on two studies — one with participants using machines for positive airway pressure and one with those who were unwilling to use it. In both studies, the participants were given 10 or 15 milligrams of Zepbound or placebo. After 52 weeks, there was a significant reduction in the apnoea hypopnea index for patients on Zepbound as compared to the placebo.

How is OSA treated now?

Patients use a positive airway pressure machine while they sleep. It blows pressurised room air into the respiratory tract that keeps the airway open through the night. Patients may also be prescribed medicines to improve their sleep at night. But so far, there has been no drug for the treatment of OSA.

Can OSA happen in non-obese people as well?

Yes. And, drugs such as Zepbound are unlikely to help in these cases. "Although, it is more frequently diagnosed in obese and overweight people, OSA can happen even in leaner people. In them, OSA results mainly from bony abnormalities such as smaller jaws resulting in smaller air passage,".